



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

WALTER E. WHITCOMB
COMMISSIONER

BOARD OF PESTICIDES CONTROL

April 6, 2018

Room 118 Marquardt Building
32 Blossom Lane
Augusta, Maine

AGENDA

9:00 AM

1. Introductions of Board and Staff
2. Minutes of the February 23, 2018, Board Meeting

Presentation By: Ann Gibbs, Director, Animal and Plant Health
Action Needed: Amend and/or Approve
3. Continuing Discussion Around Unmanned Aerial Systems (UAS)

At the February 23, 2018 meeting the Board had a brief discussion about UASs and directed the staff to research the topic and provide more information. Enclosed are several documents for the Board to study. The Board will now discuss what steps it wishes to take next in regards to regulating UAS for pesticide applications.

Presentation by: Anne Chamberlain, Policy and Regulations Specialist

Action Needed: Determine Next Steps to be Taken

4. Consideration of Consent Agreement with Black Kettle Farm of Lyman, Maine

The Board's Enforcement Protocol authorizes staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involves the application of a

pesticide at a rate exceeding the maximum labeled application rate; lack of personal protective equipment; and failure to maintain OSHA safety data sheets at a central information display.

Presentation By: Raymond Connors, Manager of Compliance

Action Needed: Approve/Disapprove the Consent Agreement Negotiated by Staff

5. Consideration of Consent Agreement with Penquis, Bangor, Maine

The Board's Enforcement Protocol authorizes staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involves the application of an herbicide to a school playground by an unlicensed person and without authorization by the school's IPM Coordinator.

Presentation By: Raymond Connors, Manager of Compliance

Action Needed: Approve/Disapprove the Consent Agreement Negotiated by Staff

6. Consideration of Consent Agreement with Riverview Psychiatric Center, Augusta, Maine

The Board's Enforcement Protocol authorizes staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involves the application of an herbicide by an unlicensed person on the grounds of the Center.

Presentation By: Raymond Connors, Manager of Compliance

Action Needed: Approve/Disapprove the Consent Agreement Negotiated by Staff

7. Consideration of Consent Agreement with White's Weed Control of Palmyra, Maine

The Board's Enforcement Protocol authorizes staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involves a broadcast application of an herbicide within 25 feet of water without a variance.

Presentation By: Raymond Connors, Manager of Compliance

Action Needed: Approve/Disapprove the Consent Agreement Negotiated by Staff

8. Other Old or New Business

- a. Legislative Update – LD 1853

9. Schedule of Future Meetings

May 18, 2018 and July 13, 2018 are proposed Board meeting dates in Augusta. August 24, 2018 has been proposed for a tour of Green Thumb Farm in Fryeburg and Weston's Christmas Tree Farm in Fryeburg followed by a Board meeting locally. The Board will decide whether to change and/or add dates.

Adjustments and/or Additional Dates?

10. Adjourn

NOTES

- The Board Meeting Agenda and most supporting documents are posted one week before the meeting on the Board website at www.thinkfirstspraylast.org.
- Any person wishing to receive notices and agendas for meetings of the Board, Medical Advisory Committee, or Environmental Risk Advisory Committee must submit a request in writing to the Board's office. Any person with technical expertise who would like to volunteer for service on either committee is invited to submit their resume for future consideration.
- On November 16, 2007, the Board adopted the following policy for submission and distribution of comments and information when conducting routine business (product registration, variances, enforcement actions, etc.):
 - *For regular, non-rulemaking business*, the Board will accept pesticide-related letters, reports, and articles. Reports and articles must be from peer-reviewed journals. E-mail, hard copy, or fax should be sent to the Board's office or pesticides@maine.gov. In order for the Board to receive this information in time for distribution and consideration at its next meeting, all communications must be received by 8:00 AM, three days prior to the Board meeting date (e.g., if the meeting is on a Friday, the deadline would be Tuesday at 8:00 AM). Any information received after the deadline will be held over for the next meeting.
- During rulemaking, when proposing new or amending old regulations, the Board is subject to the requirements of the APA (Administrative Procedures Act), and comments must be taken according to the rules established by the Legislature.



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BOARD OF PESTICIDES CONTROL

February 23, 2018

Marquardt
Augusta, Maine

MINUTES
9:00 AM

Present: Adams, Bohlen, Flewelling, Granger, Jemison, Morrill, Waterman

1. Introductions of Board and Staff

- The Board, Staff, and Assistant Attorney General Mark Randlett introduced themselves.
- Staff Present: Bryer, Connors, Couture, Lay, Patterson
- Lay introduced new staff Toxicologist Pamela Bryer, and new Board member Dr. Jack Waterman.

2. Minutes of the January 10, 2018, Board Meeting

Presentation By: Cam Lay
Director

Action Needed: Amend and/or Approve

- **Granger/Flewelling: Moved and seconded approval of minutes**
- **In Favor: Unanimous**

3. Overview of Board Member Responsibilities

It is beneficial to periodically review the legal framework under which the Board operates, particularly with respect to communications between Board members outside of the public Board meetings.

Presentation by: Mark Randlett, Assistant Attorney General.

Action Needed: Information only.

CAM LAY, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING



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- Randlett stated that he used to give an annual talk to the Board and this was an appropriate time to revisit it so that Board members fully understand their legal responsibilities and how to operate in the public context. Randlett told Board members they had each been chosen based on their background and experience to bring differing views to the Board. He added that it is important to understand they are ultimately here to represent the public, and although personal views can be brought out in discussion, their duty is to the public.
- Randlett said the Board sometimes must make difficult decisions and there is often controversy involved. He added that their decisions should be guided by their responsibility to the members of public who use and are affected by the use of pesticides. It is inappropriate for the Board to make a decision without considering all of the information fully and fairly. Randlett explained that each decision must be made by a process that is public and open so members of the public can participate, listen to, and understand the Board's process and the reasoning behind their decisions.
- Randlett discussed the Board's legal responsibilities. He explained that the Freedom of Information Act applies to all state boards, and stipulates that all Board meetings and decisions be done in public and all records must be made available to the public. This includes: draft rules, minutes, applications, recordings, etc. Randlett pointed out that there are executive sessions, in which Board members can speak privately amongst themselves, but even under those circumstances the final decisions need to be made in public. He reiterated that there is a strict requirement which prohibits secret or clandestine meetings where decisions are made or deals are struck that do not involve the public. Randlett stated this is extremely important and there are consequences to the department and the Board if they do not comply.
- Randlett explained that any person who disagrees with a decision of the Board can file an appeal with the court. If a decision is challenged and they find the Board took an action that was not legal, it can nullify that Board decision. If the illegal action was found by a court to have been done in bad faith, intentionally, or knowingly to skirt public meeting laws, the court can order the Board to pay attorney fees and other incurred costs for the individual who filed the appeal. He added that there are also provisions in the law for the court to impose a fine. This does not include the impact it would have on the public trust, or the Board's reputation and credibility.
- Randlett told Board members that they will be approached outside Board meetings by the public to discuss pesticides and it is fine to have discussions about issues that concern them. He added that members do need to be careful and avoid discussing specific matters that are pending before the Board. Randlett suggested that Board members advise individuals to attend the Board meeting so their concerns can be heard by all members of the Board and become part of the record. He added that there is no legal consequence for speaking with the public about a pending Board matter, but it is a disservice.
- Randlett lastly covered conflicts of interest, including issues that members have personal interests in. He explained that it is acceptable to bring personal views and experiences to the decision process but there are times when members should recuse themselves from voting. Randlett said that anytime a Board member has a direct or indirect financial interest in a decision then they should recuse themselves from participating in that process. An indirect example would be if a family member had an interest in a company. Randlett also gave the example of Jemison recusing himself from all decisions that involve financial support to the university. He added that even an appearance of a conflict of interest, though not technically or legally inappropriate, can still affect the public's view of the Board's decision-making process. Randlett concluded by informing board members they could contact him if they think they may have a conflict of interest.

4. Other Old or New Business

a. CMP 2018 Foliar Herbicide Plan

b. Planning for Future Rulemaking related to emerging topics including new Federal Certification and Training Requirements, associated State Plan changes, and Unmanned Aerial Systems (UAS)

- Morrill stated the Board has discussed UAS in the past and had an FAA employee attend a previous Board meeting to explain the federal regulations. He added that if they are going to enter into rulemaking, it would be better to do a few at a time.
- Lay told the Board that he has been researching UAS, and there are some states that are beginning to move forward with a category for them, including North Carolina and Washington. He added that he would like to do further research on what some of the other states are doing. He has received a couple inquiries from individuals who want to start businesses using UAS to make pesticide applications, especially for brown tail moth applications.
- Bohlen stated that there have been a number of conversations in the past about the drones, and asked if there is enough interest that the Board needs to put some rules in place for this summer. Bohlen added that the Board decided to use the current aerial exam for the time being. If any policies need to be changed they need to be done next time the Board meets.
- Granger asked if drone pilots could legally make pesticide applications under the current rules if they passed the aerial exam. Randlett responded that there is nothing in rule that prohibits it.
- Morrill asked if this topic could be brought back at the next Board meeting as an agenda item, and that the Board would like to look at Chapter 51. He told staff he would like a flow chart about the rule that shows if you want to apply to a specific site what are the rules that govern that.
- Patterson reminded the Board they had previously discussed creating standards that would encompass both aerial and ground drones. There was further discussion about creating one standard encompassing both ground and air drones, and how to create rules around this emerging technology.
- Dave Struble, Maine Forest Service, said the Board needs to get this on the fast track because browntail moth is moving into new areas and people will be looking for solutions, legal or otherwise.
- Morrill agreed that the Board needs to have a discussion and get this in place. Bohlen stated there is not time to do rulemaking and have it be in place for this browntail moth season.
- Morrill added that informational fact finding still needs to be done, including what there is in the current rule, what other states are including in their rule, and exactly how the applications are conducted.
- Patterson explained to the Board that EPA is requiring all states to redraft their state plan. Patterson has begun work on this and once it is completed it will go to the Board, then to the governor, and finally to EPA. What is included in that state plan will determine rulemaking that will need to be done around it.
- Patterson explained to the Board that nationwide a mandatory minimum age of 18 for all applicators will be implemented, and there will also be an identification requirement for taking examinations. There are also new requirements for categories, such as structural and agricultural fumigation categories for private applicators. Patterson added that a training requirement for all unlicensed applicators must also be instituted. In agriculture, training under the Worker

Protection Standard is already mandatory, but this is the first training requirement for unlicensed commercial applicators.

- Patterson told the Board that these changes will require rulemaking in multiple chapters, including chapters 10, 31, and 32, among others.
- Morrill asked what the Board can do to help. Patterson responded that fortunately the original state plan was very specific so these changes can be incorporated into it.
- Morrill asked Randlett what the process would be for the Board when the State Plan comes before them. Randlett answered that the only formal process would occur if it had to become part of rule.
- Morrill asked about a time frame for when the Board will receive a draft of the revised plan. Patterson responded that the state has two years to submit the new plan to EPA. Morrill suggested an October deadline and Patterson agreed.
- Bohlen added that there's not that much time left here and requested staff do the back calculation of the rulemaking steps to see exactly how long the process will take.
- Morrill stated he would like to keep the rulemaking to Chapters 27 and 36 for now.
 - **Morrill/Flewelling: Moved and seconded to move forward with rulemaking for Chapter 27 and Chapter 36**
 - **In Favor: Unanimous**

c. Recent staff activities memo.

