Environmental metrics & agricultural producers

There are four key concepts related to ***environmental metrics*** – measuring a product's environmental impact – that have implications for market access, market share and production standards for agriculture producers in Alberta.

The four concepts are:

- ***Eco-labeling:*** labeling of products, typically using recognizable symbols, demonstrating they are produced in accordance with certain accepted practices and standards which minimize their environmental impacts. An eco-label can increase a product's appeal to consumers. To be credible, such a labeling system needs a verification process to ensure that the products truly meet the certification specifications for the label.

- ***Ecological footprint:*** a biophysical assessment method that calculates the required bioproductive space (hectares) necessary for producing all the resources (food, energy, materials) and absorbing the wastes associated with a given population or with a specific product or activity.

- ***Environmental footprint:*** a broad suite of environmental metrics that, for agriculture and food production, would generally measure energy and water use, greenhouse gas emissions, nutrient impacts (fertilizers, manure), pesticide use impacts and land use effects (including impacts on biodiversity). It is typically calculated on a per unit of production basis.

- ***Life-cycle analysis:*** an assessment of environmental impacts associated with all the stages of a product's life, from cradle to grave, including all the materials and energy used during each stage, including production, transportation, processing, manufacturing, distribution, retailing and disposal.

Why are these concepts important for agricultural producers?

In North America, major retailers and processors such as Walmart and Unilever are beginning to demand auditable environmental and social impact information tied to products they sell or use, including agri-food products. Internationally, some countries are adopting trade-related measures that consider a product's environmental impacts. For example, France has passed an *Environmental Labeling Law* that requires labels based on life-cycle analysis on all products sold in France, including agri-food products.

Meeting the environmental requirements of processors, retailers and consumers would help Alberta's agriculture industry to maintain or increase its market share and capture new markets as the demand for environmentally friendly products increases. If it is not able to meet these eco-requirements, the industry could lag behind its competitors and lose market share.

Information on an agriculture product's environmental footprint or life cycle analysis can also help a producer get a clearer picture of where environmental risks and production efficiency losses are occurring. That information could then help the producer make changes to improve production efficiency and productivity, while maintaining or improving market access and reducing the impact on the environment.

Measurement approaches

Developing a simple system to measure the environmental impact of an agricultural product is a challenge. Any such system has to take into account that every agricultural operation is unique, with its own particular set of practices. The measuring system also has to be set up in a way that allows producers to easily, quickly and accurately record the required information. As well, the system has to meet the requirements of those businesses and individuals further along the supply chain so that the end product not only meets their sustainability goals, but is accepted by consumers.

To provide economic rewards to individual producers and the rest of the supply chain, an environmental footprinting/eco-labeling system requires proper record keeping, product segregation and traceability at every stage in the supply chain, just as is required for any other type of identity-preserved product.

A number of efforts are underway to develop tools to allow agricultural producers to record and report on their sustainability practices and environmental impact. Most of these efforts involved multi-stakeholder collaboration. To date, most tools are focused on greenhouse gas emissions and water impacts, although there are also tools available to measure land, energy, and nutrient use impacts. The various impact metrics can be combined to create a complete index of sustainability. The purpose of using a sustainability index is to allow for concise and transparent reporting of a product's environmental impact throughout the supply chain.

One North American example of these efforts is *The Sustainability Consortium*, established in 2009. The organization currently has over 80 member agencies ranging from Walmart to Monsanto. A major focus of the consortium is to develop standards and tools to measure and report on the sustainability of products, including agri-food products.