Finding Solutions to Excess Manure Nutrients
Creating the Chesapeake Bay Manure Strategy

Jenn Aiosa
Chesapeake Bay Foundation

Kelly Shenk, US EPA Chesapeake Bay Program
Suzy Friedman, Environmental Defense
Tom Simpson, University of Maryland

Chesapeake Bay Program
A Watershed Partnership

CSREES Mid-Atlantic Regional Water Quality Program
Applying knowledge to improve water quality

e ENVIRONMENTAL DEFENSE
finding the ways that work

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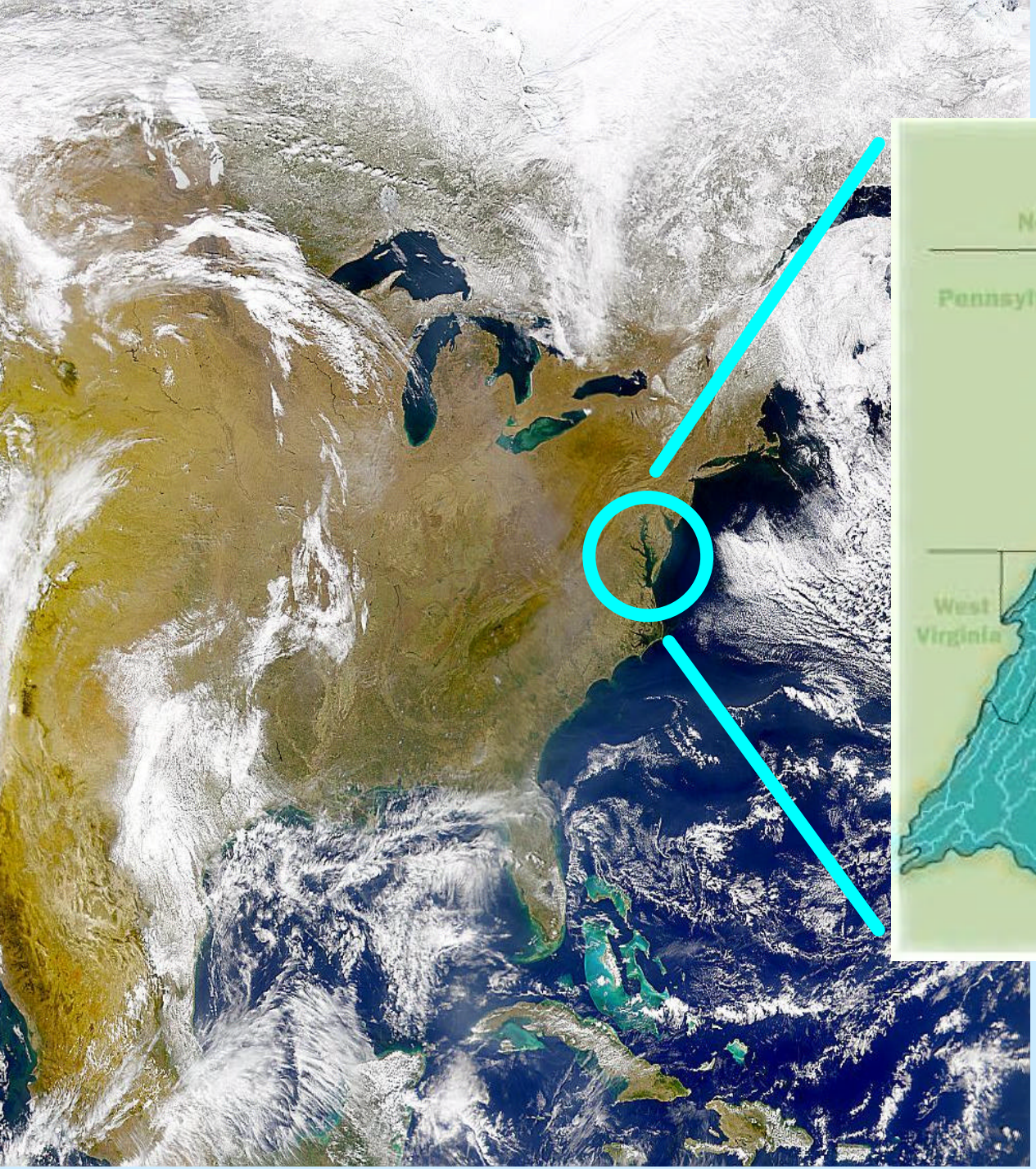