- Lay informed the Board of the inspector vacancy in Aroostook county and stated he is in the process of obtaining permission to fill it.
- Jemison asked about the *Bt* corn requirement which states growers must attend one training every three years. Jemison wants to ensure this is being done and tracked, or if not, discuss the relative merits of it. Patterson responded that staff have been handling it by approving Jemison's training at the Agricultural Trade Show, and a few others through the summer as suitable for fulfilling the *Bt* training requirement. Betts keeps track of all individuals with a *Bt* corn certificate and she verifies whether or not they need that training and informs them when they must do it by.
- Flewelling stated he passed his *Bt* corn certification test and asked how often he needs to attend training. Jemison explained that once every three years he will need to attend Jemison's *Bt* training or another training approved for the *Bt* credit. He added that seed sellers are also supposed to request to see that certificate.
- Morrill asked if it was in rule and how it was being tracked. Patterson answered that it is, and that we have a database with the information in it.
- Jemison stated he would like to discuss the 'refuge in the bag' component in Chapter 41 when the Board gets to that point. If an organic grower was concerned about the pollen from *Bt* varieties then the grower could ask the *Bt* corn grower to plant the refuge in between field. However, with the refuge in a bag there is no longer that structural refuge barrier.
- Adams stated that it would be difficult for the Board to make an informed decision without first getting feedback from more of the people this effects. He added that he asked a few individuals and has not heard that it has been an issue.
- Jemison asked Heather Spaulding, MOFGA, to ask some of the organic farmers. She stated she would follow up with some individuals and get back to the Board.

5. Schedule of Future Meetings

April 6, 2018, May 18, 2018 and July 13, 2018 are the next proposed Board meeting dates (at the Marquardt Building) are the next proposed Board meeting dates. The Board will decide whether to change and/or add dates.

Adjustments and/or Additional Dates?

- Morrill stated he would like to do a travel meeting in August, possibly to Green Thumb Farms in Fryeburg. Bohlen suggested going to a site where the Board could learn about forest pest management. Morrill responded the Green Thumb Farms also abuts Weston's, which grows christmas trees. Jemison suggested August 24th as a tentative date and the Board agreed.

8. Adjourn

- **Bohlen/Granger: Moved and seconded to adjourn at 10:16am**
- **In Favor: Unanimous**

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**DRONE USE IN AERIAL PESTICIDE APPLICATION FACES
OUTDATED REGULATORY HURDLES**

*By Ryan V. Petty, PhD.**

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* J.D. Candidate, Harvard Law School, 2019 (expected); Ph.D., Biochemistry, University of Wisconsin-Madison, 2014. Much of this research was performed while I was law clerk at the United States Environmental Protection Agency in Summer 2017. This note contains no confidential information, and any opinions contained within are exclusively my own. I wish to thank Helene Ambrosino for her incredible mentorship. I also wish to thank Evelyn Chang and Filippo Raso for their excellent editing and comments.

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I. INTRODUCTION

The use of unmanned aerial systems¹ (“UASs” or “drones”) in commercial activity has become exponentially popular in recent years.² One relatively new use for UASs is in pest control—eliminating both agricultural pests and disease vectors—through aerial pesticide application. Compared to a traditional fixed wing aircraft, a UAS can fly lower, is significantly smaller, and can hover in place for extended periods of time, all of which enhance the precision, speed,

1. Note that the “system” includes not only the actual unmanned aircraft itself, but also the remote-control unit and any other associated hardware and software which ultimately operate the aircraft. Note also that UAS encompasses all unmanned aerial systems whereas sUAS applies only to a UAS under 55 lbs. of total weight.

2. See, e.g., *E-commerce Giant Amazon Seeks FAA Nod For Testing Drones*, SEATTLE BULLETIN (July 12, 2014), <http://www.seattlebulletin.com/news/223727243/e-commerce-giant-amazon-seeks-faa-nod-for-testing-drones>.

and safety of pesticide application.³ In fact, estimates suggest that pesticide application by a UAS could be up to five times faster than traditional fixed-wing aircraft.⁴ Some aircraft have already been developed to apply pesticides via UAS and are currently undergoing testing in the United States.⁵ However, the regulatory landscape facing these novel uses for UASs serves as a significant barrier to entry.

In, 2016, the Federal Aviation Administration (“FAA”) promulgated extensive rules regulating the use of small UASs (“sUASs”), UASs under 55 lbs.⁶ These regulations, codified at 14 C.F.R. § 107 (“Section 107” or “Part 107”), streamline the process for certifying sUASs for flight and only regulate commercial sUAS use.⁷ One benefit is that a sUAS pilot, unlike traditional aircraft or UASs over 55 lbs., need only receive a “remote pilot” certification, which has substantially fewer requirements than a traditional pilot certification.⁸ The Section 107 rules include limitations, among others, on operational hours⁹ and require registration for sUASs.¹⁰ Some, but not all, of these limitations may be waived by the FAA Administrator.¹¹ Despite the advent of novel uses of UASs, the regulations surrounding aerial pesticide application have not yet been updated to accommodate the specific benefits and limitations of UAS use. As a result, a patchwork of

3. For a thorough overview of the various benefits to UAS use in agriculture, see Andy Lin, *Agricultural Sector Poised To Soar With Drone Integration, But Federal Regulation May Ground The Industry Before It Can Take Off*, 48 TEX. TECH. L. REV. 975, 978–80 (2016); see also Kelsey Atherton, *This Drone Sprays Pesticides Around Crops*, POPULAR SCI. (June 23, 2016), <https://www.popsoci.com/agri-drone-is-precision-pesticide-machine>; 5 *Ways Drones Could Change the Way America Eats*, PBS NEWSHOUR, <http://www.pbs.org/newshour/rundown/5-ways-unmanned-drones-change-american-food-supply/> (last accessed September 24, 2017).

4. See Michael Mazur, *Six Ways Drones Are Revolutionizing Agriculture*, MIT TECH. REV. (July 20, 2016), <https://www.technologyreview.com/s/601935/six-ways-drones-are-revolutionizing-agriculture/>.

5. See Evan Ackerman, *Yamaha Demos Agricultural RoboCopter, But Humans Can't Unleash It Yet*, IEEE SPECTRUM (Oct. 16, 2014), <http://spectrum.ieee.org/automaton/robotics/drones/yamaha-demos-agricultural-robotocopter>. Note that this particular craft has been in-use since 1991 in Japan and has recently been approved for limited use in the U.S.

6. 14 C.F.R. § 107 (2016).

7. The FAA provides several examples to differentiate between commercial and personal use. Personal use is for “educational or recreational flying only” and commercial/business use includes “providing aerial surveying or photography services” and “doing roof inspections or real estate photography.” *Unmanned Aircraft Systems – Getting Started*, FED. AVIATION ADMIN., https://www.faa.gov/uas/getting_started/ (last accessed June 28, 2017).

8. See 14 C.F.R. §§ 107.53–107.79; see also *Unmanned Aircraft Systems – Becoming a Pilot*, FED. AVIATION ADMIN., https://www.faa.gov/uas/getting_started/fly_for_work_business/becoming_a_pilot/ (last accessed Nov. 27, 2017).

9. 14 C.F.R. § 107.29 (2016).

10. 14 C.F.R. § 107.13 (2016). UASs in excess of 55 lbs. do not qualify for the § 107 rules and must obtain a Section 333 exemption in order to fly in the national airspace system. See Part III.A. *infra*.

11. See Part III.B. *infra*; see also Part II.B. *infra*.

exemptions,¹² waivers,¹³ and label modifications¹⁴ is currently required for a commercial entity to aerially apply pesticides via UAS. The focus of this Note examining UASs in aerial pesticide application is to provide an overview of the regulatory hurdles, to review the two currently approved UASs, and to make recommendations to streamline the permitting process.

II. CURRENT REGULATIONS FAIL TO REFLECT TECHNOLOGICAL ADVANCEMENTS IN AERIAL PESTICIDE APPLICATION, CREATE BARRIERS TO ENTRY, AND REDUCE COMPETITIVENESS

A. FAA pesticide regulations do not reflect the unique nature of UASs

Many of the FAA regulations on aerial pesticide application have not been updated in almost half a century and fail to accommodate advancements in technology, including UASs. For example, one FAA regulation—which makes it illegal to dispense pesticides from an aircraft contrary to safety instructions—still makes reference to pesticides being registered with the U.S. Department of Agriculture,¹⁵ a role which was transferred to the Environmental Protection Agency (“EPA”) in 1972.¹⁶ Furthermore, while the definition of “aircraft” within 14 C.F.R. § 1.1¹⁷ encompasses UASs,¹⁸ the use of “aircraft” in 14 C.F.R. § 137 clearly does not. Namely, 14 C.F.R. § 137.31 states that “[n]o person may operate an aircraft unless that aircraft—(a) Meets the requirements of § 137.19(d)¹⁹; and (b) Is equipped with a suitable and properly installed shoulder harness for use by each pilot.” The regulation clearly presupposes that an individual pilot could be physically secured to the aircraft itself, which is inapposite for a UAS. These incongruities may lead to confusion by potential UAS pilots who must determine which rules do and do not apply to their activities.

12. See Part III.A. *infra*.

13. See Part III.B. *infra*.

14. See *Labelling Requirements*, ENVTL. PROT. AGENCY, <https://www.epa.gov/pesticide-registration/labeling-requirements> (last accessed September 24, 2017); see also 7 U.S.C. § 136(p).

15. 14 C.F.R. § 137.39(a).

16. See Amendments to the Federal Insecticide Fungicide and Rodenticide Act, Pub. L. No. 92-516, 86 Stat. 973 (1972).

17. 14 C.F.R. § 1.1 (1962) contains the definitions section for the entire Title 14 of the Code of Federal Regulations, unless explicitly superseded within a subchapter.

18. “Aircraft means a device that is used or intended to be used for flight in the air.” 14 C.F.R. § 1.1 (1962).

19. The cross-reference to § 137.19(d) states that the aircraft must be “certificated” and “equipped for agricultural operation.” Whether the registration system in place for commercial UASs, and specifically sUASs, actually satisfies this requirement is another open question.

A private agricultural aircraft operator also needs to show a satisfactory knowledge of “maneuvers,” under § 137.19(e)(2), including “flare-outs” and “pullups and turnarounds” which are less relevant to the manner in which a UAS is operated.²⁰ The section additionally requires that an operator must “hold a current U.S. private, commercial, or airline transport pilot certificate.” This requirement as applied to sUASs in particular is unnecessary as sUASs pose nowhere near the mechanical complexity of helicopters and fixed wing aircraft.²¹ Many UASs, in fact, may effectively be controlled autonomously, with pre-programmed mapping software in concert with GPS and additional positional sensors.²²

B. Inability to waive hazardous material transport restriction further inhibits use of sUASs in aerial pesticide application

While some restrictions on sUASs may be waived, not all—including those critical to pesticide application—can be. For example, sUASs are forbidden from carrying “hazardous materials,” which includes certain pesticide active ingredients such as allethrin, carbamate, and organophosphorous.²³ With such prohibitions, one notable loss is the application of naled, an organophosphate. Naled is one of the most common aerially applied pesticides, used primarily for the control of mosquito populations.²⁴ Naled’s use has been on the rise as a response to recent Zika virus outbreaks in the southern United States.²⁵ As an organophosphate, naled-based pesticides would be banned from transport by a sUAS unless a specific, time-consuming exemption were granted.²⁶ An ability to waive the ban on sUAS hazardous material transport would permit the use of chemicals like naled

20. See Yamaha Motor Corporation, Docket No. FAA-2014-0397, Exemption No. 11448 (FAA Dec. 21 2015), at 17 (noting that “the skills described in these paragraphs . . . are not compatible or applicable to the operation of [a UAS] . . .”).

