

The Unmanned Aerial Pesticide Application System Task Force (UAPASTF): Update on the Development and Field Testing of an Off-site Movement Protocol for agrochemical application by UAV (ASABE Abstract Submission ID: 2401330)

Rajeev Sinha^{a,b}, Francis Donaldson^{a,c}, Jane Tang^{a,d}, Jason McDonald^{a,e}, Jo Davies^{a,f}, Roberto Barbosa^{a,g}, Tyler Gullen^{a,h}, Christopher Read^{a,i}, Greg Watson^{a,d}

^a Unmanned Aerial Pesticide Application System Task Force (UAPASTF), LLC., Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE 19808, ^b rajeev.sinha@corveva.com, Corveva Agriscience, 9330 Zionsville Rd, Indianapolis, IN 46268, ^c francis.donaldson@basf.com, BASF Corporation – Agricultural Solutions, 26 Davis Dr, Research Triangle Park, NC 27709, ^d jane-zhenxu.tang@bayer.com, ^e greg.watson@bayer.com, Bayer U.S. – Crop Science, 700 W Chesterfield Pkwy W, Chesterfield, MO 63017, ^f jmcdonald@gowanco.com, Gowan Company, 370 S Main St, Yuma, AZ 85364, ^g jo.davies@syngenta.com, Syngenta UK, Jealott's Hill International Research Center, Bracknell, Berkshire RG 42 6EY, UK., ^h roberto.barbosa@fmc.com, FMC Corporation, 1090 Elkton Rd., Newark DE, 19711, ⁱ tyler.gullen@nufarm.com, Nufarm, 5101 333 96th Ave NE, Calgary, Alberta T3K0S3, ¹ christopher.read@valent.com, Valent Biosciences LLC, 1910 Innovation Way, Suite 100 Libertyville, Illinois 60048

Background

- The Organization for Economic Co-operation and Development (OECD) Working Party on Pesticides (WPP) was formed in 1992.
- One of its goals is to harmonize data and methods used to test and assess pesticide risks.
- In 2019, OECD Working Party on Pesticides (WPP) formed a Drone/UASS Subgroup, which published a 'State of the Knowledge' report [1] on pesticide application using UAVs
- Multiple recommendations in the report, but one specifically focused on *"...a clear and urgent need for a set of standard testing protocols to be agreed upon for the assessment of UASS," in order to ensure that any new data generated to describe spray drift is of sufficient quality to draw conclusions on UAV applications"*.
- Pesticide registrant industry formed the UAPASTF to support OECD efforts



