



November 15, 2010

Meeting Report: Environmental Footprinting for Agriculture

Background:

Alberta Agriculture and Rural Development (ARD) held a workshop on October 26-27 on environmental footprinting for agriculture. Environmental footprinting is a tool increasingly being used globally to measure the environmental impact of a product or process. Specific kinds of environmental footprints include water, energy and carbon footprints.

ARD has funding from Agriculture and Agri-Food Canada through the Agri-Flexibility program for a four year project to develop four environmental footprints for crop and livestock commodity streams. The project is expected to look at the research on methods for calculating footprints, collect relevant data, and come up with transparent footprinting coefficients that will enhance buyer and public confidence in Alberta's agricultural products and practices.

The intention of the workshop was to provide information on the footprinting project, determine how much participants understand footprinting, determine where they think the project should go, and increase the level of understanding of the issue and terminology associated with footprinting.

Keep in mind that Footprinting carries with it both opportunities and risks for agriculture.

- On the positive side, footprinting can help identify inefficiencies in farming practices that can help reduce inputs like water, fuel, herbicides and pesticides resulting in cost savings. Footprinting is also being used to brand products as a means of maintaining or gaining market share and providing consumer confidence in the products farmers grow. By getting out front of this emerging trend, agriculture can lead the way to better environmental sustainability rather than reacting to outside forces (like Walmart – see below).
- There are risks as well, particularly in the proliferation of green claims in the marketplace (greenwashing), which may not be backed by legitimate data, and in the number of systems used for determining footprints.

Key Messages:

Driving Forces – Setting the Context

Delivering on Sustainability Profitability

- Anita Burke, founder of the Catalyst Institute, discussed Walmart's new global commitment to sustainable agriculture as well as Pepsico's water and food standards.
- The demand for sustainability in agriculture is increasing among retailers and consumers.
- One of the key drivers for sustainability efforts is peak oil – the expected dramatic increase in energy costs that is causing companies like Walmart to look for ways to reduce their supply chain costs and manage future risks. Walmart is doing this partly by buying more local products.
- Burke's view is that this drive to lower costs of production will benefit suppliers like the agriculture sector by forcing greater efficiencies and reducing input costs.

Environmental Footprinting – Just Plain Smart Business

- Brett Wills with High Performance Solutions Inc. discussed the business case for putting together an environmental footprint.
- While consumers still look primarily at price when shopping for food, they are increasingly looking for numbers on environmentally friendly production of food.
- Wills suggested there is a small window of time where footprinting provides a competitive advantage – after that, it will be expected.
- Walmart's goal for Canada is to purchase 30% of its produce from local sources.
- The screws around environmental legislation are getting tighter everywhere and footprinting allows a quick assessment of risk.
- Wills notes that footprinting helps businesses by pointing out inefficiencies in water, fuel and other input uses which can help reduce variable costs.
- Education and awareness is a key first step as is the collection of sound data. Do we know, for example, that food produced locally is "greener" than food produced elsewhere?
- Transparency is key – the industry needs to be upfront about where we are today environmentally and where we are going.

McCain Foods Canada's Integrated Approach to Environmental Sustainability

- Yves Leclerc noted that the genetic modification issue started the company on the road to sustainability.
- Social responsibility is a growing reality for customers and for businesses with food safety, environmental degradation and worker's rights increasingly a part of buying decisions and marketing.

- The reality is messy – in the US there are over 400 eco-standards in value-chain initiatives like footprinting, certification and company programs like Walmart’s, which all measure different things.
- The varying metrics are based on practice (like conservation tillage and residue testing), inputs (like fertilizers, pesticides and water), or outcomes (like energy use and carbon emissions).
- Leclerc discussed the impacts on producers and how to bring these programs to the grower level.
- He pointed out that there are costs associated with implementing management and audit programs and the objectives can be contradictory.
- The Good Agricultural Practices (GAP) Program is a third party assurance program that involves a basic set of standards that incorporate local programs as much as possible.
- CanadaGap involves only food safety standards so far – it is an on-farm food safety program for the safe production, storage and packing of fresh fruits and vegetables.
- The Sustainable Agricultural Initiative (SAI) Platform is the largest sustainable agriculture program in the world, which encompasses principles and practices for sustainable agricultural production.
- The Canada GAP program as well as the Eastern Canadian Environmental Farm Plan Program meets the standards for the SAI Platform.
- For more information on the SAI Platform see www.saiplatform.org.

Panel Discussion

- Despite concerns about increasing demands on growers, sustainability will be a requirement – the key will be to streamline the process.
- There is some work being done in Manitoba and Saskatchewan on updates to the Environmental Farm Plan programs to make them compatible with the SAI Platform.
- Processors are looking for progress in improving sustainability while not necessarily requiring that stringent standards be met immediately.
- Auditing will be required to provide assurance of sustainability claims. Ideally, an auditing system would be Canada-wide, grower-led, cross commodity and low cost.
- Footprinting as a measure of sustainability is very new and there are lots of challenges.
- The key will be to go after the low hanging fruit – those changes that can be done early and relatively easily that will result in cost savings that can be used to fund bigger changes.

Measurement Tools and Reporting

Measuring the Environmental Footprint of Agriculture

- Jeff Wilson discussed measurement procedures used to determine the environmental impact of farming.
- Life-cycle assessment (LCA) measures the full range of environmental impacts from raw materials to finished product. It is ISO standardized and involves detailed data collection

on energy and resources used during the whole life cycle of a product or process followed by environmental impact assessments and interpretation of results. LCA's are complex, difficult to compare across jurisdictions and don't apply well to variables that are hard to quantify like land use and water.

