

A NEW MODEL FOR BUILDING COLLABORATIONS

WHAT DID WE LEARN FROM THE 2017 US-CANADA CLIMATE CHANGE SYRACUSE WORKSHOP?



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada



Northeast Climate Hub
U.S. DEPARTMENT OF AGRICULTURE



DAVID R. ATKINSON CENTER
for a Sustainable Future



OCTOBER 17-18, 2017 SYRACUSE, NEW YORK



INVITED PARTICIPANTS – WHO?



Government

- ✓ US Department of Agriculture
- ✓ National Oceanic & Atmospheric Administration
- ✓ Agriculture & Agri-Food Canada
- ✓ Env. & Climate Change Canada
- ✓ Prince Edward Island

NGOs

- ✓ International Institute for Sustainable Development
- ✓ Ouranos Consortium

Farms/Farm Organizations

- ✓ Ontario Federation of Agriculture
- ✓ New Moon Farm

Academia – Research/Outreach

- ✓ Cornell University
- ✓ SUNY College of Env. Sci. & Forestry
- ✓ University of Massachusetts
- ✓ Association Public and Land Grant University
- ✓ University of Vermont
- ✓ Pennsylvania State University
- ✓ NC Cooperative Extension Association

Industry

- ✓ John Deere
- ✓ Weather INnovations
- ✓ McCain Foods Ltd.



A SUCCESSFUL AGENDA LOOKS LIKE...



1. *Get to know ya kinda stuff*

- The night before (beer, chicken wings, your favorite eats at a local restaurant)
- ... the morning after (bagels, pastries, coffee, and tea and good conversation)

2. *Dropping some knowledge but leave us wanting more*

- Smart people show up including key speakers

3. *Stay focused*

- Discussion themes (3)

4. *Opportunities for collaborative actions*

- Breakout sessions / small group discussions

5. *Towards meeting the needs of the client*

- “Tools Café” friendly and informative

6. *Creating “space” for talking to each other*





THEME I: EXTREME WEATHER



Addressing extreme weather events: How are extreme weather events and climate change affecting soil erosion and nutrient loss in the agricultural landscape?

- **Keynotes to get us oriented:**
 - Climate Change and Soil Carbon
 - Changes in Climate Extremes
 - Watershed Issues of the Northeast
 - Nutrient losses in hillslope and watershed runoff resulting from an extreme rainfall event.





THEME II: PESTS



Climate Change, Pests and Diseases: How will climate change increase pests and disease pressure?

- **Keynotes to get us oriented:**
 - Bioclimatic modelling of crop-pest interactions to study the impacts of climate change and variability in Eastern Canada
 - Weather-based Tools to Support Pest Management in a Changing Climate
 - Climate Change and Pests: Monitor, Mitigate and Manage
 - The Potential Influence of Climate Change on Produce Safety



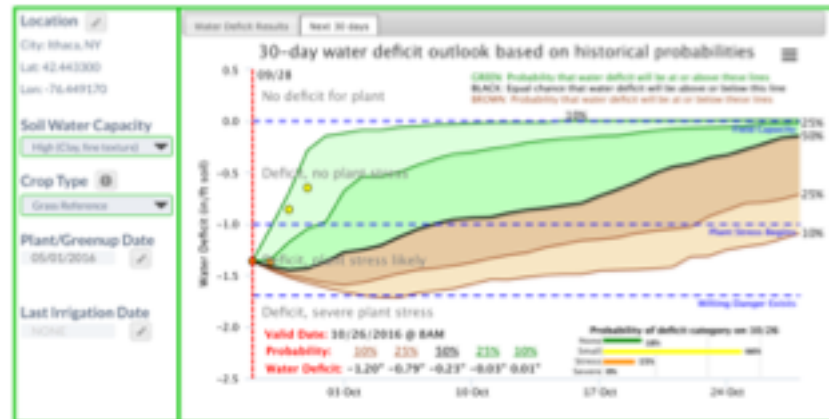


THEME III: DECISION SUPPORT



Weather & Climate Decision Support Tools: What are barriers and motivators to developing and adopting tools?