Task Force Objectives

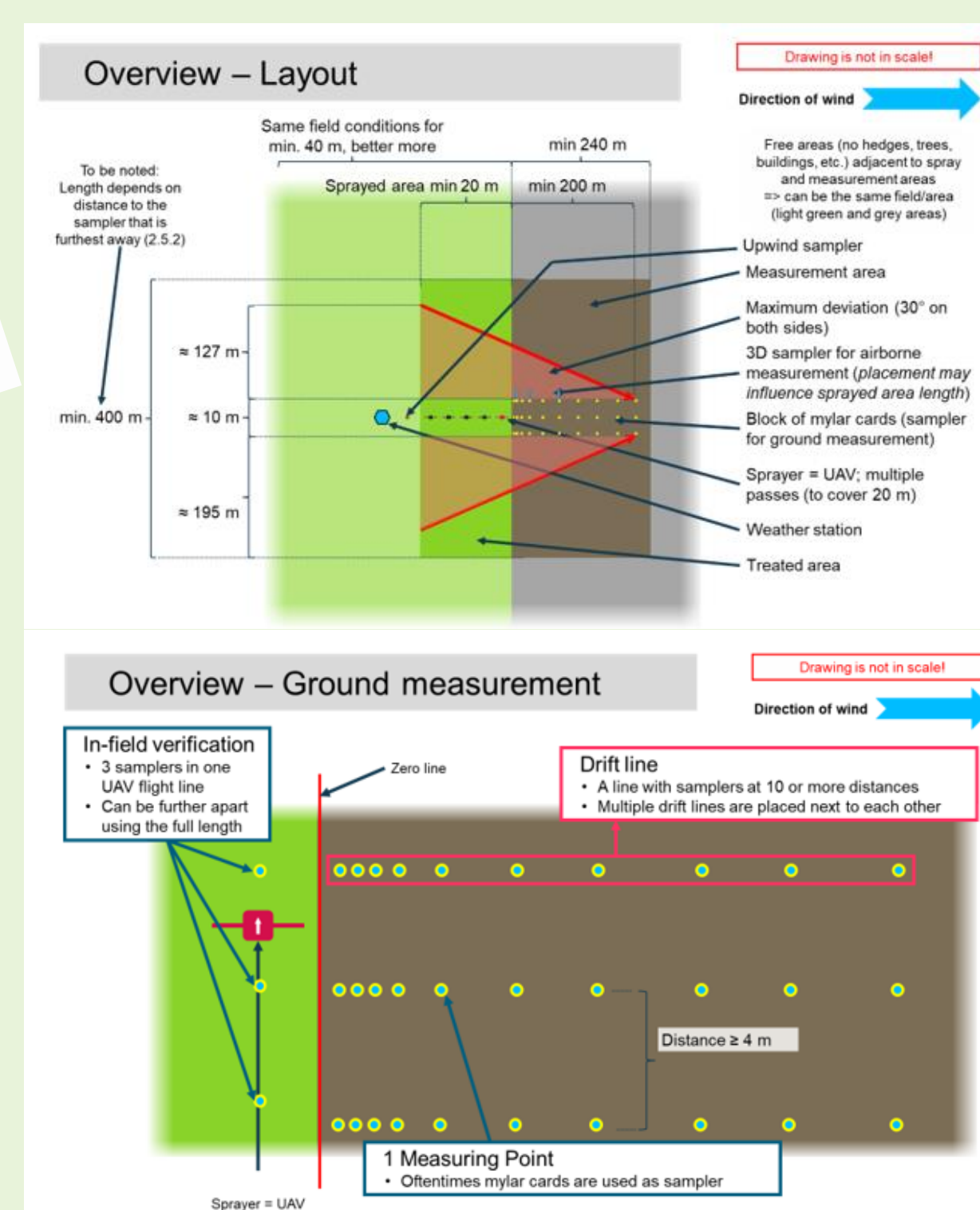
- Engage with regulatory agencies (e.g., US-EPA/CDN-PMRA/AU-APVMA/EU Commission) to support UAS use for application of crop protection products.
- Develop study protocol to ensure high quality data generation
 - Test the study protocol with a non-GLP (Good Laboratory Practices) field study
- Generate/submit regulatory data on drift
 - ~10 GLP field studies planned across 5 regions in 2023 and 2024
- Contribute toward evaluation of existing (or development of new) UAS drift models for regulatory purposes



BMP & Off-target movement protocol

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Recommendations for conducting UAV field drift trials
Requirements & Specifications for Field Drift Trials when using Unmanned Aerial Vehicles (UAVs)