21. Elizabeth Maartens, *Drone vs. Helicopter, What is the Difference?*, <https://www.ezvid.com/drone-vs-helicopter-what-is-the-difference> (last accessed September 24, 2017) (comparing the fixed pitch of quadcopters with the adjustable pitch of helicopters).

22. See, e.g., *How GPS Drone Navigation Works*, DRONEOMEGA.COM, <http://www.droneomega.com/gps-drone-navigation-works/> (last accessed September 24, 2017).

23. There are 76 chemicals on the hazardous materials table at 49 C.F.R. § 172.191 listed as pesticides, though many of these represent different forms and states of the same chemical. A catch-all for other relevant pesticides posing an inhalation hazard is also present on the table under “Pesticide, liquid, toxic, not otherwise specified.”

24. See *Naled For Mosquito Control*, ENVTL. PROT. AGENCY, <https://www.epa.gov/mosquitocontrol/naled-mosquito-control>##1 (last accessed June 30, 2017).

25. See, e.g., Julie Steenhuysen, *Florida To Begin Aerial Spraying Of Pesticides To Control Zika*, REUTERS (Aug. 2, 2016), <http://www.reuters.com/article/us-health-zika-insecticide-idUSKCN10E06Q>.

26. See Part III.B. *infra*.

in the fight against Zika and other mosquito-borne diseases in addition to traditional agricultural pest control.

C. EPA pesticide regulations require modification in light of new sUAS uses

Among the requirements of a pesticide label are those which dictate the directions of use.²⁷ In the case of pesticides which may be applied aerially, this includes whether a pesticide may only be applied by a helicopter/rotocopter, fixed-wing aircraft, or both. Often this limitation is to minimize the risk of pesticides drifting to non-target areas, potentially poisoning non-resistant neighboring crops or agricultural workers. Drift can be caused by pesticides being released at improper altitudes, at inappropriate ambient temperatures, or with incorrect droplet sizes.²⁸ EPA mandates specific applicator boom length and nozzle size to mitigate drift of certain pesticides.²⁹ The fact that a sUAS can operate significantly closer to crops without causing damage, due in part to the lower thrust exerted by a sUAS relative to larger manned aircraft, reduces the concern for drift, and renders the safety concerns of current pesticide label restrictions less relevant.³⁰ These benefits may also result in sUASs supplanting uses that have traditionally required hand-application for certain pesticides, reaping farmworker safety benefits currently addressed by the Worker Protection Standards.³¹

D. International adoption of UASs leaves the United States less competitive.

Other countries, including Japan and China, have been at the forefront for the use of UASs in pesticide application, leaving the United States lagging behind. For example, the Yamaha RMAX, discussed below under *Section 333 Exemptions*, has been in operation in Japan for over 20 years, while it has only recently been approved for limited use in the United States.³² In 2015, China issued its first major regulations surrounding UAS use and in these regulations created a dedicat-

27. See Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) § 2(q)(1)(F); 40 C.F.R. § 156.10(a)(1)(viii).

28. See, e.g., Vista® Ultra (Fluroxypyr 1-methylheptyl ester), EPA Registration No. 62719-586 (“fixed wing aircraft require additional drift mitigation measures”) and Garlon® XRT (Triclopyr, methyl ester), EPA Registration No. 62719-553 (limiting aerial application to helicopters only).

29. See, e.g., Vista® Ultra (restricting boom length to 90% of the total diameter of the rotor and nozzle direction to no more than 45° downward).

30. See Lin, *supra* note 3, at 980.

31. See generally 40 C.F.R. § 170.

32. See Ackerman, *supra*, note 5.

ed category for “Plant Protection UAS.”³³ This category includes UASs up to 5,700 kg but limits flight to 15 meters above the surface.³⁴ UASs in this category must, however, have an “electric fence” installed that reports every second that the UAS is within a key area, which includes “military sites, nuclear plants, [and] administrative centers.”³⁵ Many UASs are already in operation for aerial pesticide application in China and new models are currently being developed for the market.³⁶ Importantly, the lack of integration of UASs into domestic industry, including in the agriculture sector, is estimated to cost at least \$10 billion annually in unrealized productivity and full integration has projected benefits of up to \$86 billion by 2025.³⁷ Rapid adoption internationally of UASs, along with the cost and production efficiencies that accompany their use, ultimately puts the United States at a competitive disadvantage.

E. FAA is receptive to modifying regulations to accommodate UAS innovations

On October 25th, 2017, the United States Department of Transportation (“USDOT”) announced it was launching a new initiative called the “Innovative Drone Integration Program.”³⁸ This program’s purpose is to:

help the USDOT and FAA develop a regulatory framework that will allow more complex low-altitude operations; identify ways to balance local and national interests; improve communications with local, state and tribal jurisdictions; address security and privacy risks; and *accelerate the approval of op-*

33. See *Regulation of Drones: People’s Republic of China*, LIBR. CONG., <https://www.loc.gov/law/help/regulation-of-drones/china.php> (last updated July 22, 2016).

34. *Id.*

35. *Id.*

36. See Julien Girault, *China Drone King Turns To Farming*, PHYS.ORG (June 25, 2017), <https://phys.org/news/2017-06-china-drone-king-farming.html>. See also Newley Purnell, *Chinese Drone Maker Plows Into Agriculture*, WALL ST. J. (Nov. 26, 2015), <https://www.wsj.com/articles/chinese-drone-maker-plows-into-agriculture-1448573490>;

Sijia Jiang, *Drones For Agricultural Use Taking Off In China*, S. CHINA MORNING POST (July 25, 2016), <http://www.scmp.com/business/companies/article/1994543/drones-agricultural-use-taking-china>.

37. See Darryl Jenkins & Bijan Vasigh, *The Economic Impact of Unmanned Aircraft Ssystems Integration in the United States*, ASS’N. FOR UNMANNED VEHICLE SYS. INT’L (Mar. 2013), at 2, https://higherlogicdownload.s3.amazonaws.com/AUVSI/958c920a-7f9b-4ad2-9807-f9a4e95d1ef1/UploadedImages/New_Economic%20Report%202013%20Full.pdf.

38. *President Donald Trump and Secretary Elaine L. Chao Announce Innovative Drone Integration Pilot Program*, U.S. DEPT. OF TRANSP. (Oct. 25, 2017), <https://www.transportation.gov/UAS-integration-pilot-program>.

*erations that currently require special authorizations.*³⁹

The FAA subsequently published additional details of the program in the Federal Register on November 8th, 2017.⁴⁰ One specific type of proposal the FAA was interested in receiving was “[a]n agricultural State and several of its municipalities desiring to explore with stakeholders how UAS could be used to assist farmers in reducing costs.”⁴¹ A program which coordinates with the State agency who has authority, delegated by EPA,⁴² to regulate pesticides in combination with pesticide applicators, UAS operators, and farmers would be a perfect proposal for this initiative. The current process for regulatory relief, which could be simplified, is detailed next.

III. UASs MAY BE USED FOR AERIAL PESTICIDE APPLICATION THROUGH A BURDENSOME EXEMPTION AND WAIVER PROCESS

There are currently three exemption and waiver processes that a UAS operator would need to navigate to aerially dispense pesticides, depending on the type of UAS used. For UASs over 55 lbs., a Section 333 Exemption is required. This application is more open-ended, has fewer limitations, but is more expensive and takes longer to obtain. For sUASs, a Part 107 waiver may be used. These waivers are cheaper and faster to obtain, but are more limited in the restrictions that may be waived. Finally, Part 11 Exemptions permit relief from a vast array of FAA regulations; however, this process requires full notice and comment for each applicant and requires navigating significantly more regulations. An overview of each of these three processes follows next along with an example of a UAS aerial pesticide applicator that has successfully navigated these regulatory hurdles.

A. Section 333 Exemptions for non-sUASs

In order for any aircraft to operate in the United States, it must be certified for airworthiness by the FAA. Prior to the promulgation of Section 107 to regulate sUASs, most commercial UASs were operating under what are called Section 333 exemptions. Section 333 of the FAA Modernization and Reform Act of 2012 allowed the Secretary of Transportation to determine, on a case by case basis, that a

39. *Id.* (emphasis added).

40. *See* 82 Fed. Reg. 51903.

41. *Id.* at 51904.

42. *See* FIFRA, *supra* note 25 at §§ 26–27 (detailing how states may be delegated primary enforcement of the law).

certain “[UAS] may operate safely” in the national airspace system.⁴³ For most commercial sUASs, Section 107 has supplanted their prior Section 333 exemptions.⁴⁴ Because Section 107 bans the transport of certain pesticides as hazardous materials, the Section 333 Exemption process, which is still active, may be an avenue to bypass the current restrictions which face UAS aerial pesticide application. It is important to note that the Section 333 Exemption only certifies the UAS itself, while the pilot must also be fully trained and certified by the FAA as with any other traditional aircraft.

Approximately 40,000 Section 333 Exemptions have been requested,⁴⁵ of which approximately 5,500 have been thus far approved⁴⁶ leading to a current approval rate of less than 14%. In addition, the cost of obtaining a basic Section 333 exemption can be up to \$1,500 and take up to four months for the FAA to review.⁴⁷

Recently, Yamaha received a Section 333 Exemption to use its UAS, the RMAX, in aerial pesticide application.⁴⁸ Because the RMAX weighs in excess of 55 lbs., it is ineligible for the Section 107 sUAS rules. The RMAX possesses two 8 liter tanks, with a practical payload of up to 16 kg (~35 lbs.).⁴⁹ According to Yamaha, the RMAX currently treats 2.4 million acres of farmland annually in Japan.⁵⁰ In granting the Section 333 Exemption, the FAA looked beyond the plain text of certain provisions in § 137, noting that “[t]hese requirements are intended to ensure the safety of the onboard pilot during manned agricultural aircraft operations and thus, relief from §§ 137.31(b) and 137.42 [both shoulder harness requirements] does not adversely impact safety.”⁵¹ After obtaining the exemption, the

43. The Secretary would also be required to “establish requirements for the safe operation” of such aircraft when granting the exemption. See FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat. 11. § 333.

44. Section 333 exemptions, however, can be broader in what use of a UAS is permitted as compared to 14 C.F.R. § 107. For example, Section 107 forbids the carriage of hazardous materials by a sUAS whereas prior to Section 107, no such restrictions existed unless specified as a condition of the exemption.

45. See Regulations.gov, search term “333,” filtered by “notice,” “nonrulemaking,” and “FAA.”

46. See *Authorizations Granted via Section 333 Exemption*, FED. AVIATION ADMIN., https://www.faa.gov/uas/beyond_the_basics/section_333/333_authorizations/ (last accessed Nov. 24, 2017).

47. See, e.g., Jeffrey Antonelli, *Most Section 333s Just \$1,500*, DRONE LAWS (Jan. 06, 2016), <http://dronelawsblog.com/2016-most-section-333s-just-1500/>.

48. See *Precision Agriculture: Frequently Asked Question*, YAMAHA MOTOR SPORTS, <https://www.yamahamotorsports.com/motorsports/pages/precision-agriculture-faq> (last accessed June 30, 2017). See also Yamaha Exemption No. 11448, *supra* note 20.

49. See *Precision Agriculture: RMAX*, YAMAHA MOTOR SPORTS, <https://www.yamahamotorsports.com/motorsports/pages/precision-agriculture-rmax> (last accessed June 30, 2017).

