

Nitrous Oxide Emission Reduction (NERP) Protocol

(Agricultural Nitrous Oxide Emissions Reduction)

Summary

- NERP has a lot of potential for crop producers, but has struggled to become operational despite continuing development work.

Overview

This protocol is based on reducing the loss of nitrogen as nitrous oxide, a potent greenhouse gas. It uses the 4R principle: right source, right rate, right time, and right place. It looks like the carbon 'harvest' would be variable, depending on nitrogen management. Fertilizer savings or yield advantages may result in addition to the carbon payment. Crops do not need to be direct seeded, but if so Conservation Cropping carbon payments may also be collected off the same field, 'stacking' the income from both. This protocol has been approved for some years but has never become operational, largely because of the complexity and the measurements/proofs required.

Benefits of Improved Nitrogen Stewardship

There are many other potential benefits from using improved nitrogen stewardship in addition to offset income.

Improves nitrogen use efficiency. Reducing nitrogen fertilizer application rates to achieve current crop yields or increases crop yields with current nitrogen fertilizer rates, saving money on fertilizer purchases.

Reduces nitrogen losses (runoff, leaching and/or denitification). Prevents over application of nitrogen fertilizer by monitoring soil test nitrogen levels.

Precision farming. Variable rate nitrogen fertilizer application targets field areas that will best balance crop nitrogen demands and fertilizer application.

Farm data systems. Sets up producers for other emerging environmental market opportunities that require documentation

Update

Work is still being done to make the protocol operational.

Links

The full Nitrous Oxide Emissions Reduction Protocol with more details:

<https://open.alberta.ca/publications/9781460125502>

Information on NERP and 4R from the Canadian Fertilizer Institute:

<https://fertilizercanada.ca/nutrient-stewardship/greenhouse-gas-reduction/>

Alberta Agriculture and Forestry Carbon Offset page with information on all the agricultural protocols:

<http://www.agriculture.alberta.ca/agcarbonoffsets>

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For more information contact the Ag-Info Centre at 310-FARM (3276) or Paul Jungnitsch at 780-427-3801

The information contained here is the interpretation of Alberta Agriculture and Forestry. Alberta's carbon offset system is managed by Alberta Environment and Parks. Offset projects must comply with the most recent quantification protocols and program requirements published by Environment and Parks at: https://www.alberta.ca/alberta-emission-offset-system.aspx?utm_source=redirector

