



Research Committee Discussion

Canadian Roundtable for Sustainable Crops

November 15, 2018

Mandate of research committee

- **Identify the major information/data gaps for grains industry sustainability;**
- **Place priorities on filling those gaps;**
- **Locate existing data sources** and/or estimate potential scope and costs of new research needed;
- Communicate the priorities to funders and researchers;
- Select those priorities which the CRSC could best undertake;
- Examine the value of past CRSC research and advise on improvements;
- Review methodology and execution of new CRSC research work;
- Advise CRSC on communications and research results; and
- Engage with select researchers.

Results of Research Committee discussion

- Research Committee has identified gaps, and have raised some questions
- Session today will be to obtain your input on whether these are the **right gaps** (gaps are in blue script)
- You will also be asked to provide a **low, medium or high priority rating** for each of the gaps
- You can also **add** ones that are not currently on the list

- The presentation is categorized by the same topic areas as the Metrics Platform to provide familiar structure to the discussion
- The order presented reflects how it was discussed; not order of priority

1. Agrochemical Management (pesticides)

Integrated Pest Management (IPM) is a requirement for all international standards

- Need research around alternatives to pesticides and their effectiveness
- Cost/benefit of beneficials vs pest control
- IPM is not a term grain farmers use but significant IPM practices in use according to surveys. Extension and communication component of research results is important, as well as usage of IPM terminology

Broad application of herbicides versus targeted

- International standards are moving toward “targeted” rather than broad application of pesticides, including herbicides.
- Need research on balance of quality preservation versus potential unintended consequences

Awareness and observance of buffer zone requirements

- Are buffer zone requirements a research issue or an information/extension issue?

2. (a) GHG Emissions and Air Quality

Updating of crop and region specific CRSC carbon LCL work

- CRSC study was completed in 2017 based on 2014 data
- AAFC currently working with 2016 data to update input factors
- Re-calculation of crops carbon LCA's required when updated input data becomes available

Full carbon footprint lifecycle analysis

- Currently CRSC analysis ends at the farm gate
- Transportation data available but application to grain currently not calculated; GHG emissions publicly available for some processing facilities
- Research required to provide analysis of footprint of grain at port and/or products (such as oils and meals and flour)

2. (b) GHG Emissions and Air Quality

Soil organic carbon

- Land conversion GHG emissions should be integrated with soil organic carbon calculations

Whole farm

- Carbon footprint of all area of the farm, not just the cultivated acres

Impact of various farm practices on GHG

- HOLOS model and FieldPrint provides tools to calculate impact of changes in farm-level practices on GHG emissions
- Some research completed on consequential life cycle assessment (impact of a specific practice)
- Consequential life cycle assessment (which would include a survey of existing results)

3. Land Use and Biodiversity Management

- International sustainability standards place high importance on land use and biodiversity, including accommodation of wildlife
- AAFC wildlife habitat indicator shows that there is a decline in habitat quantity and quality; this will be updated
- Some reasonable data on Species at Risk; land use and biodiversity data available for the Prairies; Canola Council project quantifies amount and value of non-cropland in farming systems; 2017 Statistics Canada Farm Management Survey will provide data on on-farm wetland drainage
- Research needs: What are indicators, what is important. Need a common definition and understanding as it is very diverse (species, wildlife, crop diversity, above ground vs below ground, etc)
- This is an education and awareness issue as well as a research issue

4. Nutrient management

- Considerable information available on practices for both manure and chemical fertilizer usage
- Additional material will be available through continuation of Fertilizer Use Survey by Fertilizer Canada, and Statistics Canada 2017 Farm Management Survey
- 4R Program can be used to validate area of adoption and therefore benefits from 4R management
- **No additional research requirements identified**
- Extension/communication need to make vernacular of 4R more mainstream. Ahead of IPM for crop protection products but still work to do.

5. Soil Quality and Productivity

Soil organic carbon

- Impact of new technology like vertical tillage

6. Waste and pollution

Plastics

- Research results on pilot projects and regulations

7. Water Quality and quantity

- International standards have a large focus on irrigation: less than 2% Canadian grain crops land is irrigated; significant information. No research gaps.
- Water quality information is limited, and quality impacts are difficult to attribute to one activity BUT the examples of Lake Erie and Lake Winnipeg says we shouldn't ignore this.
- AAFC will continue nitrogen and phosphorous risk work (transport off-field); however does not capture what happens when enters a water body
- Some regional data does exist
- Research gaps in how significant grain farming activity impacts water quality

8. Labour relations, Working conditions , Work safety and security

- Most requirements in international standards are about worker treatment
- Significant amount of federal and/or provincial legislation: absence of discrimination, child and forced labour; wage payment and deductions; health insurance; ability to associate and bargain collectively
- However, some labour legislation in some provinces does not extend to workers on grain farms (such as minimum wage, hours of work, overtime, vacation and other leave, other benefits , training requirements, etc.)
- Very limited data on practices (except for level of wages paid)
- Research required to cover producer employer practices in those provinces not covered through legislation

9. Community Relations

- International standards focus on community involvement, especially but not limited to corporate farms
- Some identified practices covered in legislation, such as land tenure, complaint mechanisms, nuisance management
- Others for which data does not exist includes: local hiring; local purchasing; contribution to community activities
- No research priorities identified, but data gaps could be included in a producer survey focused on labour practices

Discussion

The CRSC Research Committee would like your input prior to fully develop the CRSC Research Strategy

Please confirm each of the gaps identified, and if they are indeed gaps, place a priority of low, medium and high beside each one

Feel free to answer the questions posed, and/or add any other gap that may be missing

Documents to assist in your discussion are on the tables