50. *Id.*

51. See Yamaha Exemption No. 11448, *supra* note 20.

RMAX began commercial operation in the U.S. in May 2016, spraying against powdery mildew.⁵²

B. Part 107 Waivers for sUASs

The Administrator of the FAA has the authority to waive a limited list of Part 107 requirements on sUAS use,⁵³ so long as the Administrator determines that “the proposed [sUAS] operation can safely be conducted under the terms of [the] waiver.”⁵⁴ Anyone may request a waiver, but their request must include a “complete description of the proposed operation and justification that establishes that the operation can safely be conducted under the terms of [the waiver].”⁵⁵ The streamlined application consists of a basic online form.⁵⁶ With legal counsel, obtaining a Part 107 waiver can cost upwards of \$2,000–\$10,000, depending on the restriction being waived.⁵⁷ To date, the FAA has granted 1,058 Part 107 waivers⁵⁸ and these waivers are generally in effect for 4 years.⁵⁹ The vast majority of waivers granted deal with § 107.29 that, absent a waiver, limits sUAS operation to daylight hours.⁶⁰ Common limitations placed on nighttime operation waivers include a requirement that the area in which the drone is operating is sufficiently lit such that any obstacles may be readily observed and that the sUAS is fitted with anti-collision lighting visible for several miles.⁶¹ Importantly, and unlike the Part 11 exemption process detailed immediately below, the waiver application process is highly streamlined. The FAA says that it “will strive to review and issue decisions on waiver and authorization requests within 90 days”

52. See *Yama RMAX Debuts Commercial Spray Service On Napa Valley Vineyard*, PR NEWSWIRE (May 19, 2016), <http://www.prnewswire.com/news-releases/yamaha-rmax-debuts-commercial-spray-service-on-napa-valley-vineyard-300271880.html>.

53. The full list of waivable requirements is available at 14 C.F.R. § 107.205. Note that this waivable list does not include the ban on hazardous chemical transport, which requires a Part 11 exemption, as detailed in Part III.B. *infra*.

54. 14 C.F.R. § 107.200(a).

55. 14 C.F.R. § 107.200(b).

56. See *Request a Part 107 Waiver*, FED. AVIATION ADMIN., https://www.faa.gov/uas/request_waiver/request_part_107_waiver/ (last accessed Nov. 24, 2017).

57. See, e.g., Jeffrey Antonelli, *Prices for a Part 107 Waiver*, DRONE LAWS (Aug. 07, 2017), <http://dronelawsblog.com/prices-for-part-107-waiver-antonelli-law/>.

58. See *Part 107 Waivers Granted*, FED. AVIATION ADMIN., https://www.faa.gov/uas/request_waiver/waivers_granted/ (last accessed July 18, 2017).

59. *Id.*

60. See *id.* There are currently 921 waivers granted exclusively to waive the requirement of § 107.29.

61. See, e.g., Gary Indiana Police Dept., Waiver No. 107W-2017-02836 (FAA July 13, 2017), https://www.faa.gov/uas/request_waiver/waivers_granted/media/107W-2017-02836_Douglas_Drummond_CoW.pdf.

and this review does not require notice and comment.⁶² Part 107 waivers may also be secured in combination with Part 11 exemptions, as discussed below in the case of DroneSeed.

C. Part 11 Exemptions

The FAA can exempt an individual from *any* FAA regulation by submitting a request for a Part 11 exemption. This pathway, however, is far more burdensome than the Part 107 waiver process as it requires publication in the Federal Register and opportunity for public comment.⁶³ The FAA requires that the petition be submitted at least 120 days before the petitioner anticipates the exemption is required.⁶⁴ Additionally, Part 11 exemptions are typically only valid for 2 years, as opposed to 4 years under a Part 107 waiver.⁶⁵ The FAA does, however, provide guidance to individuals seeking a Part 11 exemption⁶⁶ and a searchable database called the Automated Exemption System (AES) is accessible to the public.⁶⁷

One company, DroneSeed,⁶⁸ has successfully petitioned the FAA for numerous exemptions under Part 11, as well as a Part 107 Waiver, for aerial pesticide application by a sUAS.⁶⁹ DroneSeed's business model includes the use of sUASs to apply pesticides and re-seed tree populations after a clear-cut in remote forest areas.⁷⁰ These sUASs are designed to fly mostly autonomously, relying on GPS and pre-programmed maps and surveys to control flight paths.⁷¹ Since DroneSeed's aircraft are all under 55 lbs., they are the first pesticide-

62. See *Request a Part 107 Waiver or Operation in Controlled Airspace*, FED. AVIATION ADMIN., https://www.faa.gov/uas/request_waiver/ (last accessed July 18, 2017) (detailing the step by step process to request a Part 107 waiver).

63. See 14 C.F.R. § 11.85.

64. *Id.*

65. See *Guidelines for Submitting a Petition for Exemption*, FED. AVIATION ADMIN., at 23, https://www.faa.gov/regulations_policies/rulemaking/media/Petition_For_Exemption_Guide.pdf (last accessed July 18, 2017).

66. See *id.* at 7–20; The full list of required information submitted as a part of the petition is detailed in 14 C.F.R. § 11.81.

67. See *generally Automated Exemption System*, FED. AVIATION ADMIN., <http://aes.faa.gov/AES.asp> (last accessed July 18, 2017).

68. See *generally* DRONESEED, <https://www.droneSeed.co/> (last accessed July 14, 2017).

69. See DroneSeed, Co., Exemption No. 17261, Regulatory Docket No. FAA-2016-9247 (FAA Mar. 19, 2017), <https://www.regulations.gov/document?D=FAA-2016-9247-0005>. The FAA erroneously labeled DroneSeed's petition as a Section 333 exemption request in the Federal Register. See 81 Fed. Reg. 90045. DroneSeed submitted a public comment noting that its petition specifically requested relief under Part 11. Interestingly, when FAA approved the petition for exemption, it cited neither Section 333 nor Part 11 as its authority to grant an exemption. The FAA noted, again erroneously, that it received no public comments in response to its notice in the Federal Register.

70. See DroneSeed, *Petition for exemption*, at 3–4, 22 (September 27, 2016), <https://www.regulations.gov/document?D=FAA-2016-9247-0001>.

71. See *id.*

dispensing UASs to fall under the Section 107 rules.⁷² The FAA cited the Section 333 exemption granted for the Yamaha RMAX drone to similarly exempt DroneSeed from § 137 requirements like shoulder harnesses and certain aerial maneuvers.⁷³ DroneSeed's granted Part 11 petition included a critical exemption which was unavailable under the Part 107 waiver: the ability to transport hazardous materials, namely pesticides.⁷⁴ The FFA noted that DroneSeed's "intended use would involve far smaller quantities of economic poisons than currently allowed and carried under part 137."⁷⁵ As such, "a limited grant of exemption from § 107.36 [the ban on carriage of hazardous material] is consistent with [the aerial applicator rules] to permit the use of small UAS for agricultural operations under part 137." The FAA ultimately granted the exemption, but limited it to "the use of any economic poison as defined in § 137.3."⁷⁶

DroneSeed also requested, and was granted, a Part 107 Waiver to operate more than one drone per pilot.⁷⁷ The waiver, however, contains several key limitations. To begin, it requires that all operation be conducted in "remote (rural) forestry sites" and requires several notification procedures to "restrict access by non participating persons."⁷⁸ Additionally, the pilot in command must "identify operational area obstacles and boundaries so as to avoid collision with, or damage to property" and the sUAS must use high-visibility paint to "facilitate rapid identification of errant [sUASs]."⁷⁹ The waiver also contains requirements that the software and any redundancies are fully functional before beginning operations and that if any component fails, the other sUAS are not affected and that the operator is visually and audibly alerted to the failure.⁸⁰ This cumbersome process of applying for multiple exemptions and waivers would have to be conducted by each and every operator wishing to use sUASs in the pesticide-applicator

72. See FAA Exemption No. 17261, *supra* note 68 at 2.

73. *Id.* at 1, 9.

74. See *id.* at 9, 12.

75. *Id.* at 7.

76. *Id.* at 12. Note that "economic poison" is defined in 14 C.F.R. § 137.3 as "(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary of Agriculture shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant." This definition is functionally equivalent to the definition of "pesticide" under FIFRA § 2(u).

77. See DroneSeed, Waiver No. 107W-2016-01297 (FAA Nov. 16, 2016). This waives the limitation of § 107.35 which states that "A person may not operate or act as a remote pilot in command or visual observer in the operation of more than one unmanned aircraft at the same time." As of July 14, 2017, 18 individuals and companies have received a waiver of the § 107.35 limitation to multiple drone operation.

78. *Id.* at 3.

79. *Id.*

80. *Id.*

marketplace. DroneSeed's success demonstrates that the FAA is open to the use of drones as pesticide applicators; however, the current complex approval process serves as a significant barrier to entry for potential competitors.

IV. FAA AND EPA CAN FACILITATE THE ADOPTION OF UASs IN PESTICIDE APPLICATION

There are several, relatively straightforward, regulatory actions which both the FAA and EPA can take to facilitate the adoption of UASs in aerial pesticide application. First, the FAA could initiate rulemaking to amend or append the regulations of pesticide-dispensing aircraft under Section 137 which meet the description of a UAS to automatically exempt them from a list of inapplicable regulations, for example, §§ 137.19(e)(2) (certain aerial maneuvers) and 137.31(b) (safety restraints). This automatic exemption would both provide clarity to potential operators as well as reduce the regulatory hurdles required when receiving approval for UAS use.

Second, the FAA can initiate rulemaking to add the ban on hazardous material transport to the list of waivable restrictions under the Part 107 Waiver process. The FAA could limit, as it did in the case of DroneSeed, the waiver to those materials defined as "economic poisons" under FAA regulations, or simply adopt the statutory definition of pesticide contained within FIFRA.⁸¹ Importantly, the Administrator of the FAA would still retain discretion whether or not to grant the waiver if there were serious safety concerns.

Third, the EPA in the short-term could promulgate an interpretive rule, not subject to notice and comment, that UASs qualify as "helicopters" for the purpose of pesticide label restrictions. This rule would provide clarity to UAS operators, but would be limited to those pesticides for which application from a helicopter/rotocopter under prescribed conditions has been demonstrated safe. For a longer-term solution, the EPA could develop internal guidelines to be included in evaluating and proscribing future pesticide labels. These guidelines could take advantage of the unique benefits of UASs where traditional aircraft may be unsafe as methods of pesticide application or simply modify traditional restrictions in light of the technological features of UASs.

V. CONCLUSION

Updates to the FAA and EPA regulations dealing with the aerial pesticide applications are overdue, especially in light of the advent of

81. See 14 C.F.R. § 137.3, *supra* note 75.

sUASs as a possibly safer and cheaper substitute for traditional fixed-wing or helicopter/rotocopter aerial applicators. In the meantime, a combination of Section 333 exemptions, Part 107 Waivers, Section 11 exemptions—depending on the size of the UAS—are a viable, albeit expensive and time-consuming, alternative to permit limited use and testing of sUASs for aerial pesticide application in the near future.



Introduction to the Yamaha RMax Remotely Piloted Helicopter and Review of U.S. Activities

Steve Markofski – Unmanned Systems Division



RMAX
TMpelle

Yamaha History & Milestones

Yamaha Global Products

Yamaha Motor Corporation, U.S.A.

