A New Forum is Needed to Advance Regulatory Science in Agriculture

Laura McConnell, Alan Ayers, and Iain Kelly
Regulatory Science
Bayer US, Crop Science Division
For 70 years, US farm productivity has increased. These advancements have been accomplished by research in the public and private sectors. [Agricultural Productivity Growth in the U.S.](http://www.ers.usda.gov/data-products/agricultural-productivity-in-the-us.aspx)
The quality of pesticides has improved over time.

Also achieved through innovation in the public and private sectors combined with a risk-benefit based regulatory system.

J. Fernandez-Cornejo, R. Nehring, C. Osteen, S. J. Wechsler, A. Martin and A. Vialou
The pace of technological innovation in agriculture has accelerated.

- Automation
- Data Analytics
- Remote Sensing
- Genome Editing
- Urban agriculture
Research in regulatory science is needed now to prepare for the future of agriculture.

National Academy of Sciences Project Recommendations:

• “Increased investments in regulatory science will be needed”

• “developers of biotechnology to incorporate regulatory perspectives earlier in the product and technology development process

• “appropriate federal funding levels for sustained, multiyear research to develop the necessary advances in regulatory science.”

NAS, 2017. doi: https://doi.org/10.17226/24605
A new forum for engagement is needed to advance regulatory science in agriculture.

Current State:
- We are all in agreement then.

Desired State:
- Productive engagement
- Improvements in regulatory science
North Carolina State University
Center of Excellence for Regulatory Science in Agriculture

NC State University will serve as lead in a Consortium of Universities within the Center to leverage expertise in different regions of the US and the world.

Research:
Research to address reg. science issues emerging from engagement activities, involving scientists from multiple sectors.

Education:
Undergraduate Minor, Graduate Minor and Certificate Program. Include lecturers from multiple sectors.

Engagement:
Forum for bringing together stakeholders including growers, engaging on emerging issues in regulatory science.
2017 Workshop on Innovation and Regulation in Agriculture

“Overcoming the Challenges of Incorporating Higher-Tier Data in Ecological Risk Assessments and Risk Management of Pesticides”.

Organizers:
Linda Abbott, USDA
Danesha Seth Carley, NC State
George Cobb, Baylor University
Kevin Costello, US EPA
Jeff Giddings, Compliance Services International
Matt Kern, Waterborne Environmental
Ed Odenkirchen, US EPA
Laura McConnell, Bayer
The 2017 Workshop was a way to test the waters on engagement

Utilized pyrethroid insecticides, as a case study for discussion.

• **Identify the greatest challenges** to the use of higher tier studies in ecological risk assessments and in risk management decisions.

• **Develop a series of recommendations** to improve the process for designing and conducting, evaluating and utilizing higher tier studies for risk assessment and risk management of pesticides.
The 1.5 day workshop included a public session on followed by break-out groups

Value of Pyrethroids in US Agriculture
—Paul Mitchell, University of Wisconsin Madison

Overview of US EPA Risk Assessment and Risk Management Approach to the Utilization of Higher Tier Studies
—Kevin Costello and Ed Odenkirchen, US EPA Office of Pesticide Programs

Pyrethroid Risk Assessment, Consideration of Higher Tier Studies
—Jeff Giddings, Compliance Services International

Using a Weight of Evidence Approach in Ecological Risk Assessment
—Keith Solomon, University of Guelph
Engagement is continuing on workshop outcomes

- Outcomes from workshop have been compiled into draft recommendations
- A writing team is working on a manuscript to be published in a peer-reviewed journal
- All attendees at the workshop will be asked to review the manuscript prior to submission
- Additional discussions will be scheduled as follow up to final recommendations
NC State is seeking partners to support the formation of the Center of Excellence for Regulatory Science in Agriculture.

Engagement
- 2016 Workshop on Innovation and Regulation in Agriculture
- 2017 Workshop on Innovation and Regulation in Agriculture
- 2018 Workshop on Innovation and Regulation in Agriculture
- 2019 Workshop on Innovation and Regulation in Agriculture

Education
- Intro to Regulatory Science in Agriculture course launched. Now offered every semester
- Developed White Paper Proposal for Center of Regulatory Science
- NC State Named Center Director
- Center Launch Meeting with Stakeholders

Creation of Center
- 2016 Workshop on Innovation and Regulation in Agriculture
- 2017 Workshop on Innovation and Regulation in Agriculture
- 2018 Workshop on Innovation and Regulation in Agriculture
- 2019 Workshop on Innovation and Regulation in Agriculture

Advanced Course in Regulatory Science in Agriculture to be offered

Danesha Seth Carley, Assoc. Prof. of Hort. Science is new director of CERSA
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