


BCRC

BEEF CATTLE RESEARCH COUNCIL

RESEARCH FACTS

RESEARCH & TECHNOLOGY DEVELOPMENT FOR THE CANADIAN BEEF INDUSTRY

IN PROGRESS

Quantifying the value of wetlands on pastureland

Project Title:

Prairie Ecosystem Climate and Carbon Project (PECCaP): Quantifying the contribution of landscapes that support livestock production

Researchers:

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Project Code:

ENV.03.19

Completed:

In Progress. Results expected in March 2024.

Background:

Globally, temperate grasslands are among the most modified ecosystems and conversion of these ecosystems continues today. Most remaining grasslands in the Canadian prairies exist on privately owned land largely used to support beef cattle production. Understanding and quantifying the ecosystem services associated with the grassland landscapes that support the Canadian beef industry is critical especially when it comes to public trust conversations. Beef production in the Canadian prairies overlaps the Prairie Pothole Region of western Canada where small isolated wetlands can comprise a significant portion of the landscape. These wetlands play important roles in carbon cycling and climate regulation, water quality and quantity regulation, and are hotspots for biodiversity. Although many Canadian studies are looking at ecosystem services provided by grazing cattle few focus specifically on wetlands.

Objective:

To quantify the extent of wetlands in beef production landscapes and to quantify the ecological benefits of these wetlands including water quality, waterfowl production, and carbon cycling.

What they will do:

Researchers will measure carbon sequestration, evapotranspiration, heat changes, from two wetlands, one in a grazing landscape and one in cropland in southern Manitoba. These will be compared to crop and grazing land without wetlands. These

measurements will be taken using flux towers. Flux towers are able to collect a large number and variety of data from a specific wetland making the measurements more accurate, but they are very expensive to install so can't be used on a large number of, to combat that researchers will also be collecting water samples and GHG samples from up to 60 wetlands (half in pasture half in cropland) across the prairie provinces to assess differences between wetland embedded in grazing landscapes and cropland landscapes. This information will be compiled into a comprehensive geodatabase that will document the extent of wetlands in beef production landscapes and their associated ecosystem services across the Canadian Prairies.

Implications:

This project will add to a body of work trying to quantify the many ecological good and services that are provided by the Canadian beef industry. This research will give us a better understanding how the Canadian beef industry helps to preserve native wetland ecosystems and their associated ecosystem services in the Canadian Prairies.

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