RMax General Product Background

RMax Specifications

RMax Basic Flight Operation

RMax Safety Systems Overview

RMax Performance Summary

RMax Development History

RMax Use in Japan

Overseas Expansion

UC Davis Project

FMRA / Section 333

1955

- Founding of Yamaha Motor Corporation
- Production of first motorcycle (YA-1,125cc)

1960

- Begins business operations in the United States (Los Angeles, CA)

1987

- Development completed for Yamaha's first commercial-use unmanned helicopter "R-50"



- **Land** (Motorcycle, ATV, SxS, Snowmobiles, Electric & Electro-Hybrid Vehicles)



- **Water** (Boats, Marine Engines, Water Vehicles)



- **Power Products** (Golf Carts, Generators, Snow Throwers)



- **Commercial & Industrial Products** (Aeronautical Products, Engines, & Other)



Key Attributes: Innovation, High Quality Products, Customer Satisfaction

Load into Vehicles



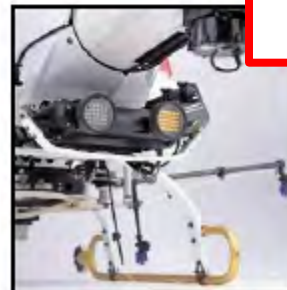
Sprayer Tanks

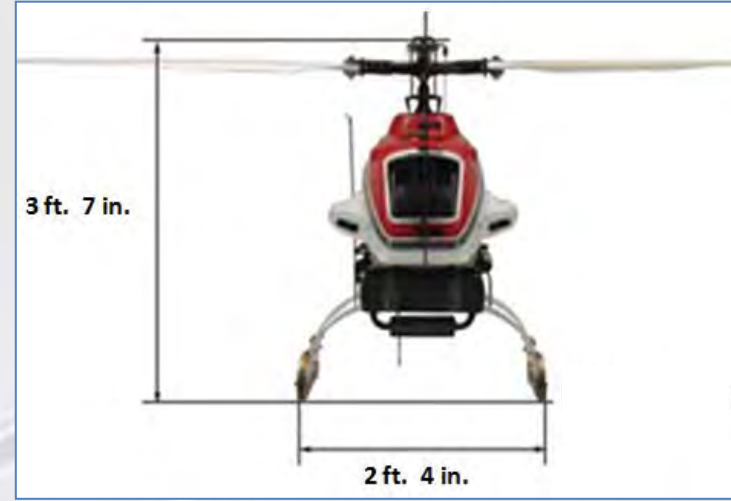
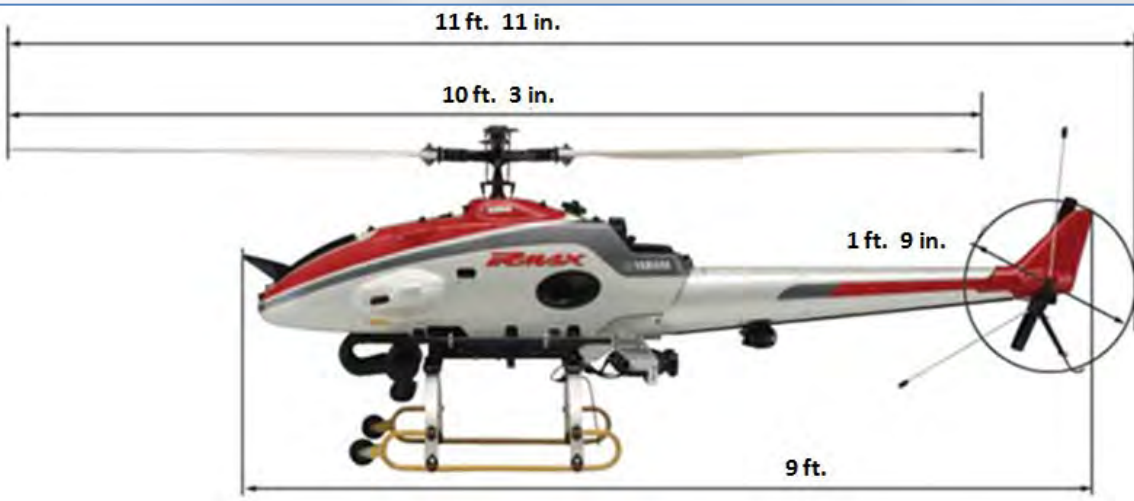


Sprayer System



Control System





DIMENSIONS

MAIN ROTOR DIAMETER	10 ft. 3 in.
TAIL ROTOR DIAMETER	1 ft. 9 in.
OVERALL LENGTH	9 ft. (Overall length with rotor 11 ft. 10.91 in.)
OVERALL WIDTH	2 ft. 4 in.
OVERALL HEIGHT	3 ft. 7 in.
DRY WEIGHT	141 lbs.

ENGINE

TYPE	2-stroke, horizontally opposed 2-cylinder
CYLINDER DISPLACEMENT	246 cc
MAXIMUM OUTPUT	21 hp
STARTING SYSTEM	Electric starter
FUEL	Regular unleaded mixed with 2-stroke engine oil
SOUND DATA	72dB (at 50 meters)





RMax Performance Specifications



PERFORMANCE

LOAD CAPACITY*
CONTROL SYSTEM
TRANSMITTER

61 lbs. 12 oz.
Yamaha Attitude Control System (YACS) with GPS
72 MHz / 6 Frequency

*The performance may vary depending on environmental conditions, such as the temperature, humidity, and altitude





RMax Sprayer Specifications



LIQUID SPRAYER

CASSETTE TANK CAPACITY

2 gal. 1 pt. x 2 tanks

DISCHARGE METHOD

Double-acting piston with flat nozzle

DISCHARGE RATE

.32 to .53 gal /minute (speed-linked method)

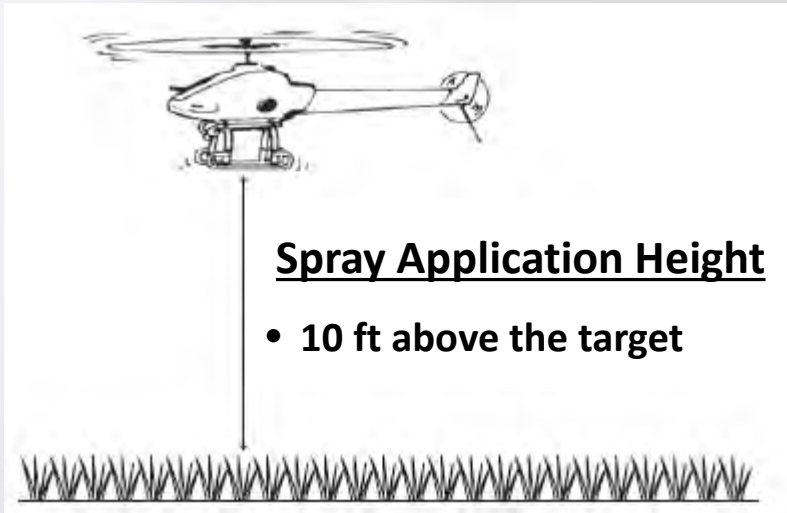
NOZZLE PITCH

4 ft. 4.75 in.

SPRAYER WEIGHT

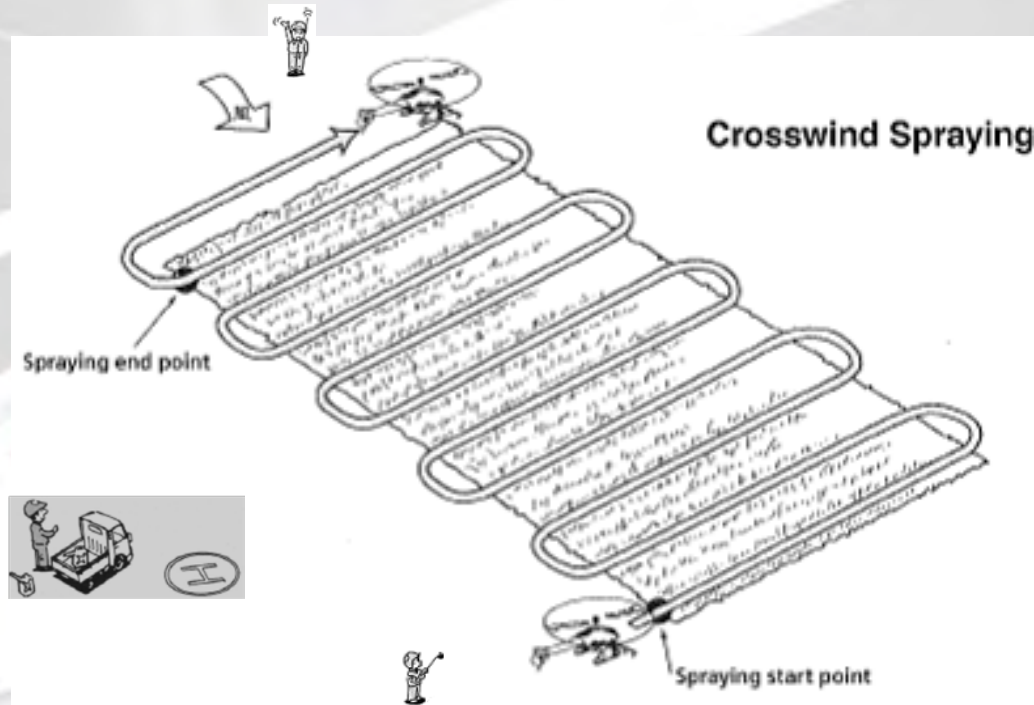
16 lbs. 5 oz.

