Right Now.
The Right Time for Nutrient Stewardship is Right Now

The Fertilizer Institute
Nourish, Replenish, Grow
Agriculture is Being Challenged

• EPA is aggressively pursuing rulemaking that affects agriculture

• Environmental organizations are utilizing litigation to force regulatory action

• Population growth will continue to increase demands on production efficiency
What EPA Has Been Saying……

• There are 14,000 nutrient related surface water impairment listings in 49 states
• Over 47 percent of streams contain medium to high levels of N and P
Row Crop N & P Contributions to the Gulf of Mexico & the Chesapeake Bay

Gulf of Mexico

- Phosphorus
  - Natural: 8%
  - Crops: 43%
  - Urban and population-related sources: 12%
  - Livestock: 37%

- Nitrogen
  - Natural: 4%
  - Atmospheric Deposition: 21%
  - Urban and population-related sources: 9%
  - Livestock: 5%
  - Crops: 66%

Chesapeake Bay

- Phosphorus
  - Natural: 3%
  - Crops: 19%
  - Urban stormwater: 31%
  - Municipal wastewater: 21%
  - Livestock: 26%
  - Urban and population-related sources: 52%

- Nitrogen
  - Atmospheric Deposition: 21%
  - Urban stormwater: 11%
  - Municipal wastewater: 25%
  - Livestock: 26%
  - Crops: 17%

From Sept. 2010 EPA Presentation
What EPA Has Been Saying……..

EPA says “ALL MAJOR SOURCES OF NUTRIENTS MUST BE HELD ACCOUNTABLE FOR THEIR CONTRIBUTION TO THE PROBLEMS”
What EPA is Doing......

• “Coming Together for Clean Water” strategy
  • Change water quality standards to strengthen anti-degradation policy
  • Work with states to more effectively implement TMDLs and watershed-based nonpoint source plans

• Numeric Nutrient Criteria implementation

• Chesapeake Bay TMDL implementation
What EPA is Doing......

• Pursuing strategies in the Mississippi River Basin and Gulf of Mexico Watershed
  • Convening Hypoxia Task Force
  • Investing in nutrient modeling and monitoring
  • Encouraging states to prepare nutrient reduction plans

• $N_2O$ Greenhouse Gas Emissions on their radar
  • EPA’s GHG inventory indicates fertilizer application and cropping practices contribute to 68% of U.S. $N_2O$ emissions
Environmental Groups & Numeric Nutrient Criteria

- Florida Lawsuit - July 2008
  - Resulted in development of N & P NNC
- Wisconsin Notice of Intent to Sue – Nov. 2009
  - Resulted in development of P NNC
- Kansas Notice of Intent to Sue – Spring 2010
  - Waiting to see what happens in Florida
- Missouri Notice of Intent to Sue – Summer 2010
  - NNC are under development
Florida NNC

- July 2008 – Environmental groups sued EPA for failing to promulgate NNC in Florida

- January 2009 – EPA deemed narrative criteria insufficient to address impaired waters and required NNC

- Spring 2009 – State begin effort to develop NNC
The Case in Florida

- August 2009 - EPA settled the lawsuit filed against it by entering a Consent Decree to develop NNC;

- October 2009 – Seeing direction of EPA, the State withdrew effort to develop NNC;

- November 2010 – EPA released NNC Final Rule for lakes and streams
Florida NNC - Industry Concerns

• Cost estimates to agriculture from $224 Million to $1.095 Billion, annually over 30 years
  • EPA dismisses 3rd party economic analysis
• Even after implementing technology upgrades, analyses shows some industries won’t be able to comply 100 percent of the time
• The NNC is not scientifically defensible
  • NNC based on pristine streams
  • NNC disregards inherent regional variation
Regionally specific regulations such as the Chesapeake Bay TMDL and the Florida NNC are being considered as test cases for future implementation across the country by all sectors:

- agriculture and industry groups
- regulatory authorities
- environmental action groups
What Has NRCS Been Saying?

Based on UMRB & Chesapeake Bay CEAP reports

- Conservation practices work

- Comprehensive planning is needed
  - Suites of practices work better than single practices
  - Without nutrient practices, erosion control practices can increase subsurface nitrogen losses

- Reducing subsurface loss of N is the most critical issue
Based on UMRB CEAP Report...

• About 60% of the acres needs additional nutrient management

• **Right Source** – Apply nutrients in plant available forms

• **Right Timing** — Nitrogen is fall-applied on 45% of the acres

• **Right Rate** — Nitrogen is applied at rates greater than 1.4 times removal at harvest on 66% of the acres

• **Right Method** (Place) — Nitrogen is not soil incorporated, banded, or foliar/spot treated on 44% of cropland acres
What Has NRCS Been Doing?

• Preparing CEAP reports for other US watersheds
• Updating the 590 Technical Standard
  • Addressing source, rate, time, and place
  • Encouraging use of a suite of practices
• National Nutrient Strategy
  • Developed as a result of CEAP reports
  • Provides $’s for management systems addressing N & P concerns
  • Encourages no fall application of N
What is Our Response?

• Utilize 4R nutrient stewardship to improve agricultural production while minimizing environmental impacts (benefits water and air quality)

• 4R represents the use of BMPs to address:
  • the right source
  • at the right rate
  • at the right time
  • in the right place
4R Nutrient Stewardship

• Framework to achieve cropping system goals
  • Increased production
  • Increased farmer profitability
  • Enhanced environmental protection
  • Improved sustainability

• Individual fertilizer BMPs are most effective when applied in combination with multiple practices
4R Nutrient Stewardship

• Goal – to match nutrient supply with crop requirements and to minimize nutrient losses from fields

• 4Rs are site specific
  • Practices chosen for a given field are dependent on soil, climate, and management conditions, crop selection, and other site specific factors
Fertilizer BMP Examples:

- Practices to address spatial soil & yield variability
  - Use of zone or grid soil sampling
  - GIS mapping
  - Plant tissue analysis
Fertilizer BMP Examples:

• Practices to address fertilizer application losses
  • Pre-plant fertilizer application
  • Pre-Sidedress N test (PSNT)
  • Enhanced efficiency fertilizers
  • Fertilizer incorporation
  • Variable rate application equipment
  • Split fertilizer applications
  • Optical sensing (chlorophyll sensors)
4R Outreach & Information

• A major outreach effort is underway
  • By TFI, IPNI, CFI, and IFA

• Effort being supported by multiple organizations

• NRCS & TFI entered agreement to work together to develop educational materials
  • Partners include TFI, NRCS, IPNI, Iowa St. Univ.

• Major roll out of materials will occur at the 2011 Commodity Classic in Tampa, Fla.
What Can You Do?

• Educate yourself (and your staff) about 4R nutrient stewardship;

• Communicate your organization’s nutrient management related efforts with TFI (contact Lara Moody - lmoody@tfi.org);

• Feature 4R topics in member outreach, meeting programs and newsletters;

• Upon request, provide input and feedback on 4R outreach programs.