A NEW MODEL FOR BUILDING COLLABORATIONS

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

OCTOBER 17-18, 2017 SYRACUSE, NEW YORK
Good & Purpose for the Workshop

Goal:
Exchange information, establish partnerships, lay groundwork for joint projects

Purpose:
- further identify challenges occurring for agriculture on both sides of the border in a changing climate and to identify what challenges are related to a need for better adoption and a need for better tools; and
- identify opportunities where collaboration and partnership building across northeastern United States and Atlantic Canada–Quebec can help arrive at solutions for these challenges and reduce the risks associated with climate variability.
## 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
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.
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
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
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
**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
• 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 CO\textsuperscript{2} 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