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Right Now.

The Right Time for Nutrient Stewardship is Right Now

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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

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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

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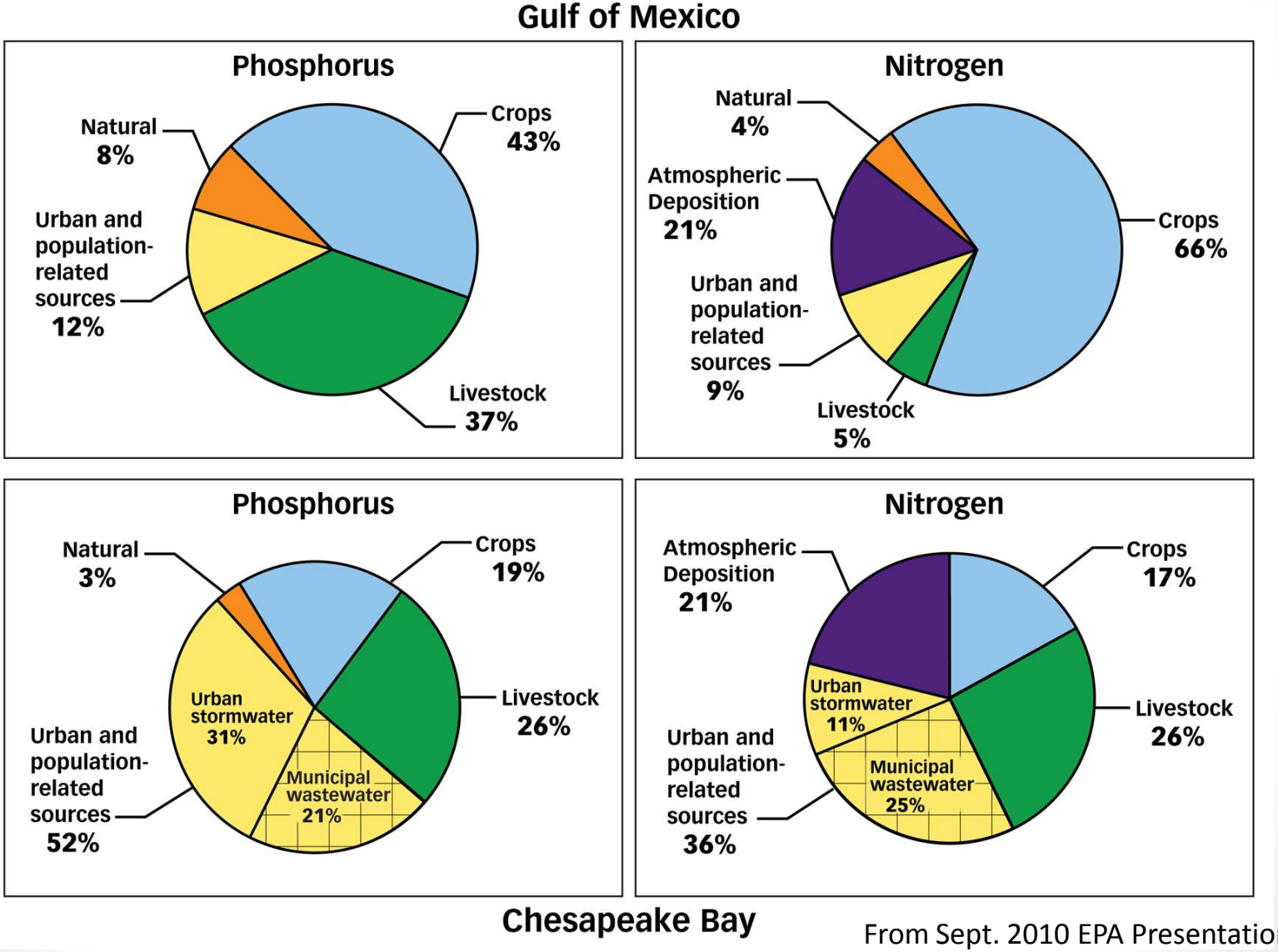
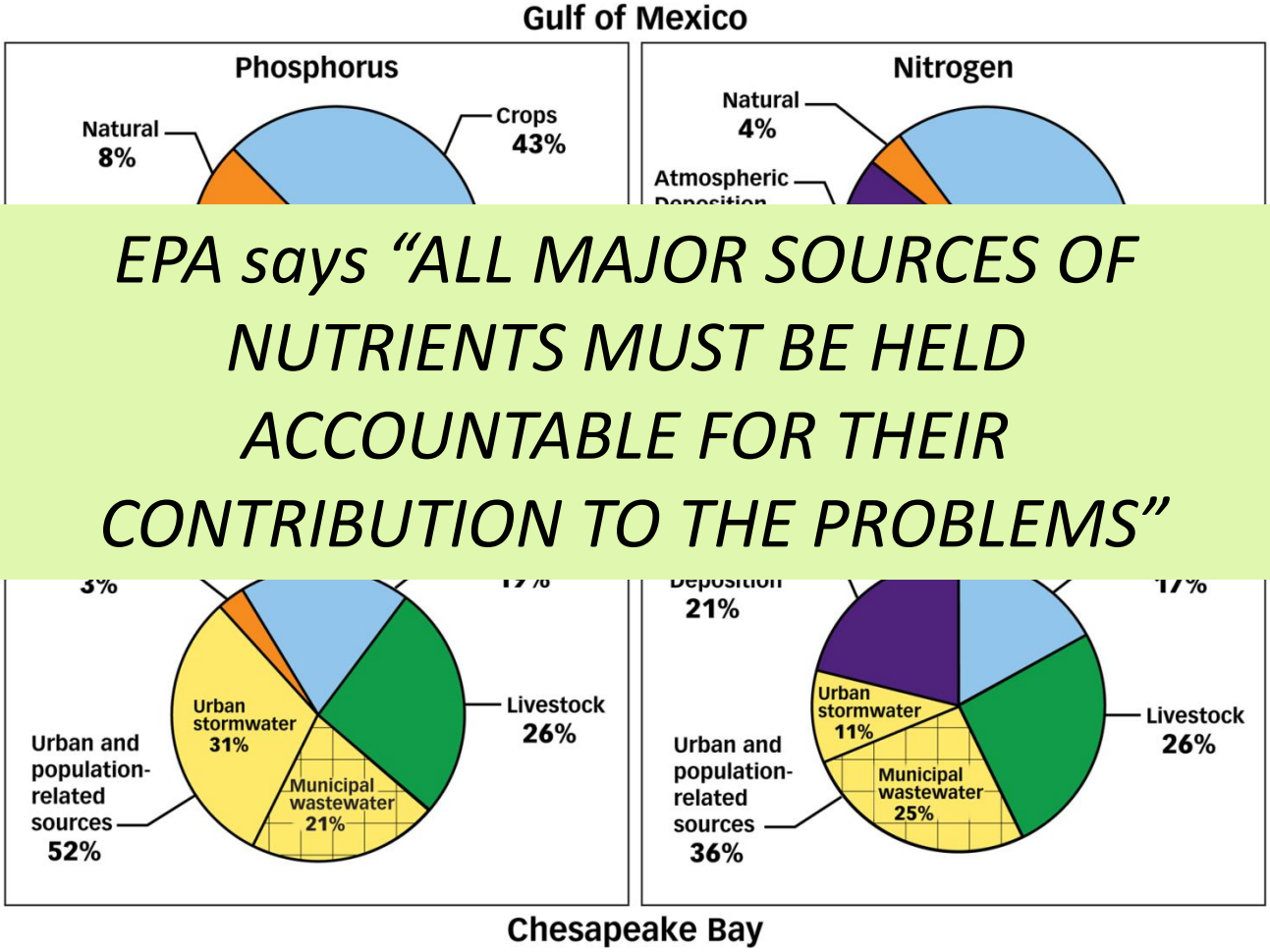
Row Crop N & P Contributions to the Gulf of Mexico & the Chesapeake Bay