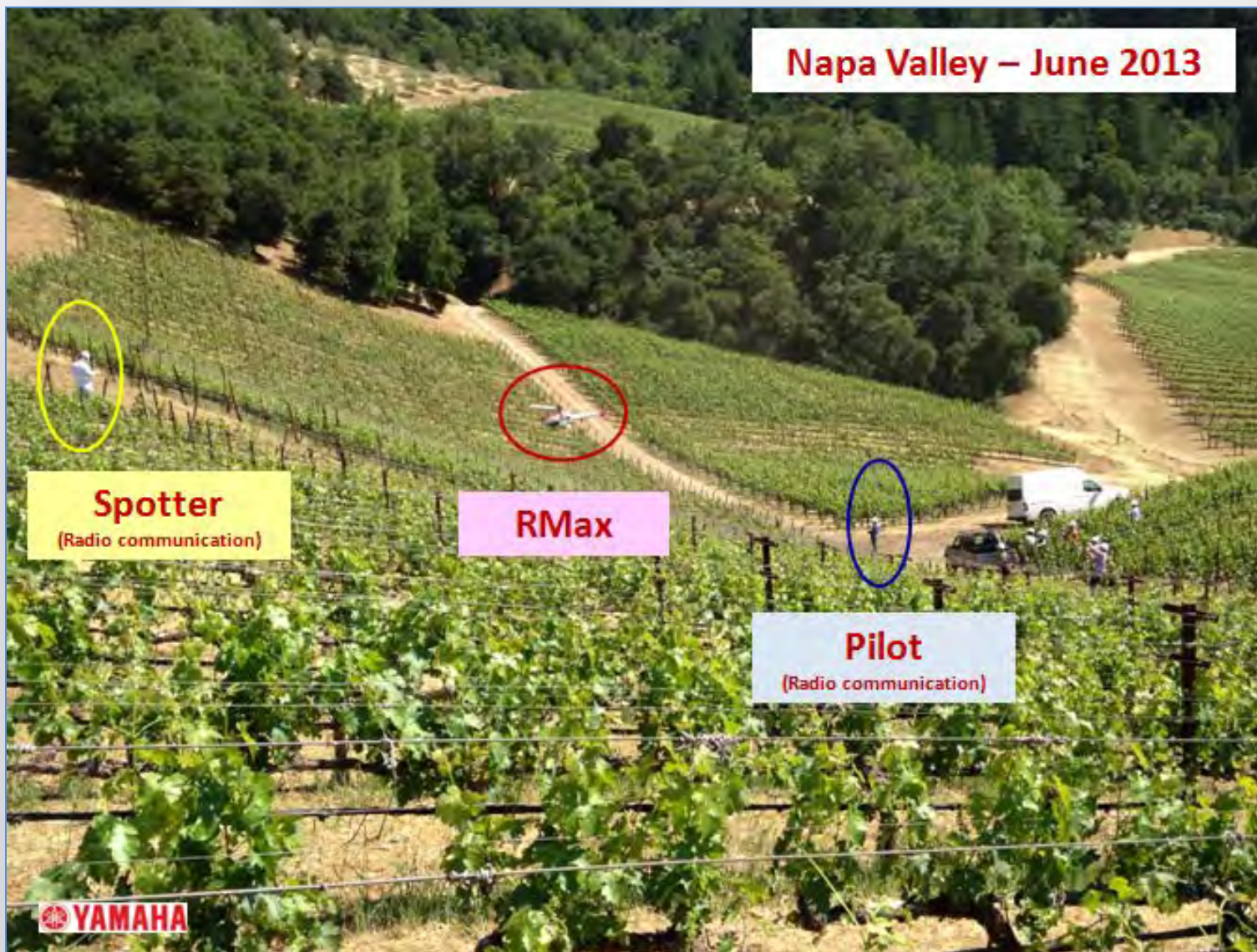




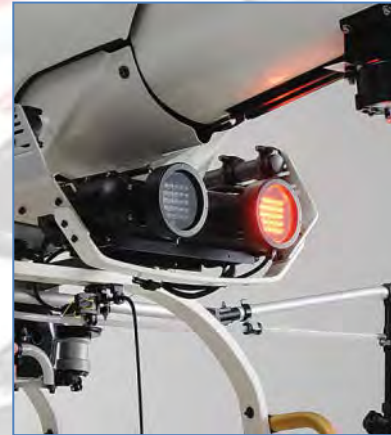
Basic Spray Operation, Pattern & Speed

- Nose Away Attitude from Pilot in Command
- 9 – 12 mph Maximum Speed
- 65 ft distance-off required for all participating crew





- Self-Monitor Function (Diagnostic before takeoff)
- YACS - Yamaha Attitude Control System (Attitude control)
- GPS flight control system (Speed & altitude control)
- Radio interference / Loss of radio communication (Loss link hover)
- YACS warning Light / GPS indicator light (Visual indicators during flight)
- Speed indicator light (Visual indicator during flight)
- Rotor brake



20+ Years of Safe & Reliable Commercial Operations

1980's

1983: Development begins with request from Japanese Government

1987: Yamaha completes development of R-50



1990's

1991: Yamaha begins marketing R-50 Type II in Japan

1995: Yamaha Attitude Control System (YACS) introduced on R-50

1997: RMax released offering greater payload & greater ease of use



2000's

2002: 1 million acres per year sprayed by remotely piloted helicopters

2003: RMax Type II released, updates include GPS for greater control

2012: 2,400 RMax helicopters in service in Japan



Performance Summary

- Years in service: 20+ years
- Units in operation: 2,400 RMax today
- Acres sprayed: 2.4 million annually
- Total flight hours: 2.0+ million



Yamaha has Manufactured over 4,500 Helicopters

Agriculture Applications

Rice Paddies



Wheat



Soy Beans



Pine Trees



Vegetables



Fertilizer



Remotely Piloted Helicopters are Recognized Solutions to Several Key Problems Confronting Agriculture Today

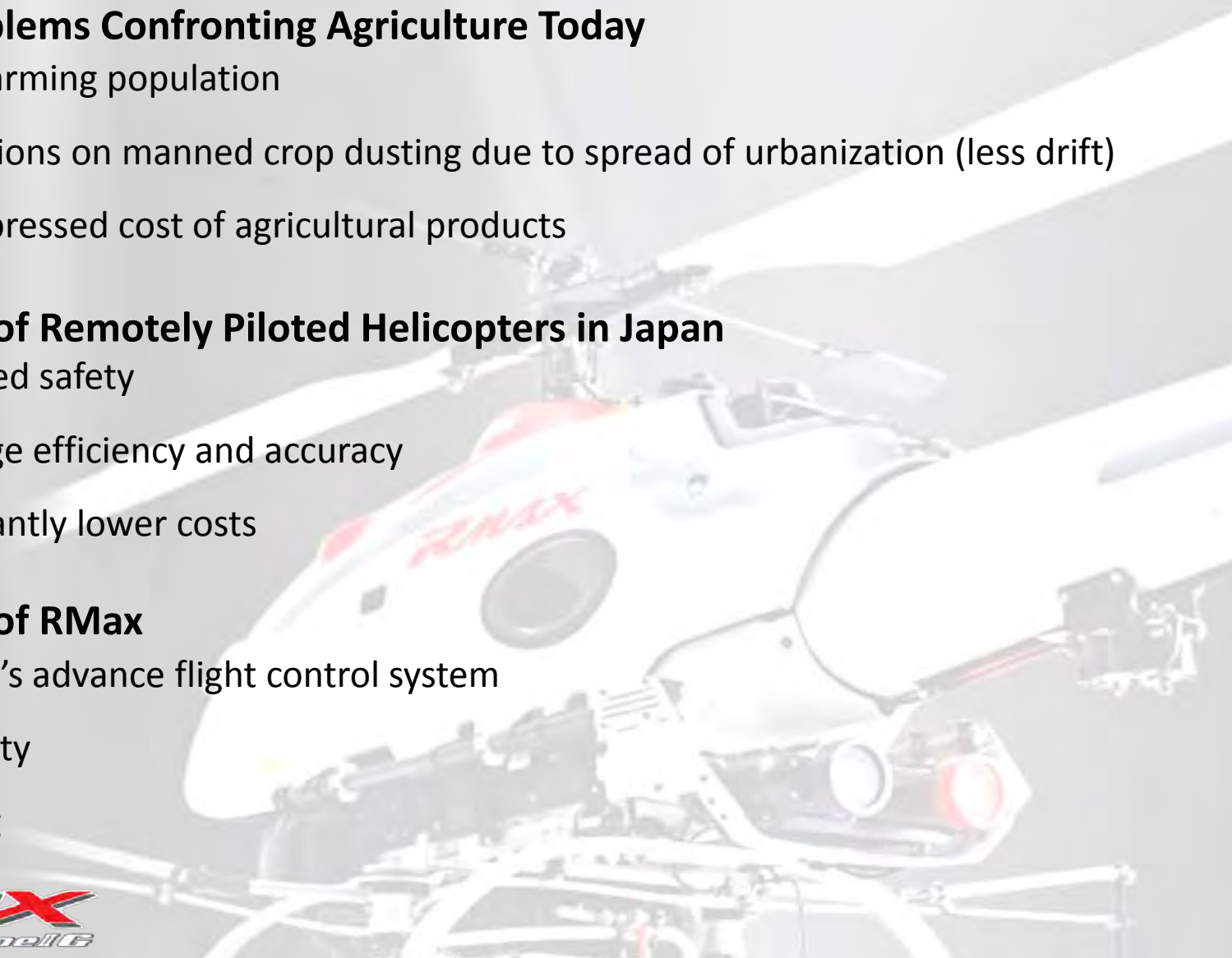
- Aging farming population
- Restrictions on manned crop dusting due to spread of urbanization (less drift)
- The depressed cost of agricultural products

Success of Remotely Piloted Helicopters in Japan

- Increased safety
- Coverage efficiency and accuracy
- Significantly lower costs

Success of RMax

- Yamaha's advance flight control system
- Reliability
- Training





Vineyard Test

Academies

Over 130 RMax

Agriculture

Training

Weed Control



The image features a central world map with three regions highlighted in red: the United States, South Korea, and Australia. Lines connect these regions to various photographs and text boxes. The USA section includes a 'Vineyard Test' photo of a drone in a vineyard, an 'Agriculture' photo of a drone on a golf course, and the USA flag. The South Korea section includes an 'Academies' photo of a classroom, an 'Over 130 RMax' photo of people with drones, and the South Korea flag. The Australia section includes a 'Training' photo of people with a drone, a 'Weed Control' photo of people in a field, and the Australia flag.

UC Davis Experimental Vineyard



Harlan Estates



Paramount Farms



Demonstration Flights



Project Background and Goal:

In 2012, UC Davis and Yamaha Motor Company initialed a project investigating the use of the RMax, unmanned helicopter for agricultural spraying. 2015 project is a continuation and expansion of the cooperative work.

Project Objectives:

1. Conduct an analysis of typical pesticide label suitability for use with the RMax spray system and identify pesticide labels consistent with RMax application;
2. Apply registered pesticides with RMax to manage portion of Oakville test vineyard from bud break to harvest in order to determine efficacy and deposition;
3. Adapt the AgDisp model to the RMax characteristics and field verify the performance of the model as compared to observed spray swath; and,
4. Demonstrate the vehicle operation to agricultural industry, media and regulatory representatives and educate them on the technology and concepts of UAV use in agricultural spraying.

- Safer than manned ground application
- Improved operational efficiency
- No soil compaction
- No crop damage
- Quality spray deposition

Tractor driver suffers life-threatening injuries



Photo courtesy of CAL FIRE/Napa County Fire Department

The remains of a tractor that rolled down a hill Thursday morning. The driver was extricated from under the tractor by first-responders and taken to an area hospital.



2015 Residue Spray Test Results

Ground Spray Rig

RMax

Pre sample	0.18 ppm	150 leaves	# grams in sample
		100 leaves per sprayed sample	
	Ground		UAV
	ppm boscalid	g sample	ppm boscalid g sample
Bottom Block 1	12.80	185.69	19.50 209.00
Bottom Block 2	15.70	204.69	13.90 219.75
Bottom Block 3	17.20	189.59	10.40 239.41
Bottom Ave	15.23	193.32	14.60 222.72
Bottom Std Dev	2.24	10.04	4.59 15.42
Middle Block 1	15.40	257.02	12.00 241.71
Middle Block 2	12.00	225.59	26.90 244.13
Middle Block 3	18.10	210.53	18.80 245.67
Middle Ave	15.17	231.05	19.23 243.84
Middle Std Dev	3.06	23.72	7.46 2.00
Top Block 1	9.51	199.55	43.40 182.49
Top Block 2	23.50	192.50	34.30 189.95
Top Block 3	22.20	201.95	14.20 197.17
Top Ave	18.40	198.00	30.63 189.87
Top Std Dev	7.73	4.91	14.94 7.34

Summary of means and standard deviations

Foliage location	Ground spray ppm	UAV spray ppm
Top	18.40 (7.73)	30.63 (14.94)
Middle	15.17 (3.06)	19.23 (7.46)
Bottom	15.23 (2.24)	14.60 (4.59)
Overall	16.27 (4.59)	21.49 (11.23)



FAA Modernization & Reform Act of 2012 Section 333 Grant of Exemption



Section 333 of The FAA Modernization and Reform Act of 2012

Section 333 gives the FAA the authority to grant case-by-case authorization for certain UAS to perform commercial operations in the NAS prior to the finalization of UAS rules.

→ Section 333 Exemption process provides a path for operators who wish to pursue safe and legal entry into the NAS.

Yamaha Received Grant of Exemption for the RMAX on May 1, 2015

Grant of Exemption allows Yamaha Motor Corp., USA to operate the RMAX for agriculture related operations in the US.

Summary of conditions & limitations:

- VLOS
- Pilot in Command (PIC) must hold a Sport Pilot Certificate
- PIC must hold a current US Driver's License
- PIC + Visual Observer (VO) must complete Yamaha RMAX Certification Training for roles
- Daylight Hours / Good Weather
- Operations over uninhabited areas (e.g. vineyards, fields, groves & orchards)
- Operations defined as "agricultural aircraft operation" will be in accordance with 14 CFR part 137





FAA Modernization & Reform Act of 2012 COA for Section 333



Certificate of Waiver or Authorization for Section 333

Certificate of Waiver (COA) is effective only with the approved FAA Section 333 Grant of Exemption.

