ENVIRONMENTAL FOOTPRINTING

WATER FOOTPRINTING

As concern about the environment increases, consumers are becoming increasingly interested in knowing where and how their food is produced, and are looking for more sustainable options. A key driver in moving towards more sustainable consumption is providing consumers with information on the environmental characteristics of a product, and therefore, a variety of sustainability indicators are under development. Probably the most well-known of these sustainability metrics is the carbon footprint. However, with increasing demands on the world's water resources, the concept of water footprinting is also beginning to gain traction. Although there are still some methodological issues being debated, it is important for producers and processors to be aware of their water footprint because agriculture is the largest consumptive user of water both globally and within Alberta. The Water Footprint Network estimates that 92% of the global water footprint is due to agricultural production and that the primary production phase typically accounts for the vast majority of a product's total water footprint.

To address these emerging needs, Alberta Agriculture and Rural Development (ARD) is working on an Environmental Footprinting project to better understand the environmental impacts of agricultural production of the Alberta agri-food industry, which will include an assessment of water use of four major commodities: canola, chicken, egg and potato.

What is a water footprint?

According to the Water Footprint Network (WFN), a water footprint is defined as the volume of water consumed in the production per unit of a product (ie. L/kg). Alternately, it can also be applied to a corporation to calculate a corporate water footprint or to a geographic region to calculate a regional or national water footprint. It is typically the sum of three components: blue, green and gray water. The blue water footprint is measured as the volume of water consumed from surface water or renewable groundwater sources[1]. The green water component includes the volume of soil water transpired during plant growth. Gray water is the theoretical volume of water required to dilute any pollution emitted during a product's production (or a corporation's operations) to return to background concentrations. It should be noted that there are some methodological differences, particularly with respect to how green water and gray water are treated that means that water footprints from different sources may not be directly comparable. In addition, while it is a similar concept to virtual water, the WFN water footprint also includes information on the geographic source.

Who is doing water footprinting?

The largest organization to date is the Netherlands-based Water Footprint Network, who has developed the methodology and are partnering with organizations such as Pepsico, Nabisco, World Wildlife Fund and others. More recently, the International Standards Organization (ISO) have been developing more guidelines for calculating water footprints. Corporations, such as Walmart, and third-party organizations, such as the Carbon Disclosure Project and The Sustainability Consortium, are also looking to develop standards for water footprinting. There has been a task team, led by the United Nations Environmental Programme and the Society of Environmental Toxicology and Chemistry, developing standards for incorporating water footprinting into Life Cycle Assessment (LCA).

Typically, there is little that can be done to mitigate the green water footprint, nor does it have a large environmental impact, leading to suggestions that it should not be included in the water footprint. Therefore, most LCAs of water, including the ARD project, will not include an assessment of green water, but will use new methods to assess the impact of water use on the aquatic and riparian environment.

How can a water footprint improve sustainability?

Footprinting can help identify "hotspots" of water use, which can lead to further improvements in water use efficiency through adoption of newer technologies. Similarly, hotspots related to emissions of pollutants can be identified and addressed to reduce the gray water footprint. Specifically, the WFN footprinting method includes a sustainability assessment that examines water stress and water use efficiency in the region of consumption and promotes the reduction of water footprints by improving water use efficiency, reducing pollution or even potentially switching suppliers to regions with less water stress or greater efficiency.

Currently, there are no accepted water footprinting labelling standards; however, there are several initiatives under development. From a consumer perspective, if labelling standards were developed, consumers may choose an item with a lower water footprint in order to decrease their personal water footprint.

What does this mean for Alberta producers?

Although ARD's Environmental Footprinting study has not been completed yet, Alberta producers are likely to be well-positioned because of our province's favorable climate, adoption of conservation tillage and highly efficient irrigation network. Reporting requirements on water use in the future could potentially increase along the supply chain. Retailers are already beginning to work with processors to meet this demand who in turn will be looking to work with primary producers to take advantage of new sustainability-oriented markets.

If you have any questions, please contact
Kerrianne Koehler-Munro of ARD
at (780) 427-3628 or
by email Kerrianne.koehler-munro@gov.ab.ca

[1]Typically, consumptive water use means the amount of water that is evaporated, incorporated into the product or not returned to the same basin from which it was drawn.
It is not the same as water withdrawals or water that is used and then returned into the same basin.