

Update on Ecosystem Service Markets and Opportunities for Agriculture in Alberta

Submitted by Dr. Marian Weber

Ecosystem Services are the benefits to humans from healthy functioning ecosystems. Ecosystem services include products such as food, fiber, energy, and clean water that are consumed, as well as climate regulation and water storage that reduce risks to assets, and habitat for fish, wildlife and biodiversity, clean water supplies and wildlife habitat that healthy landscapes and ecosystems provide humans. As land stewards, farmers can take actions that enhance the value of ecosystem services. Some of these actions are a win-win, and increase soil productivity and improve water management. Others come at a cost. Markets for ecosystem services are a way of recognizing the value of healthy ecosystems provide to society and providing incentives to count those values in land management decisions.

The annual value of ecosystem service markets in Canada is between \$462-752 million and a number of producer groups, including the Canadian Cattleman Association, the Dairy Farmers of Canada, the Canadian Forage and Grasslands Association, Canola Growers, Grain Growers, and Egg Farmers of Canada are exploring the implications and opportunities for producers to participate in these markets, to enhance existing and develop new diversified sources of revenue that recognize stewardship practises and support ecologically and economically sustainable agriculture. Changing consumer preferences are also increasing demands for sustainable sourcing of products throughout the supply chain and companies such as Walmart, McDonalds, and Unilever are making commitments for field-to-market sustainable sourcing. Governments are also important potential buyers of ecosystem services on behalf of the public.

The South Saskatchewan Regional Plan identifies payments for ecosystem services as one of the potential strategies for achieving regional objectives for maintaining ecological health and a number of sub-regional plans that align with an ecosystem service approach, such as the Biodiversity Management Framework, and the Bow River Phosphorous Management plan are being developed to provide the policies to support these objectives. Still there are a number of key uncertainties that need to be addressed before we can understand the role of agriculture in these policies, and how such plans could enable market opportunities.

Other countries like the U.S. and Australia have made deep commitments to developing ecosystem service markets in their agricultural policies and programs. An important lesson is that credible science is required to demonstrate that consumers and governments are receiving value for money. Farmers and ranchers want to know the same thing before participating in programs. In order to develop innovative ecosystem service programs, a credible science base is needed to enable to evaluate the costs and benefits of different management actions. This means understanding the potential effectiveness of Beneficial Management Practices (BMPs) for ecosystem services as well as their feasibility and adoptability in the agricultural sector. In particular, the agricultural sector faces many risks including risks of crop failure and yield reduction, risk of drought and weather damage, and risks from price fluctuations.

We need a better understanding of the impact of BMPs on producer operations and particularly business risk management so that we can design contracts that will encourage market participation, and share risks equitably while delivering tangible benefits.

On April 1, 2015, Alberta Innovates – Technology Futures (AITF) launched the project “Development of Information and Science to Support the Provision of Ecosystem Services (ES) on Agricultural Lands.” The project is funded by Alberta Innovates Biosolutions, the Alberta Livestock and Meat Association (ALMA), and AITF and is supporting economic and ecological modeling research at the University of Alberta, the University of Guelph, Alberta Biodiversity Monitoring Institute, and AITF.

Building on a strong legacy of research on Phosphorous Management by Alberta Agriculture and Forestry, we will be working in Indianfarm Creek to develop and test integrated science and decision support tools to credit BMPs for biodiversity, water quality and quantity including wetland restoration. We will be working with producers and the stakeholders across the South Saskatchewan River Basin to better understand the value of ecosystem services to consumers and the public, and to understand the transferability of results and preferred delivery options by producers. The long term objective is to develop the capacity to develop credible and transparent programs for enhancing Ecosystem Services on agricultural landscapes. This project will focus on the following services: water quality; carbon sequestration; water storage to reduce risks from flood and drought; and habitat for wildlife and biodiversity. We will be working closely with our partners in the Agri-Environmental Partnership of Alberta, particularly Agriculture and Forestry, and Alberta Environment and Parks, as well as the Intensive Livestock and Crop Sector Working Groups to disseminate information and results and to inform groups about opportunities to participate in workshops. If you are interested in finding out more about this project, you may contact Dr. Marian Weber, project manager and research scientist at Alberta Innovates Technology Futures, marian.weber@albertainnovates.ca.