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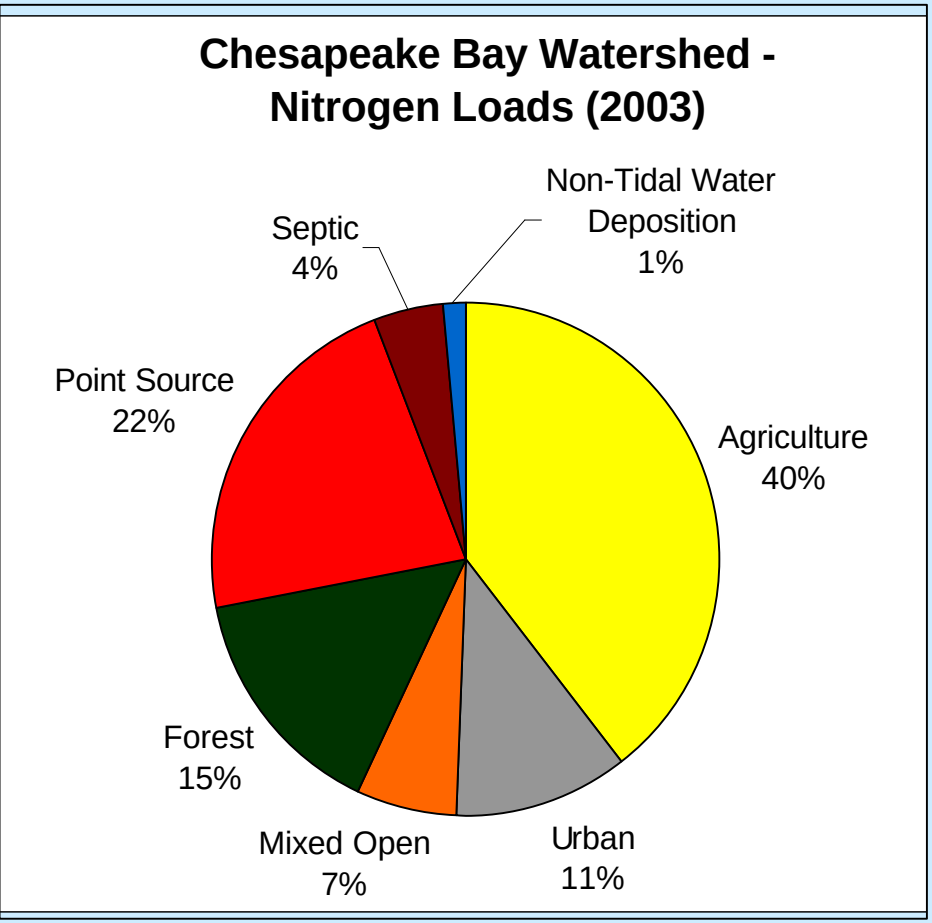
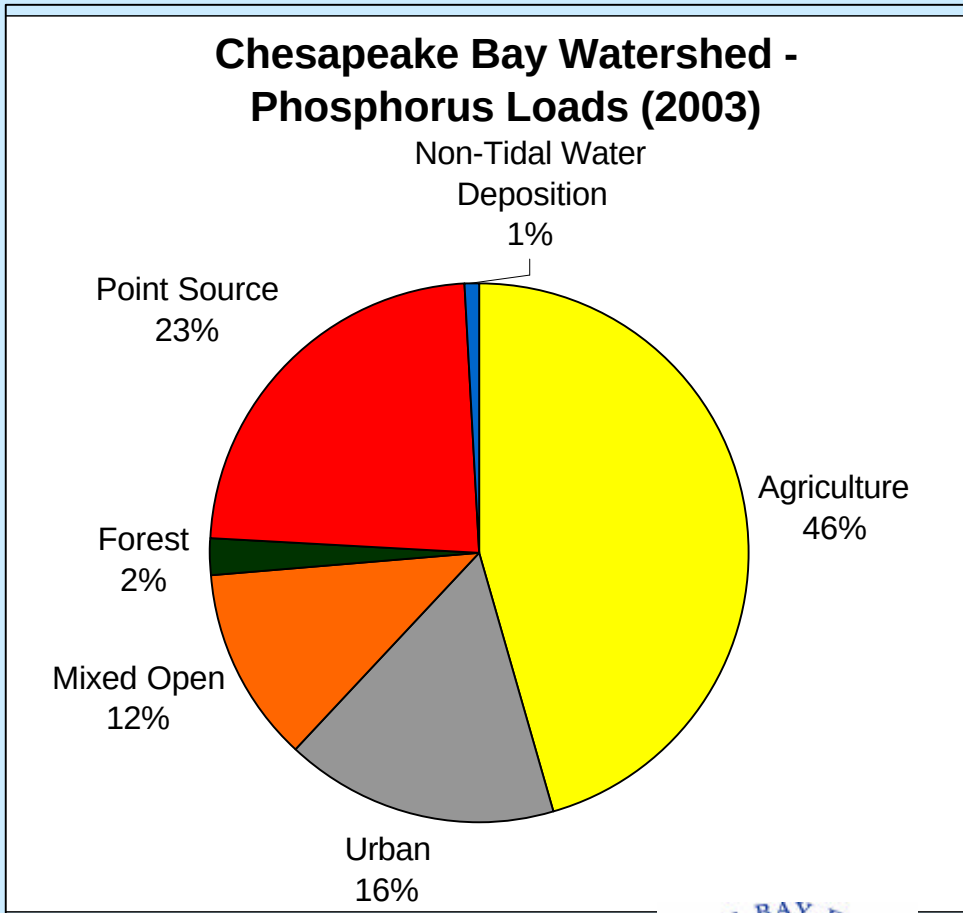
N & P sources in Bay Watershed