- **Keynote: Dennis Todey, USDA- ARS, Developing Useful Decision Tools: The U2U Experience**
- **Attention getting**
 - 2 minute overview; one PowerPoint!
 - Sell your tool
- **Open forum – demos of all tools**





THEME III: TOOLS CAFÉ



Weather & Climate Decision Support Tools: What are barriers and motivators to developing and adopting tools?

- **Tools Café (examples)**
 - **AgWeather Quebec and AgWeather Atlantic**
 - Provide regionally relevant weather data, information and decision support tools to users in E. Canada
 - **New York State/Northeast Drought Atlas**
 - Depicts current conditions of drought for the NE US
 - **NY Climate Science Clearinghouse & GIS Viewer**
 - Visualize and explore maps of current and future climate along with map layers representing multiple sectors across NYS.
 - **CIPRA-2017 Integrated Crop & Pest Management in E. Canada**
 - Helps manage crops and their pests, weather-based decision systems are useful tools for producers.
 - **Northeast Regional Climate Center, ACIS**
 - NE Regional Climate Center data analysis tool and data products for turfgrass industry



THEME III: TOOLS CAFÉ *CONT'D*



- ***Tools Café (examples)***

- **Cornell's Climate Smart Farming Tools**

- Helps farmers understand the potential risks posed by the changing climate, such as freeze risk and water deficit

- **Holos Whole-Farm Model**

- Tests possible ways of reducing GHG emissions from farms at no cost to users

- **NOAA Climate.gov**

- Weather and climate decision tools: drought, precipitation, bi-lateral with Atlantic Canada

- **Weather INnovations**

- Information and decision support tools that improve sustainability, consistency and profitability of agriculture production

- **Network for Environment and Weather Applications**

- Localized short-term agricultural pest forecasts, using weather data streamed from grower owned stations



FARMER / STAKEHOLDER PANEL



- **Can't stress enough, importance of listening to the end user.**
 - What do they need?
 - Ground truth from farmers, insurers, etc.
- **Participatory process**
 - What will work, what won't?
 - Website, apps...
 - Create a tool and no one uses it.





SUMMARY OF OUTCOMES

THEME I: EXTREME WEATHER



- **Extreme precipitation events:**
 - Are increasing.
 - Generate a disproportionate amount of nutrient and sediment losses.
 - Are affected by local watershed characteristics and location-specific soil moisture conditions.
- **Longer growing seasons may expose crop growth and vulnerability to more extreme precipitation or drought events.**
- **Needs:**
 - A greater ability to predict and manage for extreme events.
 - Better prediction and application of forecasts at the local level.
 - More research to better predict impacts of climate change on soil carbon cycling.
 - More research on cover crops, including: selection of species, cost/benefit analysis, value of multiple benefits, and harvestable forage options.
 - Application of research should include the private sector.



SUMMARY OF OUTCOMES

THEME II: PESTS



- **Climate change is already affecting pest pressure and this will intensify with time.**
- **Historically innocuous species may become pests and new pests will expand northward.**
- **Increasing wet conditions will exacerbate plant diseases.**
- **Rising concentrations of atmospheric CO² likely to alter weed pressures.**
- **Food safety, especially as it relates to fresh produce, faces challenges from climate change.**
- **Current tools in Canada and the NE US have different capacities but in general:**
 - Help predict the phenology of crops, the development of insect pests, diseases and physiological disorders,
 - Also used to study historical climate trends and the potential impacts of climate change.
- **Needs:**
 - More powerful and effective monitoring and forecasting programs.
 - Decision support tools should be an integral part of all pest management programs.