Yamaha's COA for the RMAX is effective from May 4, 2015 to May 31, 2017

COA allows Yamaha Motor Corp., USA to operate the RMAX in the US under the following provisions:

- Below 200 feet AGL
- Distant (D) NOTAM must be filed no more than 72 hours, but not less than 24 hours prior to ops
- PIC to remain clear & give way to all manned aviation ops & activities at all times
- PIC & VO maintain instantaneous communications at all times
- 5 nautical miles (NM) from airports with operational control tower
- 3 NM from airports with published instrument flight procedures, but no tower
- 2 NM from airports with no published instrument flight procedures or tower
- 2NM from heliport, gliderport or seaport





UAV Regulatory Issues

Ken Everett



Areas that UAV's Could be Used

- * Sloping Terrain
- * Vector Control
- * Future sites ?





DPR is looking at:

Licensing

Labeling

Worker Protection

Drift/Buffer Zones



Licensing Requirements

Commercial Pilots License

FAA Medical

Journeyman Certificate

Apprentice Certificate

Exam Questions regarding UAV's



Labeling

- * Aerial Labels
- * Required To Follow Aerial Instructions
- * Could See Specialized UAV labeling
- * Reduced Water Volumes



Exposure/Drift studies

Environmental Monitoring

- * Working on a Drift Study
- * Modeling



Worker Health and Safety

- * Exposure Study Protocols being prepared
- * Pilot exposure
- * Observer/Mix Loader Exposure
- * Equipment Movement Exposure
- * PPE Requirements

Questions?



Proposed Administrative Consent Agreement

Background Summary

Subject: Black Kettle Farm
1391 S. Waterboro Road
Lyman, Maine 04002

Date of Incident(s): July 11, 2017

Background Narrative: On July 13, 2017, a Board inspector completed an inspection with the owner of Black Kettle Farm in Lyman.

The owner/applicator exceeded the maximum labeled application rate when applying Pyganic Crop Protection EC 5.0 II. The applicator did not wear the required chemical resistant gloves when mixing, loading, and applying the pesticide. Additionally, the owner did not have OSHA safety data sheets at a central information display as required by the federal Worker Protection Standard.

Summary of Violation(s):

- Federal Worker Protection Standard, 40 CFR, Part 170. OSHA safety data sheets not provided at a central information display for workers.
- 7 U.S.C. § 136j (a)(2)(G), 7 M.R.S. § 606 (2)(B) and 22 M.R.S. § 1471 D (8)(F). Using a pesticide inconsistent with its label directions (exceeded maximum labeled application rate, lack of chemical resistant gloves).

Rationale for Settlement: Lack of personal protective equipment, did not have the required safety sheets available to workers, and exceeded the maximum labeled application rate.

Attachments: Proposed Consent Agreement

**STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION, AND FORESTRY
BOARD OF PESTICIDES CONTROL**

In the Matter of:)	
Black Kettle Farm)	ADMINISTRATIVE CONSENT AGREEMENT
c/o Laura Neale)	AND
1391 S. Waterboro Road)	FINDINGS OF FACT
Lyman, Maine 04002)	

This Agreement by and between Black Kettle Farm, (hereinafter called the "Grower") and the State of Maine Board of Pesticides Control (hereinafter called the "Board") is entered into pursuant to 22 M.R.S. §1471-M (2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

1. That the grower produces agricultural crops for commercial purposes at a business that utilizes pesticides bearing language requiring conformance with the federal Worker Protection Standard, 40 CFR, Part 170 (WPS).
2. That the Grower employs one or more workers as defined under 40 CFR, Part 170.3 to assist in the production of the crops described in paragraph one.
3. That a Board inspector conducted an inspection at the Grower's facility on July 13, 2017.
4. That from the inspection in paragraph three, it was determined that on July 11, 2017, the grower applied Pyganic Crop Protection EC 5.0 II to 4,000 square feet of winter squash.
5. That from the inspection described in paragraphs three and four, it was determined that the Grower did not have OSHA safety data sheets at a central information display as required by the federal Worker Protection Standard, 40 CFR, Part 170.
6. That the circumstances in paragraphs one through five constitute a violation of the federal Worker Protection Standard, 40 CFR, Part 170.
7. That from the application described in paragraph four, the inspector documented the pesticide label for Pyganic Crop Protection EC 5.0 II. The label for this product requires that mixers, loaders, applicators, and other handlers wear chemical resistant gloves.
8. That the grower did not have on chemical resistant gloves when mixing loading and applying the Pyganic Crop Protection EC 5.0 II.
9. That circumstances in paragraphs one through four, seven, and eight, constitute use of a pesticide inconsistent with the product labeling and in violation of 7 U.S.C. § 136j (a)(2)(G), 7 M.R.S § 606 (2)(B) and 22 M.R.S. § 1471 D (8)(F).
10. That the maximum label rate of application for growing crops outdoors for Pyganic Crop Protection EC 5.0 II is 0.4 ounces per 1,000 square feet (17 ounces/acre).
11. That from the inspection described in paragraphs three and four, it was determined that the Grower applied .05 ounces of Pyganic Crop Protection EC 5.0 II per 1,000 square feet.

12. That the circumstances described in paragraphs three, four, ten, and eleven constitute use of a pesticide inconsistent with the product labeling and in violation of 7 U.S.C. § 136j (a)(2)(G), 7 M.R.S § 606 (2)(B) and 22 M.R.S. § 1471 D (8)(F).

13. That the Board has regulatory authority over the activities described herein.

14. That the Grower expressly waives:

- a. Notice of or opportunity for hearing;
- b. Any and all further procedural steps before the Board; and
- c. The making of any further findings of fact before the Board.

15. That this Agreement shall not become effective unless and until the Board accepts it.

16. That in consideration for the release by the Board of the causes of action which the Board has against the Grower resulting from the violations referred to in paragraphs six, nine, and twelve the Grower agrees to pay to the State of Maine the sum of \$150. (Please make checks payable to Treasurer, State of Maine).

IN WITNESS WHEREOF, the parties have executed this Agreement of two pages.

BLACK KETTLE FARM

By: _____ Date: _____

Type or Print Name: _____

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____

Henry Jennings, Director

APPROVED:

By: _____ Date: _____

Mark Randlett, Assistant Attorney General

Proposed Administrative Consent Agreement Background Summary

Subject: Penquis
262 Harlow Street
Bangor, Maine 04401

Date of Incident(s): August 8, 2017

Background Narrative: Penquis is a community action agency. On August 8, 2017, an agency employee applied roundup herbicide to the Pre-K grade playground at the Milo Elementary School. MSAD 41 owns the property and building where the elementary school is housed. The agency oversees the Pre-K grade and owns the Pre-K playground equipment.

The agency did not employ a master applicator, and no one from the agency had a commercial pesticide applicator's license at the time of the application.

The applicator did not obtain written authorization from the school Integrated Pest Management Coordinator prior to making the pesticide application.

Summary of Violation(s): CMR 01-026 Chapter 31 Section 1(A) III- Supervised on-site by either a licensed commercial applicator/master or a commercial applicator/operator who is physically present on the property of the client the entire time it takes to complete an application conducted by an unlicensed applicator....

22 M.R.S. 1471-D (1) (A)- No commercial applicator may use or supervise the use of any pesticide within the State without prior certification from the Board, provided that a competent person who is not certified may use such a pesticide under the direct supervision of a certified applicator

CMR 01-026 Chapter 27 Section 6(A) Prior to conducting a pesticide application not exempted in Section 3 in a school building or on school grounds, commercial pesticide applicators shall obtain written authorization from the IPM Coordinator. Authorization must be specific to each application and given no more than 10 days prior to the planned application.

Rationale for Settlement: Ready to use product-no mixing, school was not in session, school's integrated pest management coordinator acted quickly.

Attachments: Proposed Consent Agreement

**STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION, AND FORESTRY
BOARD OF PESTICIDES CONTROL**

Penquis)	
262 Harlow Street)	ADMINISTRATIVE CONSENT AGREEMENT
Bangor, Maine 04401)	AND
		FINDINGS OF FACT

This Agreement, by and between Penquis (hereinafter called the "Agency") and the State of Maine Board of Pesticides Control (hereinafter called the "Board"), is entered into pursuant to 22 M.R.S. §1471-M (2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

1. That the agency, located at 26 Harlow Street in Bangor, is a community action agency covering Penobscot, Piscataquis, and Knox counties.
2. That on August 14, 2017, a Board inspector met with agency employee Steve Ward to follow up on a complaint about a pesticide application made at the Milo elementary school (pre-K to grade 2) at 18 Belmont Street in Milo.
3. That Ward acknowledged that on August 8, 2017, he applied Roundup Ready-To-Use Weed & Grass Killer III to kill weeds on the Pre-K playground at the school.
4. That MSAD 41 owns the property and building where the Milo elementary school is housed. The school itself is a public school that is administratively part of MSAD 41 although the agency oversees the Pre-K grade and owns the Pre-K playground equipment.
5. That the Milo elementary school is a school as defined in CMR 01-026 Chapter 27 Section 1(B). It was not in session at the time of the application described in paragraph three.
6. That CMR 01-026 Chapter 27 Section 5(D) requires that, when a pesticide application is deemed necessary at a school, the applicator must comply with all the requirements of CMR 01-026 Chapter 31–Certification and Licensing Provisions/Commercial Applicator
7. That any person making a pesticide application that is a custom application, as defined under 22 M.R.S. § 1471-C(5-A), must be a certified commercial applicator or under the direct supervision of a certified applicator in accordance with 22 M.R.S. 1471-D (1) (A) and CMR 01-026 Chapter 31 Section 1(A) III.
8. That a custom application is defined in 22 M.R.S. § 1471-C(5-A) includes any application of any pesticide under contract or for which compensation is received or any application of a pesticide to a property open to use by the public.
9. That the circumstances described in paragraphs one through eight constitute a custom application of a pesticide in accordance with 22 M.R.S. § 1471-C (5-A).
10. That the agency did not employ a master applicator, and no one from the agency had a commercial pesticide applicator's license at the time of the application described in paragraph three.

11. That the circumstances described in paragraphs one through ten constitute a violation of 22 M.R.S. 1471-D (1) (A) and CMR 01-026 Chapter 31 Section 1(A) III.
12. That CMR 01-026 Chapter 27 Section 6(A) requires that commercial pesticide applicators shall obtain written authorization from the IPM Coordinator. Authorization must be specific to each application.
13. That the applicator did not obtain written authorization from the school Integrated Pest Management Coordinator (IPMC) prior to making the pesticide application described in paragraph three.
14. That the circumstances described in paragraphs one through five, twelve, and thirteen constitute a violation of CMR 01-026 Chapter 27 Section 6(A).
15. That the Board has regulatory authority over the activities described herein.
16. That the Company expressly waives:
 - a. Notice of or opportunity for hearing;
 - b. Any and all further procedural steps before the Board; and
 - c. The making of any further findings of fact before the Board.
17. That this Agreement shall not become effective unless and until the Board accepts it.
18. That, in consideration for the release by the Board of the causes of action which the Board has against the agency resulting from the violations referred to in paragraphs seven and eleven, the agency agrees to pay to the State of Maine the sum of \$250. (Please make checks payable to Treasurer, State of Maine).

IN WITNESS WHEREOF, the parties have executed this Agreement of two pages.

