



New Technologies

Drones

Precision application of pesticides

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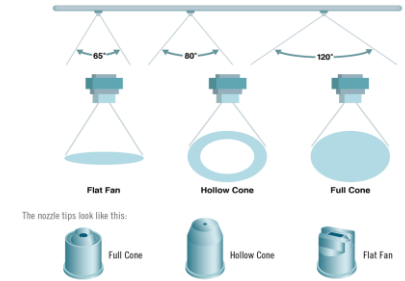
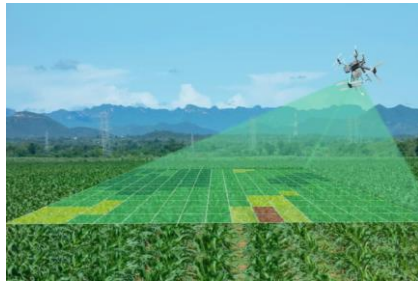
Evidence, Committees and New Technologies team

Chair OECD Working Party on Pesticides Drone Subgroup

(Views expressed here are those of the presenter and do not necessarily represent those of the OECD.)

New Technologies: Overview

- Technological advance established feature of agricultural production/pesticide use.
- Pace increasing and impacts more profound on our regulatory regime.
- Big data, AI, remote sensing, robotics (GM also). Also, improvements to existing technologies.
- Progressive companies selling ‘solutions’, rather than ‘product in a tin’.

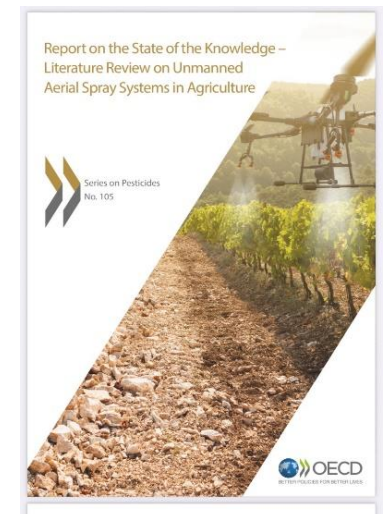


New Technologies: challenges and opportunities for Governments

- Attractive to politicians and policy makers (Innovation and precision agriculture agenda).
 - Pesticide reduction/minimisation.
 - ‘Hyper-precise’ application.
 - Upskilling of industries.
 - Development of new skills and industries – exportable products and knowledge, adds value to the national economy.
 - Identify, sift and make sense of suites of evidence.
- How can we (Government).
 - Use regulatory regimes and processes to (at worst) not impede or (ideally) facilitate adoption of relevant new technologies. Incorporate in existing/develop new approaches.
 - Ensure society has access to necessary supporting infrastructure.
 - Promote behaviour change in relevant sectors of society.
 - Address issues such as data-sharing/protection.

Drones and Phase 1 of the OECD work

- Early regulatory engagement with new technology. Improve sustainability. ‘Helpfully disruptive’ and have a symbolic status.
- OECD WPP establishes sub-group of regulators, industry and researchers from the Americas, Europe, Asia and Australia.
- Initial work to establish the State of Knowledge.
 - factors that determine how risks differ (drone design, working practices, products)
 - limited amount of evidence to support risk assessment (big focus on human health and environmental exposures/risks resulting from spray drift and handling and filling operations).
- Report published in October 2021 – number of recommendations to outline approach to assessment.
- Established Task and Finish Group to organise subsequent programme of work.



The work packages: Phase 2 of the OECD work

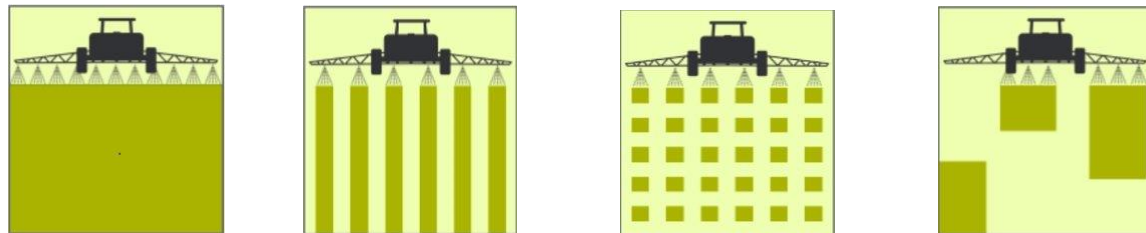
<p>Work package 1</p> <p>Database of spray drift and deposition data and empirical model.</p> <p>Mechanistic model.</p>	<p>Work package 2</p> <p>Classification of UASS types/establish design trends.</p> <p>Operational practices data gathering.</p>	<p>Work package 3</p> <p>Best practice guidance</p>	<p>Work package 4</p> <p>Report on development of standard methodologies.</p>	<p>Work package 5</p> <p>Development of ISO standards.</p>
<p>Data from Phase 1</p> <p>Industry data being generated.</p> <p>New studies.</p> <p>Work to develop tripartite grouping beginning.</p>	<p>Features that will enable classification of drone types identified and being agreed.</p> <p>Reviewing stance on design trends.</p> <p>Work on operational practices beginning.</p>	<p>Draft Best Management Practices developed in conjunction with, and presented to, a range of stakeholders.</p> <p>Ongoing development.</p>	<p>First draft in preparation – to summarise state of knowledge to date.</p> <p>Will be updated as suite of evidence and understanding develops.</p> <p>Will document strengths and weaknesses of information and tools.</p>	<p>ISO 23117 (originally 4 parts – now 2).</p> <p>Part 1 Environmental requirements. Adopted. Good start/identify issues to address?</p> <p>Part 2 Test methods assessing horizontal transverse spray deposition.</p>






