



Private Sector Meeting

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| <p>A Changing Climate: Research in Support to Crop Pest and Disease Adaptation</p> |
| <p>HOSTED BY: CropLife International and the International Animal Health Federation</p>   |
| <p>DATE, LOCATION : Thursday, October 18, 12:30-14:30/ Austria Room</p> |
| <p>SPEAKERS : Dr. Jeffrey Dukes: Director, Boston-Area Climate Experiment & INTERFACE, Associated Professor, Forestry and Natural Resources, Biological Sciences, Purdue University. Dr. Richard Harrington: Rothamsted Insect Survey, Department of AgroEcology, Rothamsted Research Dr. Terrance Hurley: Researcher, Harvest Choice; Professor, University of Minnesota, Department of Applied Economics Dr. Harry Streck: Leader, Bayer CropScience, Integrated Weed Management and Weed Resistance Biology Team</p> <p>MODERATOR: Siang Hee Tan: Executive Director, CropLife Asia</p> |
| <p>MEETING SUMMARY Identify the research gaps to inform future policy processes assisting farmers to adapt to the impacts of climate changes on weeds, pests and diseases for crops.</p> |
| <p>KEY THEMES & DISCUSSION POINTS, INCLUDING NEW PROJECTS OR PARTNERSHIPS</p> <p>Dr. Jeffrey Dukes, Purdue University.</p> <ul style="list-style-type: none">• 5-10% crop loss in US due to weeds, even with herbicide application• Weeds and crops might benefit from CO₂ increase (growth stimulation, water |

savings)

- Elevated CO₂ decreases efficacy of herbicides on several weed species
- Weeding can make up 60% of preharvest labor, widely used in developing world.
- Both crops and weeds are likely to grow faster in response to CO₂

Dr. Richard Harrington, Rothamsted Research

- Climate change is going to affect the insect's dynamics.
- One example is with the American bollworm, it is predicted that it will cause less damage to cotton and wheat with ++ [CO₂]. The specie will have a slower development and a reduced fecundity.
- Within the process of the climate change the diversity of these dynamics, which will be reduced on the places where it gets dry, and it will increase where it gets warm.

Dr. Terrance Hurley, University of Minnesota

- The project Harvest Choice has the purpose of: Enhance the capacity of practitioners to make more informed agricultural development and research investment choices for the sustained benefit of smallholder farm households and poor consumers in sub Saharan Africa.
- The range of the activities and products of Harvest Choice includes: benchmarks the extent of crop & livestock, modeling, abiotic constraints, biotic constraints, management, market access and development of new survey Tools.

Dr. Harry Streck, Bayer CropScience

- The land available for agriculture (15mio km² ~ 3%). In 2050 the world population is estimated to be 9,200,000,000 and the limited arable land and growing world population is a challenge for food supply
- Weed control essential for no-till agriculture, the benefits of the no-tillage are: Excellent erosion control, Soil Moisture conservation, Minimum fuel and labor costs and Builds soil structure and health.
- Bayer CropScience has a unique position in rice with a portfolio combining leading crop protection solutions and high-performing rice seeds
- The aim of Bayer is to enable farmers to increase output and quality in a sustainable way.
- Bayer Hybrid seeds help to minimize climate change effects, by: Disease and abiotic stress resistance, Ensuring higher yields, Shorter growing season (less water), Increased biomass (CO₂ sequestration), Cost of production decrease, more income

MAIN CONCLUSIONS

- Management strategies will need to adapt to shifts in weed distribution, growth rates and carbon allocation strategies.
- Farmers in developing nations may have less capacity to adapt.
- Some weed species might provide benefits for adaptation, mitigation.
- Use of new crop protection solutions, optimized cultivation technology and cutting-edge biotechnology is increasing.
- Further investments both by public and private institutions in improved seeds, new plant traits as well as innovative agrochemicals enhancing stress tolerance are necessary.