

Comment from Pauley Bradley of John Deer Co. on:

EPA Science Advisory Board  
Integrated Nitrogen Committee  
Draft Report

9 Dec 08

C3-12,13

A discussion of Nitrogen Use Efficiency (NUE) revealed improvements in NUE are a function of:

1. Improved stress tolerance of corn hybrids....
2. Adoption and development of technologies that improve the congruence between crop N demand and N supply...

Examples of the technologies include:

- ❑ Soil testing for residual nitrate and adjusting rates accordingly
- ❑ Split N fertilizer applications
- ❑ Fertigation
- ❑ Site-specific management
- ❑ New fertilizer formulations

Next paragraph states:

"Most farmers do not use Best Management Practices (BPM's) for N fertilizer."

One of the subsequent recommendations (R3-3-2) suggests "***subsidizing smart fertilizers and enhanced efficiency products***".

Recommendation (R3-3-4) suggests "***increased efforts in extension to increase adoption rates of improved technologies...***"

Comment:

It appears that encouraging the adoption of BMP's is a critical component of increasing NUE and reducing environmental loads of reactive Nitrogen (Nr). Broadening the components eligible for subsidies beyond would appear to increase adoption of BMP's by appealing to a wider spectrum of producers. A more inclusive approach may leverage all nitrogen sources and subsidize technology and services encouraging Nitrogen BMP's such as in-season injection.

We ask for consideration of the inclusion of the technologies / practices that encourage BMP's such as those listed above. These and additional technologies for consideration include:

- ❑ Soil testing for residual nitrate and adjusting rates accordingly
- ❑ Split N fertilizer applications
- ❑ Fertigation
- ❑ Site-specific management
- ❑ New fertilizer formulations
- ❑ Injection of N
- ❑ Technologies reducing / eliminating application overlap
- ❑ On-farm evaluation of N management practices

- ❑ Better crop insurance plans for reduced rate / delayed N application

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C3-16

Recommendation R3-4-2 calls to ***“Develop policies and incentives that promote the use of smart (controlled release) nitrogen fertilizers that have the potential for substantial reduction in Nr losses without negative impact on crop productivity.”***

Comment:

Ask for consideration of the inclusion of the technologies / practices that encourage BMP's as previously mentioned.

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Section 3.2.3.3. addresses *“Emissions Factors and Losses from Fertilizers and Organic Nitrogen Sources.”* Following discussion based on the IPCC factor for calculating nitrous oxide emissions,

C3-18, line 9 states:

***“Others have estimated higher average N2O losses of 3-5% of applied nitrogen fertilizer based on global estimates of N2O emissions from recycling of Nr (Crutzen et al., 2007), as opposed to the field-based estimates that form the basis of IPCC estimates. Because N2O is such a potent greenhouse gas, and given the more than 2-fold difference in estimates of N2O losses, there is a critical need to improve understanding and prediction of N2O losses from agricultural systems. N2O emissions in the US are estimated to be 0.78 Tg N/yr (Table 3-5) (USEPA, 2005).”***

Comment:

Crutzen's work joins other researchers who have examined the applicability of the IPCC factor for nitrous oxide emissions to cropping systems, some of whom have determined conversely that IPCC may be overestimating emissions attributed to fertilizer application. We agree with the draft's conclusion that the ability to accurately estimate losses is crucial [to developing environmentally sound practices and enterprises], and encourage continued evaluation and consideration of all this research, including [not only Crutzen's work but also] models such as DAYCENT.

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Thank You for the opportunity to comment.

Respectfully submitted,

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