Off-target Movement Quantification

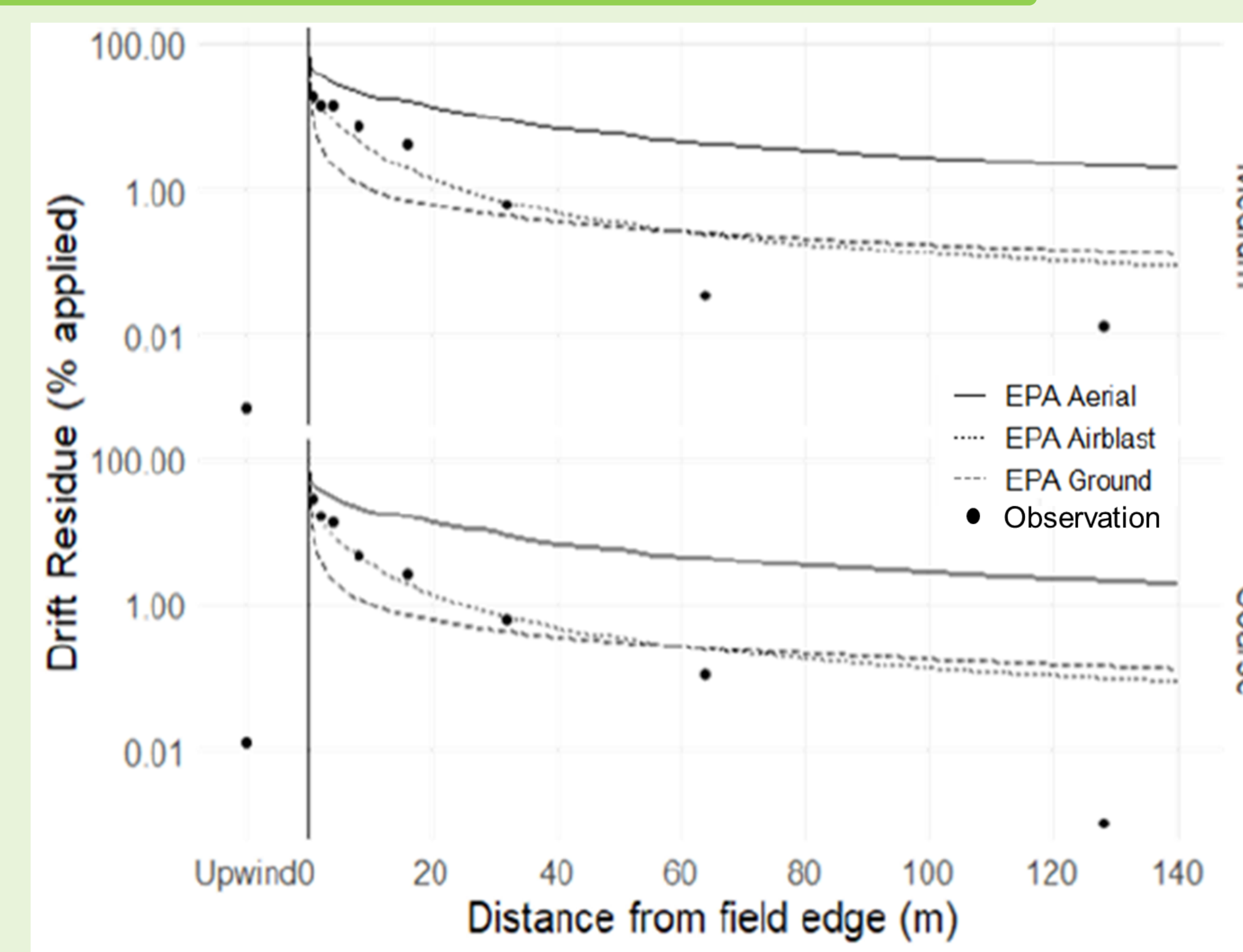
Field Trial Details

Item	Details
UAS Platform	DJI Agras T30
Benchmark	Ground Boom Sprayer
Nozzles	Fine, Medium & Coarse categories
Analyte	PTSA Dye
Weather	Anemometers at 2 heights; upwind and downwind
Sampler	Mylar cards & nylon strings
Sampling	Upwind, within swath and up to 200 m downwind
Replications	3 transects/drift lines per run replicated three times