Manure contributes:
18% N and 26% P to Bay
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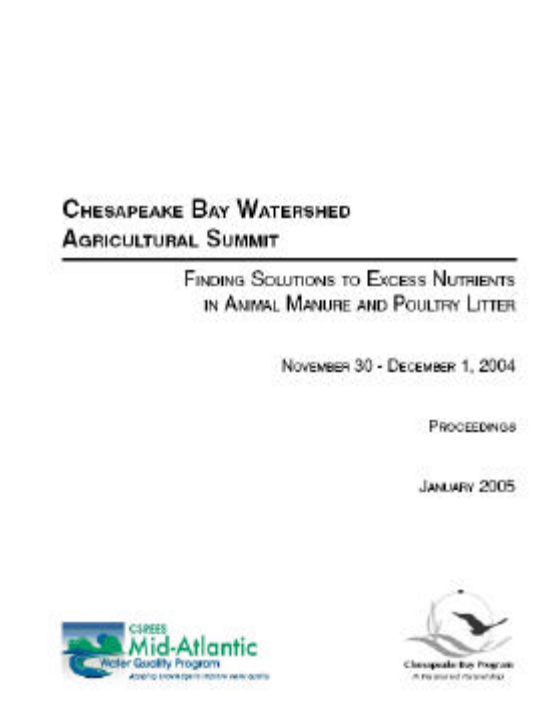
Chesapeake Bay Program
A Watershed Partnership

Land Grant Colleges' and Universities'
Mid-Atlantic
Regional Water Program
A Partnership of USDA CSREES & the Land Grant System

Winter 2004 EPA Chesapeake Bay Program and CSREES Mid Atlantic Regional Program co-sponsored Agricultural Summit to discuss excess manure nutrients in the Bay watershed.