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"

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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

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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

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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

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- 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

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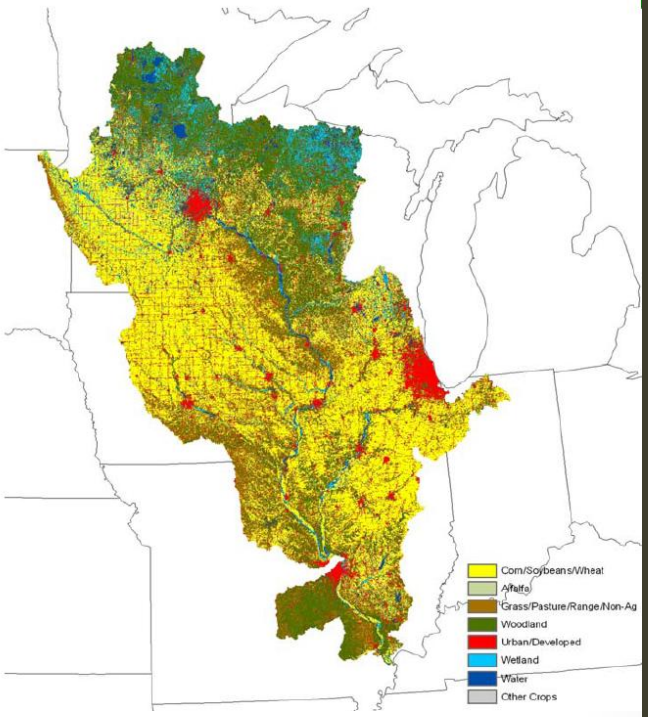
Based on UMRB CEAP Report…



- 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 <u>not</u> soil incorporated, banded, or foliar/spot treated on 44 % of cropland acres

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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

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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

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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

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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

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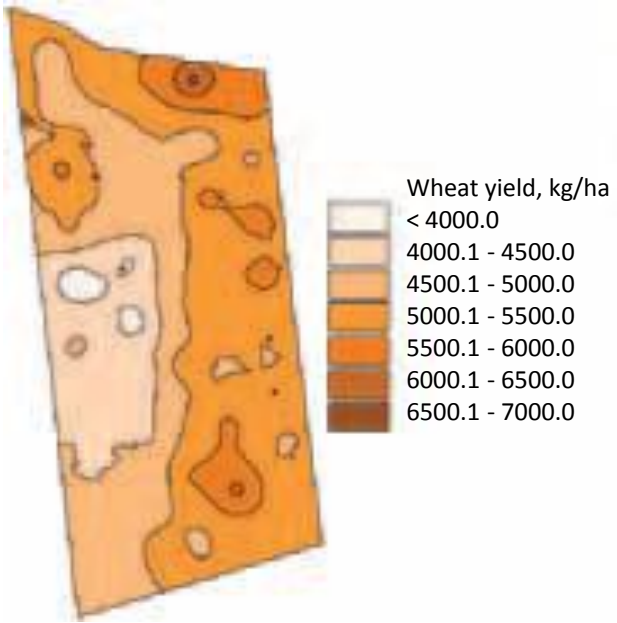
Fertilizer BMP Examples:

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



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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)

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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.

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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.

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