PENQUIS

By: _____ Date: _____

Type or Print Name: _____

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____

Cam Lay, Director

APPROVED

By: _____ Date: _____

Mark Randlett, Assistant Attorney General

Proposed Administrative Consent Agreement Background Summary

Subject: Timothy Littlefield
Riverview Psychiatric Center
250 Arsenal Street
Augusta, Maine 04330

Date of Incident(s): July 19, 2017

Background Narrative: On July 19, 2017, a Board staff member saw a man making an herbicide application to the mulched beds around the ornamental trees at the Riverview Psychiatric Center on the Augusta Mental Health Institute (AMHI) campus.

The inspector followed up with a maintenance worker at the facility the same day and determined from that inspection that the worker applied Roundup Extended Control herbicide to mulch beds around ornamental trees to control grass and broadleaf weeds.

The regulations require that any person making a pesticide application that is a custom application, as defined under 22 M.R.S. § 1471-C(5-A), must be a certified commercial applicator or under the direct supervision of a certified applicator in accordance with 22 M.R.S. § 1471-D(1)(A)

No one at the Riverview Psychiatric Center was certified or licensed as a commercial pesticide applicator at the time the pesticide application was made.

Summary of Violation(s):

Any person making a pesticide application that is a custom application, as defined under 22 M.R.S. § 1471-C(5-A), must be a certified commercial applicator or under the direct supervision of a certified applicator in accordance with 22 M.R.S. § 1471-D(1)(A).

Rationale for Settlement: The staff compared the violation to similar cases settled by the Board.

Attachments: Proposed Consent Agreement

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL

Timothy Littlefield)	ADMINISTRATIVE CONSENT AGREEMENT
Riverview Psychiatric Center)	AND
250 Arsenal Street)	FINDINGS OF FACT
Augusta, Maine 04333)	

This Agreement, by and between Riverview Psychiatric Center and the State of Maine Board of Pesticides Control (hereinafter called the "Board"), is entered into pursuant to 22 M.R.S. §1471 M (2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

1. That on July 19, 2017, a Board staff member saw a man making an herbicide application to the mulched beds around the ornamental trees at the Riverview Psychiatric Center on the Augusta Mental Health Institute (AMHI) campus.
2. That the same day, a Board inspector conducted a follow up inspection with Tim Littlefield, a maintenance worker at the Riverview Psychiatric Center.
3. That during the inspection described in paragraph two, Littlefield said he mixed Roundup Extended Control herbicide and used a non-powered backpack to make an application to ornamental tree mulch beds targeting grass and broadleaf weeds.
4. That any person making a pesticide application that is a custom application, as defined under 22 M.R.S.A. § 1471-C(5-A), must be a certified commercial applicator in accordance with 22 M.R.S.A. § 1471-D(1)(A).
5. That “commercial applicator” also includes individuals who apply pesticides in connection with their duties as employees of local governments, according to 22 M.R.S.A. § 1471-C(5).
6. That a custom application is defined in 22 M.R.S.A. § 1471-C(5-A) as any application of any pesticide under contract or for which compensation is received or any application of a pesticide to a property open to use by the public.
7. That the application described in paragraphs one through three constitutes a custom application as defined in 22 M.R.S.A. § 1471-C(5-A).
8. That no one at the Riverview Psychiatric Center had a commercial pesticide applicator’s license at the time of the custom application described in paragraphs one through three.
9. That the circumstances described in paragraphs one through eight constitute a violation of 22 M.R.S.A. § 1471-D(1)(A).
10. That the Board has regulatory authority over the activities described herein.
11. That the Riverview Psychiatric Center expressly waives:
 - a. Notice of or opportunity for hearing;
 - b. Any and all further procedural steps before the Board; and

c. The making of any further findings of fact before the Board.

- 12. That this Agreement shall not become effective unless and until the Board accepts it.
- 13. That, in consideration for the release by the Board of the causes of action which the Board has against the Riverview Psychiatric Center resulting from the violation referred to in paragraph nine, the Riverview Psychiatric Center agrees to pay to the State of Maine the sum of \$200. (Please make checks payable to Treasurer, State of Maine.)

IN WITNESS WHEREOF, the parties have executed this Agreement of two pages.

RIVERVIEW PSYCHIATRIC CENTER

By: _____ Date: _____

Type or Print Name: _____

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____

Cam Lay, Director

APPROVED:

By: _____ Date: _____

Mark Randlett, Assistant Attorney General

Proposed Administrative Consent Agreement Background Summary

Subject: White's Weed Control
1178 Main Street
Palmyra, Maine 04965

Date of Incident(s): 7-15-16

Background Narrative: On August 3, 2016, a Board inspector conducted a follow up inspection with Patrick White, owner of White's Weed Control. This was in response to a complaint the Board received about dead vegetation along the embankments of the causeway that crosses the Sebasticook Lake on the Durham Bridge Road in Newport.

White acknowledged that he applied a tank mix of Rodeo and Aquasweep herbicides to control vegetation in the riprap of the causeway in this area. White thought that the Newport town manager had applied for a variance so that the vegetation in the 25-foot buffer along the water's edge could be sprayed. No one applied for a variance to spray in this area.

The Board inspector documented that White sprayed the vegetation from the water's edge to the roadway for a distance of over 1200 feet on the southeast side of the road and over 1200 feet on the northwest side targeting poison ivy, brush, grass, and weeds.

Summary of Violation(s): CMR 01-026 Chapter 29 Section 6(A)(I) provides that no person shall make an outdoor terrestrial broadcast application of pesticides, except for applications made to control arthropod vectors of human disease or stinging insects, within twenty-five (25) feet from the mean high water mark of: Any lake or pond, except ponds that are confined and retained completely upon the property of one person and do not drain into or have a surficial connection with any other waters of the State.

Rationale for Settlement: The application had the potential to impact the environment and the process to apply for a variance was not followed.

Attachments: Proposed Consent Agreement

**STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION, AND FORESTRY
BOARD OF PESTICIDES CONTROL**

ADMINISTRATIVE CONSENT

White's Weed Control)
1178 Main Street)
Palmyra, ME 04965)

AGREEMENT
AND
FINDINGS OF FACT

This Agreement, by and between White's Weed Control (hereinafter called the "Company") and the State of Maine Board of Pesticides Control (hereinafter called the "Board"), is entered into pursuant to 22 M.R.S. §1471-M (2)(D) and in accordance with the Enforcement Protocol amended by the Board on June 3, 1998.

The parties to this Agreement agree as follows:

1. That the Company provides commercial pesticide application services in Maine, including roadside right-of-way spraying to control vegetation.
2. That on July 29, 2016, the Board received a call of concern about browning vegetation along the causeway on the Durham Bridge Road in Newport.
3. That on July 29, 2016, a Board inspector traveled to the Durham Bridge Road which has a causeway and bridge that crosses Sebasticook Lake. The inspector's narrative report noted that it was apparent that an herbicide had been applied to both sides of the causeway from the waterline to the paved edge of the road. All vegetation, grass, brush, and weeds were dead or dying. The inspector documented the condition of the vegetation in this area by taking photos of both sides of the road right-of-way.
4. That on August 1, 2016, the Board inspector checked the town of Newport's website and found a notice of pesticide application for White's Weed Control, a company based in Palmyra. Weed control along various town and state road right-of-ways, including sidewalks, was scheduled to take place periodically from July 15 to October 1, 2016, until completed.
5. That the inspector checked to determine if the town of Newport had applied for a Board variance to apply pesticides within 25 feet of water. No variance was applied for.
6. That on August 1, the inspector also met with Jim Ricker, the Newport Town Manager. The inspector explained that the Board received a call with concerns about the herbicide application along the Durham Bridge Road causeway because anglers, swimmers, and other people use this area. Ricker confirmed the town had not applied for a variance to apply pesticides within 25 feet of water and told the inspector Pat White was hired to control poison ivy along the causeway.
7. That Ricker directed the inspector to contact the Town's public works foreman. The inspector contacted the foreman, provide him a copy of the Board's Chapter 29 regulation, and discussed the requirements when applying pesticides near water. Ricker provided the inspector with White's contact information.
8. That on August 3, 2016, the inspector met with Pat White. White confirmed Newport's public works Foreman initially contacted him regarding the application and the town manager contacted him shortly thereafter to also discuss the application. White stated he assumed the town had applied for a variance.

9. That the inspector conducted an inspection of how White made the herbicide application to the causeway. The inspector documented that White applied a tank mix of Rodeo herbicide and Aquasweep herbicide to both sides of the causeway on the Durham Bridge Road within 25 feet of the water.
10. That CMR 01-026 Chapter 29 Section 6(A)(I) provides that no person shall make an outdoor terrestrial broadcast application of pesticides, except for applications made to control arthropod vectors of human disease or stinging insects, within twenty-five (25) feet from the mean high water mark of: Any lake or pond, except ponds that are confined and retained completely upon the property of one person and do not drain into or have a surficial connection with any other waters of the State.
11. That the circumstances described in paragraphs one through ten constitute a violation of CMR 01-026 Chapter 29 Section 6(A)(I)
12. That the Board has regulatory authority over the activities described herein.
13. That the Company expressly waives:
 - a. Notice of or opportunity for hearing;
 - b. Any and all further procedural steps before the Board; and
 - c. The making of any further findings of fact before the Board;
14. That this Agreement shall not become effective unless and until the Board accepts it.
15. That, in consideration for the release by the Board of the causes of action which the Board has or may have against the Company resulting from the violation referenced in paragraph eleven, the Company agrees to pay to the State of Maine the sum of \$250 (Please make checks payable to Treasurer, State of Maine).

IN WITNESS WHEREOF, the parties have executed this Agreement of three pages.

WHITE'S WEED CONTROL

By: _____ Date: _____

Type or Print Name: _____

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____

Cam Lay, Director

APPROVED

By: _____ Date: _____

Mark Randlett, Assistant Attorney General



128th MAINE LEGISLATURE

SECOND REGULAR SESSION-2018

Legislative Document

No. 1853

S.P. 700

In Senate, March 1, 2018

**An Act To Ensure the Safe and Consistent Regulation of Pesticides
throughout the State by Providing Exemptions to Municipal
Ordinances That Regulate Pesticides**

Reference to the Committee on Agriculture, Conservation and Forestry suggested and ordered printed.

A handwritten signature in cursive script that reads "Heather J.R. Priest".

HEATHER J.R. PRIEST
Secretary of the Senate

Presented by Senator SAVIELLO of Franklin. (GOVERNOR'S BILL)

1 **Be it enacted by the People of the State of Maine as follows:**

2 **Sec. 1. 22 MRSA §1471-U, sub-§4**, as repealed and replaced by PL 1989, c. 93,
3 §1, is amended to read:

4 **4. Intent.** It is the intent of this section to provide information on municipal
5 ordinances. ~~This section shall not affect municipal authority to enact ordinances.~~

6 **Sec. 2. 22 MRSA §1471-U, sub-§6** is enacted to read:

7 **6. Ordinance applicability.** A municipal ordinance specifically regulating the use
8 of pesticides may not apply to:

9 A. A person licensed or certified under section 1471-D. A person licensed or
10 certified under section 1471-D shall maintain accurate records on product use and
11 applications to property, which must be available at any time for audit or inspection
12 by the board; or

13 B. A private applicator applying a pesticide, subject to restrictions under a municipal
14 ordinance, when that private applicator is producing an agricultural or horticultural
15 commodity on property owned, leased or rented by the private applicator in
16 accordance with board rules.

17 **SUMMARY**

18 This bill provides that municipal ordinances that regulate the use of pesticides do not
19 apply to commercial applicators and spray contracting firms and to private applicators
20 when the private applicators are producing agricultural or horticultural commodities.