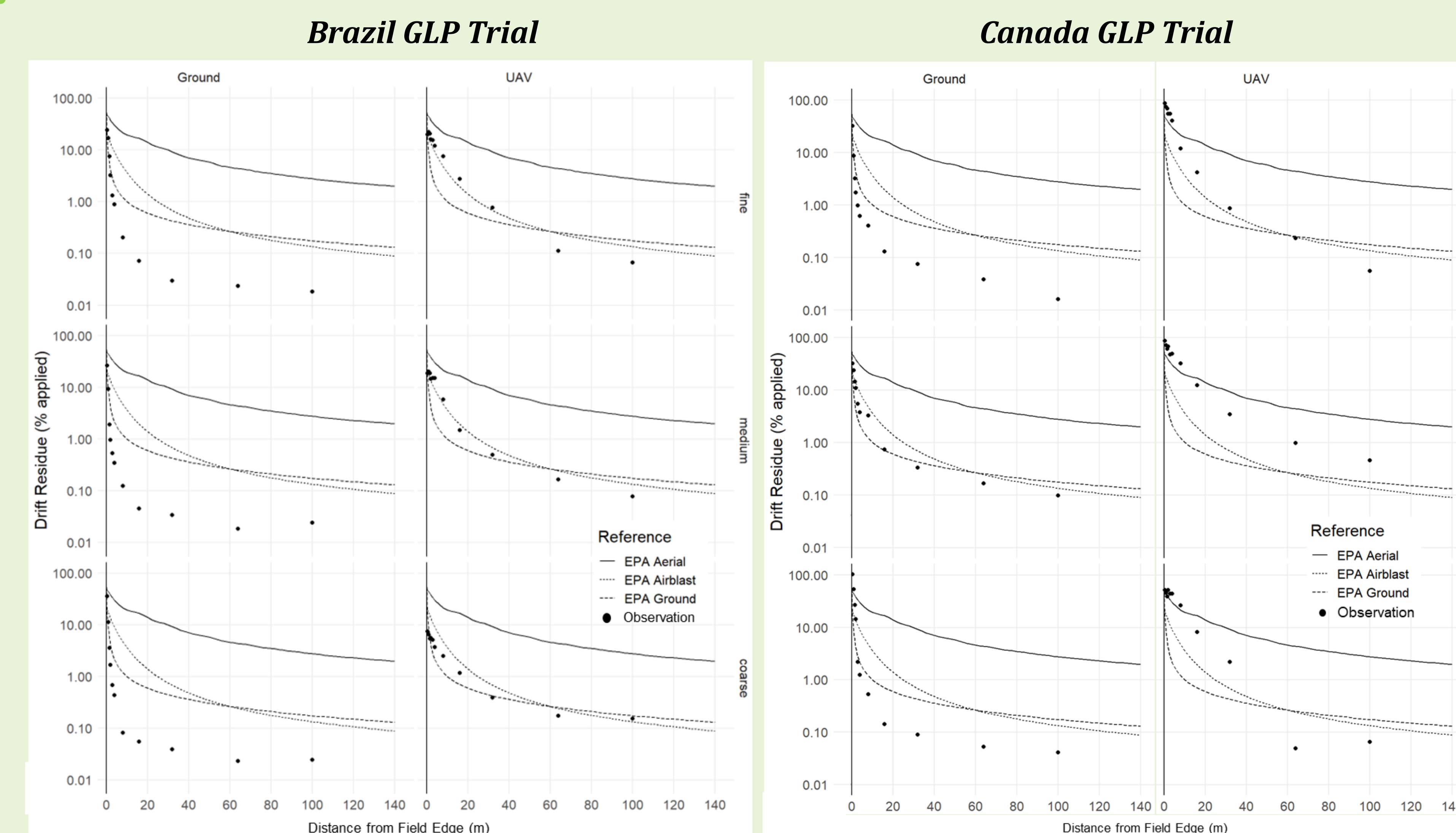


Results

Non-GLP trial



Preliminary Results from GLP trials



Conclusions

- Peer-reviewed BMP and off-target movement protocols developed; will be made available publicly.
- 1 Non-GLP & 7 GLP field trials completed (USA [2], Canada [1], Brazil [2], Spain [1], Hungary [1] & Australia [1]).
- Data from non-GLP trial follows orchard airblast regulatory drift curves for up to 50 m.
- Initial analysis of GLP data showed consistent trend across geographies; in-line with non-GLP trial.

References
[1] OECD (2021), Report on the State of the Knowledge – Literature Review on Unmanned Aerial Spray Systems in Agriculture, OECD Series on Pesticides, No. 105, OECD Publishing, Paris.