CHESAPEAKE BAY WATERSHED
AGRICULTURAL SUMMIT

FINDING SOLUTIONS TO EXCESS NUTRIENTS
IN ANIMAL MANURE AND POULTRY LITTER

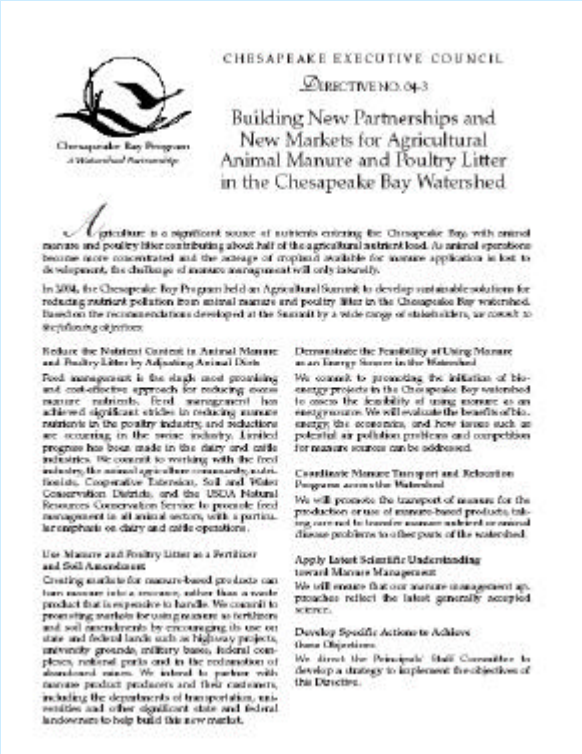
NOVEMBER 30 - DECEMBER 1, 2004

PROCEEDINGS

JANUARY 2005

CSREES Mid-Atlantic Water Quality Program

Chesapeake Bay Program


CHESAPEAKE EXECUTIVE COUNCIL

DIRECTIVE NO. 04-3

Building New Partnerships and New Markets for Agricultural Animal Manure and Poultry Litter in the Chesapeake Bay Watershed

Agriculture is a significant source of nutrients entering the Chesapeake Bay, with animal manure and poultry litter contributing about half of the agricultural nutrient load. As animal operations become more concentrated and the acreage of cropland available for manure application is lost to development, the challenge of manure management will only intensify.

In 2004, the Chesapeake Bay Program held an Agricultural Summit to develop sustainable solutions for reducing nutrient pollution from animal manure and poultry litter in the Chesapeake Bay watershed. Based on the recommendations developed at the Summit by a wide range of stakeholders, we commit to the following objectives:

Reduce the Nutrient Content in Animal Manure and Poultry Litter by Adjusting Animal Diets

Feed management is the single most promising and cost-effective approach for reducing excess manure nutrients. Feed management has achieved significant strides in reducing manure nutrients in the poultry industry, and reductions are occurring in the swine industry. Limited progress has been made in the dairy and cattle industries. We commit to working with the feed industry, the animal agriculture community, universities, Cooperative Extension, Soil and Water Conservation Districts, and the USDA Natural Resources Conservation Service to promote feed management in all animal sectors, with a particular emphasis on dairy and cattle operations.

Use Manure and Poultry Litter as a Fertilizer and Soil Amendment

Creating markets for manure-based products can turn manure into a resource, rather than a waste product that is expensive to handle. We commit to promoting markets for using manure as fertilizers and soil amendments by encouraging its use on state and federal lands such as highway projects, university grounds, military bases, federal complexes, reforest parks and in the reclamation of abandoned mines. We intend to partner with manure product producers and their customers, including the departments of transportation, universities and other significant state and federal landowners to help build this new market.

Demonstrate the Feasibility of Using Manure as an Energy Source in the Watershed

We commit to promoting the initiation of bio-energy projects in the Chesapeake Bay watershed to assess the feasibility of using manure as an energy source. We will evaluate the benefits of bio-energy for the economics, and how issues such as potential air pollution problems and competition for manure sources can be addressed.