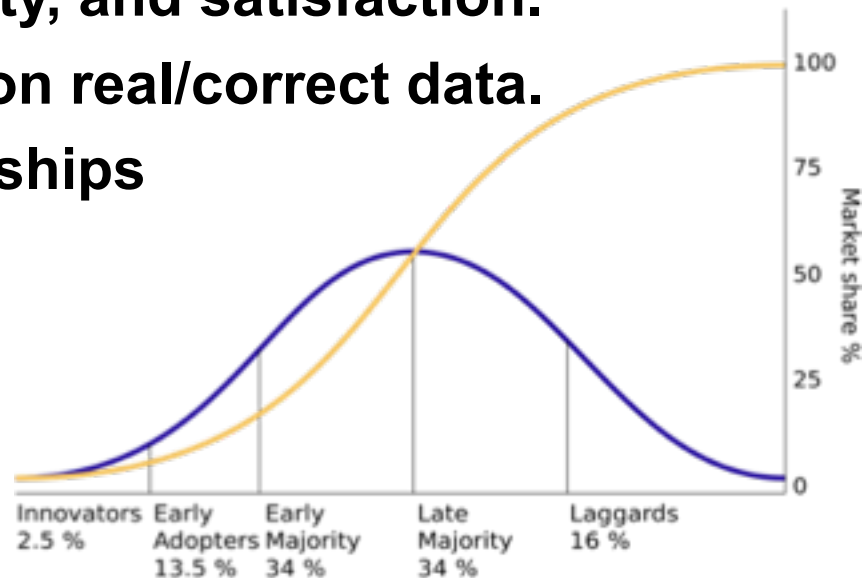


SUMMARY OF OUTCOMES

THEME III: TOOLS



- **Stakeholder interaction from the beginning and throughout the entire process is essential.**
 - Identifies the need for the tool and helps to ensure that the tool is useful.
 - Encourages buy-in, trust, and sustained product use.
- **A useful tool is one that is both easy to use and meets the user's functional needs.**
- **Components relating to ease-of-use include: learnability, efficiency, memorability, and satisfaction.**
- **Tools must be based on real/correct data.**
- **Private-public partnerships may increase trust.**





CANADA-US POTENTIAL COLLABORATIONS



- **Develop network linking Maine Stations and AgWeather Quebec, Atlantic, Ontario, NEWA, to improve services and analysis with a unified approach and shared data.**
- **Improve pest identification, detection, coordination, sharing of information, and management/decision tools on regional basis.**
 - Adapt weather alert systems to pest alerts (presence not predictive)
 - Build on/adopt existing pest models
 - Develop best practices for developing tools (including apps), develop database of what currently exists and usefulness rating, and improve coordination across regions



CANADA-US POTENTIAL COLLABORATIONS ... *CONT'D*



- **Drought.gov – a new early warning system. Will extend to both too much and too little water.**
- **Tools – cross border opportunities: Evaluation, consolidation, integration into existing systems, farmer feedback/needs, develop a cross-border tool to highlight opportunities**
- **Cover Crops and Soil Health; Quantify the benefits, Incentives/regulations, Policy Analysis**
- **Training the Next Generation, Engaging Youth – address challenge of finding applicants with the skills businesses need.**



OPPORTUNITIES CONTINUE BECAUSE OF THE WORKSHOP

**If you want to join a
collaboration.**

Signup - back of room.



SO, WERE WE SUCCESSFUL? ... BY THE NUMBERS



- ❑ **97%: useful (77%) or very useful (20%)**
 - Most increased understanding – Themes II and III
- ❑ **92%: would use information from the workshop in their work**
- ❑ **79%: Increased communication with a Canadian/US counterpart**
- ❑ **90%: effective or very effective**
 - Preparation and materials
 - Content
 - Delivery Format of Talks
 - Q/A and Discussions
 - Open & Inclusive Environment
 - Responsiveness
 - Space and refreshments





WHAT'S OUR TAKE AWAY ?



- ✓ **WOW ... what a great group of people to work with!**
- ✓ **Cross border data sharing via the web**
- ✓ **More producer input and their needs**
- ✓ **Eat, meet and greet**
- ✓ **Do again in 2 years and maybe 2 full days of conversations**
- ✓ **Increasing your people and knowledge networks → *Community of Practice***
- ✓ **Northwest Cross-Border Climate Hub Workshop November 14 & 15, 2018, Mount Vernon Washington State University**





QUESTIONS