- Environmental or ecological footprints (EC) are additive and focus on consumption of inputs like energy and water on a per hectare basis.
- Challenges include:
 - biological systems are very complex
 - these analyses can be resource intensive and thus costly
 - local data is needed and may not be available
 - these tools measure one subset of sustainability – they don't measure social and economic impacts
- Wilson suggested that the best approach for Alberta and the ARD project would be to measure macro provincial impacts and that it is unlikely that individual farms would do either an LCA or an EF. Specific sectors could do these kinds of analyses.

Corporate Reporting Initiative

- Mark Brownlie discussed the increase in sustainability reporting to meet the growing expectations of environmental groups, Newsweek's Green Rankings and investors (Dow Jones Sustainability Index).
- Mostly large companies have started reporting on sustainability to address the concerns of their customers and investors.
- He noted that transparency about what companies are doing to be more sustainable is at least as critical as the actual measures.
- Some initiatives include Global Reporting Initiative on Sustainability (over 1500 companies have taken part), SAB Miller Water Footprint, and Carbonostics (measures cost + carbon + nutrition for food products or menus).
- Key questions include how deep in the supply chain or life cycle should the analysis go, what is the measurement unit, how do we compare measures, and what do companies do with the information – will it go on labels for consumers?

Quebec National LCI Database Initiative

- Gabrielle van Durme is with CIRAIG, a Quebec based interdisciplinary group of university researchers who formed CIRAIG to develop expertise in sustainable development tools.
- The Life Cycle Inventory (LCI) is a database that provides the backbone to Life Cycle Analyses.
- There are databases around like the EU's EcoInvent, but a Canadian national LCI would be useful in providing consistent rigorous data.
- There is little data on energy use or land use impacts for agriculture in Canada. Land use impacts used to be based on land area but quality of the land is more critical - and more difficult to quantify.

- A participant commented that researchers need to be careful that these measures don't assume that the baseline is undisturbed land and that any disturbance is negative as agriculture would be at a disadvantage immediately.
- A comment was made that we need to remember that food production is an ecosystem service and the primary service provided by the agricultural land base.

Opportunities in Practice

Food Industry Sustainability Trends

- Gord Kurbis with Pulse Canada discussed the concept of a sustainability ladder with actions ranging from easiest to hardest – like lowering energy use by turning out lights, decreasing packaging, decreasing use of higher environmental risk ingredients, and moving to shorter supply chains (direct farmer to market).
- The final frontier and harder to implement area is sustainability in agricultural products with long supply chains for which there are both defensive and offensive strategies.
- Kurbis said that 80-95% of the food industry's environmental footprint is in the commodity sector so the industry needs to document where primary agriculture stands.
- As yet there are no data for environmental footprints of western Canadian commodities.
- On a positive note, Canadian agriculture has low pest pressure, predominantly dryland production, is a leader in no and low tillage production, and has a diverse crop rotation system, which all contributes to lower input use. Using pulses in rotations further contributes to lower non-renewable energy use.
- Current Pulse Canada projects include carbon footprinting, life-cycle analysis, field to market metrics, and working with Unilever's carbon calculator pilot. Projects under development include a functional unit study, a water footprinting case study, and documenting continuous improvement.
- Many of the leading consortiums working on sustainability are not actually measuring anything but are working on standardizing and harmonizing methods for measuring sustainability, hopefully with an open source rather than proprietary approach.
- There is no business model for farmers yet and no one knows what it will look like.

CCFS Value Chain with Rahr Malt and Sapporo Breweries

- The Collaborative Contract Farming System (CCFS) is part of Sapporo's quality control system that extends right to the farm level.
- Food safety is critical to Japan, which imports most of its food.
- In life-cycle analyses for production in western Canada, we're pretty good compared with competitors but transportation bumps up fuel use.
- The CCFS contract-based program for Alberta farmers produces the best tasting malt but we are high cost producers with relatively low rates of return on investment.

Virtual Water Strategy – Creating Sustainable Food-Water-Trade Relationships

- David Hill with the Alberta Water Research Institute introduced the concept of virtual water – the water that is imbedded in goods like food.
- Canada is a net exporter of water imbedded in goods.
- Research is underway on a virtual water analysis for Alberta’s irrigated agriculture. Research questions include how much water do irrigated crops use, where do the crops end up and the crop water productivity of irrigated crops.
- The information can help us understand what we’re using water for and what value it has as well as provide insights into trade and where our water is ending up.
- There will be a push to make water more productive which may push farmers to grow different crops.
- Virtual water analysis is one tool in a big toolbox of sustainability measures.

Government Galoshes or Kicks

- Tom Goddard with ARD raised a number of questions including where government should be in this process – in the lead, following industry or virtual (modeling).
- If footprinting is where markets and consumers are going, how can producers take advantage of opportunities?
- He suggested governments have a role in leadership and in baseline work creating databases and models.
- The federal government is working on LCA’s for various crops and Alberta has asked for access to this information.
- For farmers, primary production is critical to the food industry and the entire food chain. The attention on agriculture is not a bad thing because farmers have good news to tell and valuable data in their records.
- Traceability as part of record keeping is needed to improve the validity of LCA’s and to avoid double counting in LCA’s.
- Transparency is key for farmers and the industry – we should not be afraid to shine a flashlight on the industry.

Trends, Challenges Needs and Opportunities

- Mark Anielski did a literature review for Alberta Agriculture and found only one paper that really defined ecological footprinting.
- We need to measure what really matters whether it’s energy use, greenhouse gases, nutrients, pesticides, land use or water and we want the measures to be on a per hectare basis and not per bushel or per kilo.