Coordinate Manure Transport and Relocation Programs across the Watershed

We will promote the transport of manure for the production or use of manure-based products, taking care not to transfer manure nutrient or animal disease problems to other parts of the watershed.

Apply Latest Scientific Understanding toward Manure Management

We will ensure that our manure management approaches reflect the latest generally accepted science.

Develop Specific Actions to Achieve these Objectives

We direct the Principals' Staff Committee to develop a strategy to implement the objectives of this Directive.

January 10, 2005 "Manure Directive" signed by Chesapeake Executive Council, based on Agricultural Summit recommendations.

Human Waste

One Solution

Enhanced Nutrient Reduction
Tributary Strategies

Animal Waste

No One Solution

Tributary Strategies
Manure Strategy
Nutrient Management Plans
Animal waste storage systems
Keeping animals out of streams
Relocating barns away from streams
Manure/litter transport
Feed management
Procuring manure/litter products
For use on State and Federal lands

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Animal sector differences present different opportunities for dealing with manure nutrients

Dairy Sector met March 17, Harrisburg, PA

Participants from state & federal agencies
University scientists & Cooperative Extension
Producers, Industry, Farm Bureau, Envi. Orgs

Discussion focused on feed management to reduce waste nutrients

<u>Other Options discussed –</u>

Anaerobic digestion - Energy
Solids separation
Lagoon covers
More cooperation among vets, NMPs, feed specialists, etc.

Swine Sector met March 30, Lancaster, PA

Participants from state & federal agencies
Cooperative Extension, Producers, Industry, Envi. Orgs

Discussion focused on land requirements for P-based management

Other options discussed-

Reducing feed waste
Digestion for energy production
Need for dewatering & solids separation for alternative uses
Innovative treatments – i.e. constructed wetlands

Poultry Sector met April 13, Martinsburg, WV

Participants from state & federal agencies
Cooperative Extension, Producers, Industry,
Farm Bureau, Environmental Organizations

Discussion focused on improving markets and opportunities for alternatives uses – fertilizers, soil amendments and bio-energy

Other options discussed-

Use of organic matter
Advancing feed management for further nutrient reduction
Perception of competition for land from municipal biosolids

Strategy Development Process

Sector Meetings

Preliminary Recommendations

Stakeholder Review & CBP Briefings

Draft Manure Strategy – CBP Reviews

State Agencies/NRCS “Closers”

Final Manure Strategy
Exec. Council, headwater states, & USDA

Nov 2004 - April 2005	
June 2005	
July	
September	
November 2005	

4 Priority Areas of Manure Strategy

Priority 1: Feed Management - Dairy

Achieve 20% nutrient reduction in manure in 1/3 of animals by 2010; in 1/2 animals by 2015.

By April 2006 form Feed Management Technical Assistance Team.
(Lead: CBP NSC with CSREES et. al)

By December 2006, develop:
- technical assistance plan (NSC et al.)
- educational materials (CSREES)
- funding mechanisms (NRCS/States)

Efforts Underway…

$4 M in CIG to NY, MD, VA, and PA
CSREES Dairy Feed Management Outreach
CBF work w/ PSU and vets on dairy feed mgt.

Challenge: Developing consistent funding for growing the technical assistance network.

Feed Management - Poultry

By 2010 achieve at least a 30% reduction of phosphorus in poultry manure from pre-phytase levels; go further if possible.

By October 2006, determine whether further nutrient reductions are possible and develop plan for achieving those reductions.
(Lead: CBP NSC, poultry industry, feed companies, state agencies, CSREES, NRCS).

Efforts Underway

- Widespread use of phytase throughout industry.
- University research demonstrating additional gains.

Feed Management - Swine

By March 2007, report on swine phytase use, manure nutrient reductions, and information gaps. (Lead: CBP NSC)

By July 2007, develop a plan for achieving further nutrient reductions in swine operations. (Lead: CBP NSC, LGU scientists, swine industry, feed companies, state agencies, NRCS)

Efforts Underway

- Phytase use within integrated sectors of the industry.

