

ON-FARM STUDIES ASSESS CARBON OFFSETS

Farmers helping industry and themselves reduce carbon footprints

Three studies were undertaken to better understand opportunities for maximizing carbon offsets in on-farm operations. The three protocols studied were:

1. Conservation Cropping Protocol
2. Reducing Days on Feed for Beef Cattle Protocol
3. The Nitrous Oxide Emission Reduction Protocol

Study results identified barriers, gaps and options needed to support adoption of these protocols. "Mock" verifications gave perspectives on the types of evidence that can be used to meet Alberta's 2012 standard of Reasonable Level Assurance.

When greenhouse gas (GHG) emissions are voluntarily lowered, the end result is fewer GHGs in the atmosphere. In Alberta, agricultural management improvements can qualify as offsets if they are:

- **Real** - above and beyond "business as usual",
- **Quantifiable** - based on sound science, and
- **Verifiable** - by an independent third party.

Government of Alberta approved protocols apply internationally recognized principles to link management improvements that lower greenhouse gas emissions (GHG) with verifiable records. Offsets are bought by regulated emitters as one of four options to meet reduction requirements under Alberta's Specified Gas Emitters Regulation (2007).

- 1) The Conservation Cropping Protocol outlines amounts of GHG that are lowered with no-till practices that increase soil carbon and reduce fuel use and nitrous oxide emissions. Results highlighted:
 - the need to use signed contracts to state that offset credits were not sold elsewhere,
 - the need for field-specific dated records backed by evidence of field passes
 - opportunities to simplify projects where farms have similar types of evidence
- 2) The Reducing Days on Feed for Beef Cattle protocol identifies amounts of methane and nitrous oxides that are lowered when feed efficiencies increase. Study results identified opportunities to:

- use many existing electronic record keeping and data management systems,
- reduce risks of error by electronically connecting feed trucks to central data management systems, and
- streamline protocol for easier use. Revisions

are included in the Reduced Carbon Intensity of Fed Cattle protocol that is now under review.

Findings from these on-farm studies include Best Practice Guides, Project Reporting templates, and cost benefit analyses for

Producers and Aggregators. These are available by contacting: Sheilah.Nolan@gov.ab.ca

Co-funded by Agriculture and Rural Development and Canada's Agricultural Flexibility Fund.

- 3) The Nitrous Oxide Emission Reduction Protocol (NERP) describes how to lower GHG emissions by improving fertilizer management. Although this project is not fully complete, interim reports on the on-farm studies are available at: <http://ccemc.ca/project/protocol-validation-studies/>.

Funded by Climate Change Emissions Management (CCEMC) Corporation's Biological GHG Management Program, hosted by Alberta Innovates Bio Solutions.