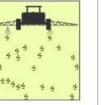



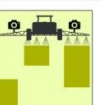
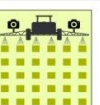
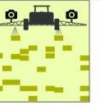


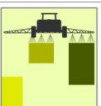







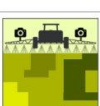

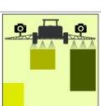
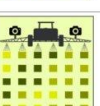
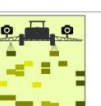
Possible future regulation of pesticides applied by drone

- Spring 2023 conference in York, UK brought the international drone community together – shared understanding of issues/work is appropriately focussed.
- Drones, working in conjunction with new technologies have the potential to improve sustainability of pesticide use. Need to better understand risks create proportionate regulation.
- Will drones replace more traditional machinery in broad acre cropping in all countries? Does the future, for some, lie in niche/specialist scenarios.
- Engaging with a modern pesticide regulatory regime not straightforward and can be relatively costly. Best for stakeholders to pool resources and expertise.
- Drone work helpful more widely - to determine regulatory attitudes/approaches and driving innovative thinking on assessing risk.

Precision agriculture: European Precision Application Task Force

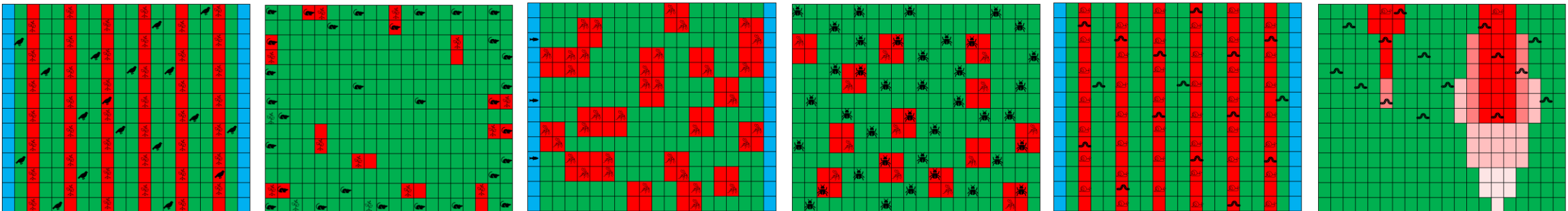
- Industry-led initiative to propose how new technologies reflected in pesticide risk assessment.
- Key point. Not necessarily about the technology in itself, but rather the way in which the technology results in the pesticide being applied to the target area.
- Identified: broadcast, band, spot, patch and variable rate applications. Possible to assign (on conservative basis) associated reduction in use, but



Geometry	broadcast	band	patch	regular spot	irregular spot	single plant
pure geometry						
geometry offline						
geometry online						
geometry VRA						
geometry offline VRA						
geometry online VRA						

New Technologies: European Precision Application Task Force

- Risk assessment has a number of ‘protection goals’, what to protect/where you protect it/over what time period/what degree of certainty. Relate to human health and the environment.
- Protection is delivered through managing exposures. Likely impacts determined by a combination of factors, including: toxicity of chemical; and length of exposures.
- How do you reflect the reduced use/where the use is taking place in the target area when doing the risk assessment.
- Easier to determine exposures for some of the protection goals than others.



Conclusions

- Precision agriculture and new technologies – always a feature of pesticide application. But speed and impact of change, adoption of practices and ability to control now exerting pressure on regulatory regimes to adapt to unlock benefits for society.
- OECD work on drones demonstrates way industry, research and regulatory community are able to work together to look at adding to existing suite of regulatory approaches.
- Work such as that of EUPAF demonstrates how development of regulatory approaches may be required to unlock benefits.
- Need for proportionate regulatory response/anticipation of developments.
- Challenging and exciting times that require all interested parties to pool knowledge, expertise and other resources to optimise benefits of technological development.

Thank you

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