

**CONSULTATION WORKSHOP FOCUS SESSION
Nitrous Oxide Emission Reduction Protocol (NERP)
Calgary, Alberta
October 28 and 29, 2008**

**DISCUSSION GUIDE
Practices & Technologies Group**

Desired Workshop Outcomes:

- ❑ Determine the components of the 4R N stewardship plan for each level of the NERP.
- ❑ Define Right Product formulations.
- ❑ Define Right Time practices and technologies.
- ❑ Define Right Place practices and technologies.
- ❑ Agree on knowledge needed over the next five years; goal of developing a Science Plan.

Process and Reporting:

- Review the information provided in the Science Discussion Document and decisions made during Day One.
- Develop options consistent with the area of focus and the related workshop outcomes
- Provide recommendations to the larger group for each option proposed and for each recommendation indicate what response you suggest be provided from this workshop:

1. *“Accept the option today for inclusion in a Nitrous Oxide Emission Reduction Protocol”; or,*
2. *“This option will be acceptable but needs more work following the workshop”*

Note: *If “2” is recommended then the group should suggest where we go from here: who, possible approaches, time frame.*

Also:

- Gaps in research, knowledge and/or industry coordination in this area which are identified as part of the recommendation or during the discussion should be noted for further discussion during the “Gaps” portion of the workshop later in the day.
- The Content Leader will prepare, with the Process Leader’s help, a PPT presentation (see template) to the larger group at which time options will be evaluated.
- The Content Leader will present the PPT presentation of recommendations, with background on each recommendation as appropriate, in anticipation of the larger group being polled as to their level of acceptance of each recommendation.

Related Questions from the *Science Discussion Document*

NOTE: These items are identified in the Document as critical to address. The way they are phrased below is a guideline, the Group may decide to modify the way the option is presented and the group may identify new options through their discussion of the issues.

Decision point 4.4.3: Based on knowledge from the scientific literature and from expert opinion, the following represent BMPs (when implemented in the context of a 4R N stewardship plan) to decrease N₂O emissions from agricultural soils:

- Use of ammonium-based formulations _____
- Use of controlled-release formulations _____
- Use of split applications _____
- Application by banding* _____
- Application rates specific to landscape position _____
- Application into cool soils in fall _____
- Application in spring _____
- Including pulses in rotation _____
- Other _____
- Other _____

* Is width important, i.e. narrow banding versus otherwise

Decision point 4.4.4.a: The NERP should be designed to generate GHG reduction credits/offsets according to Simple, Intermediate, and Advanced levels.

Agree _____ Disagree _____

Decision point 5: To achieve verifiable reductions, but to maintain flexibility needed to implement the NERP, and appropriate BMPs, on the diverse farms in the Prairies (in Canada, in North America), the 4R N stewardship plans for the participating farms should be developed as follows:

- General Guidance Provided _____
- Content Prescribed _____
- Model Prescribed _____
- Advisor Approved _____
- Other _____

The group will likely need to discuss the details about how a farmer will determine recommended N fertilizer rates, i.e. elements of a N Stewardship Plan (see P 23 of the discussion document).

In discussing the above decision point, the group will need to consider the proposed design of the Stewardship Plan in the Discussion Document...such as:

- Determining mineral N status by soil test, or (if weather prevents sampling) by N balance, for the individual fields (Simple Level), for concave and convex portions of each field (Intermediate Level), or for the geomatically classified sectors of each field (Advanced Level);
- Predicting N (and P, K, S) fertilizer rate to achieve optimum yield (by spatial resolution appropriate to Simple, Intermediate, or Advanced level);
- Determining N balance by assessing crop yield and analyzing crop protein content (by spatial resolution appropriate to Simple, Intermediate, or Advanced level);
- Adjusting next year's 4R N stewardship plan using results of N balance determination (by spatial resolution appropriate to Simple, Intermediate, or Advanced level), and accounting for N from fertilizer, crop residues, and manure; and
- Ensuring sufficiency of P, K, S.

- Further, the group should discuss, as outlined in the Discussion Document, details of sampling/testing plan for each level of the proposed NERP.
 - For the Simple level, guidance around (1) collecting soil or plant samples, (2) analyzing the NPKS content of soil and plant samples, (3) estimating the crop yield of the field, and (4) for determining the N use efficiency for each field.
 - For the Intermediate Level, guidance in addition to that for the Simple Level will be provided (1) for determining the concave and convex field sectors, and (2) for determining N recommendations and N efficiency for each the concave and convex sectors of each field.
 - For the Advanced Level, guidance in addition to that for the Simple Level will be provided (1) for defining the geomatic criteria to determine the relevant landscape sectors of the field, and (2) for determining N recommendations and N efficiency for the geomatically defined sectors of each field.

Additional Considerations:

- Should manure be integrated into the 4R System at this time, or is it something that needs to be incorporated into the Next Generation of the NERP Protocol? (Bear in mind that this protocol would only apply to those lands receiving fertilizer and not manure).