Priority 2: Alternative Uses

Planning Target:
By 2010 20% of fertilizers etc. used on state and federal lands will be comprised of animal manure or poultry litter generated within the watershed states (Lead: States/Feds)

By June 2006, States and Feds will:
- outline mechanism for requirement
- develop target list of lands
- identify staff resources,
- sign contracts with suppliers

By April 2006, create a Regional Manure and Litter Use Technology Task Force to identify technologies/uses for manure and litter i.e.
- shared/regional technologies
- dairy and swine manure processing
- bioenergy

By March 2007, hold a workshop.

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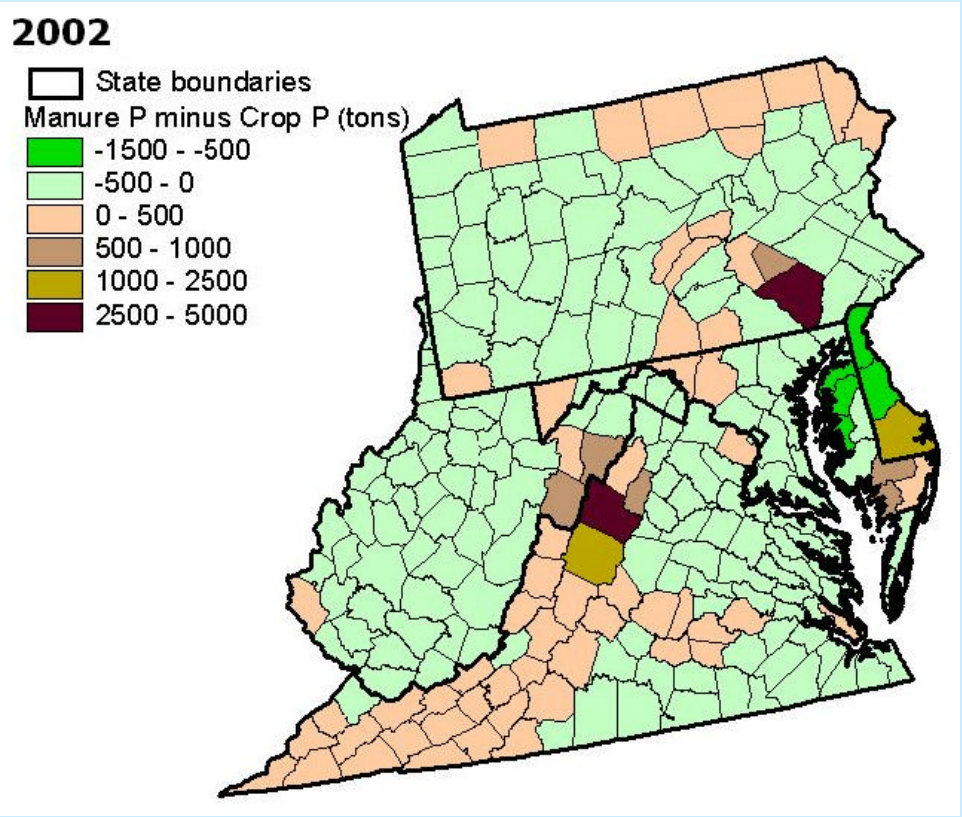
Priority 3: Quantify the Surplus



Inventory surpluses and market demand:

- What can plants use?
- Impacts of P-based NMPs?
- Energy prices?
- Animal operation growth?
- Cropping patterns?
- Changes in crop acreages?
- Willingness to accept?

CSREES efforts already underway:
www.mawaterquality.org/budgets

Within 6 months of completing the Inventory, convene a "ramifications" workshop.

Priority 4: Coordinate Programs

December 2006, State Secretaries and EPA will initiate on-going discussion on how to best coordinate manure programs. Initial discussion will focus on the following:

- Ensure transport programs result in overall reduction of nutrient losses from ag operations.

- Discuss "competition" issues
  - Among states.
  - Among animal sectors.
  - Among nutrient sources generated in watershed.

- Ensure consistent bio-security protocols for handling and transporting manure.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