Delaware Nutrient Management

Delaware DEPARTMENT of AGRICULTURE

Serving Agriculture and Protecting Consumers

Environmental Requirements Facing Delaware Agriculture

Soil Sample Water Sample Litter Sample * A sediment sample was not collected at WS1 and WS2

DE Background

DELAWARE:

- $969,124,000 total cash receipts; $739,230,000 (76%) from broilers
- 515,000 acres of farmland
- AFO: Broilers, Dairy, Horses, cattle
- Crops: SB, C, W/B greenhouse and vegetables

1999 Nutrient Management Law

- Nutrient Management Commission and legal structure for implementation
- Legal requirements for nutrient handlers
    - Certification (four levels)
    - Phosphorus-based NM planning & Implementation records
    - Annual Reports
- CAFO program structure
- Legal requirements for poultry companies

What are the DE's priorities ?

- Strategic Nutrient Management
- Excess poultry manure/alt. Uses
- Education and certification
- Key performance requirements
  - Adequate storage for manure
  - NM planning
  - Winter application
- Approved CAFO permit program
- Best management practices specific to farms

What are the EPA's priorities?

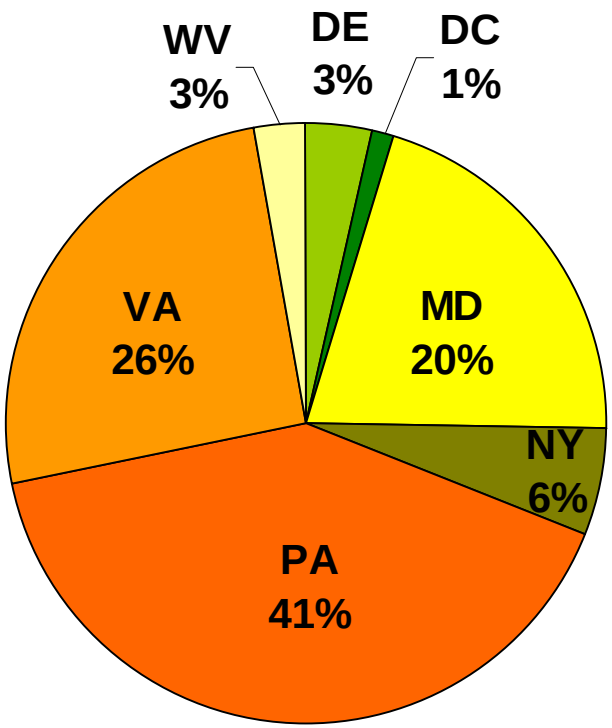
- CAFO permits
- Poultry concentration
- Poultry litter land application
- Tax ditch systems
- Stormwater runoff
- TMDL limits for AG

Presidential Executive Order

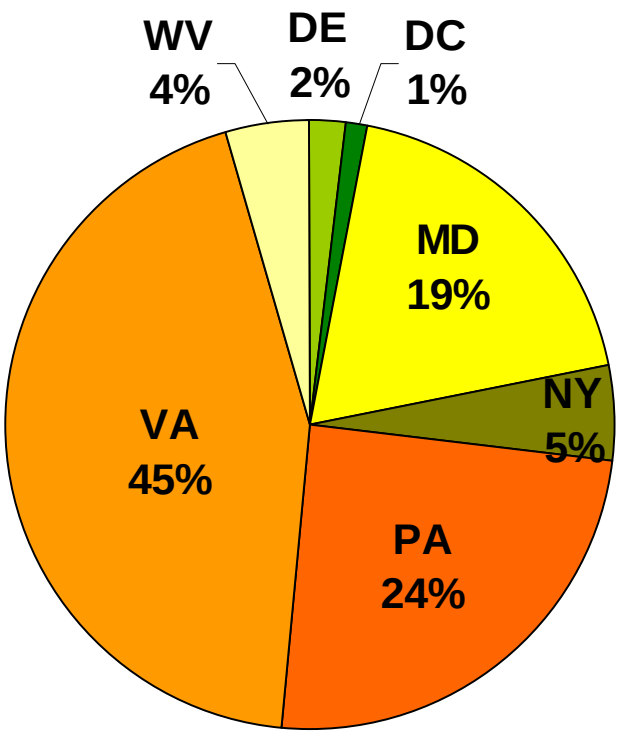
Chesapeake Bay Watershed Initiative

- Created Federal Leadership Committee
- Created Performance and Accountability Framework
- Expand regulatory tools for CAFO's and urban and suburban runoff
- Improve nutrient and sediment controls on federal lands and roads
- Target farm conservation measures at high priority areas
- Deadlines: 2010, 2015

Ches. Bay Nutrient Loads by State



Nitrogen*

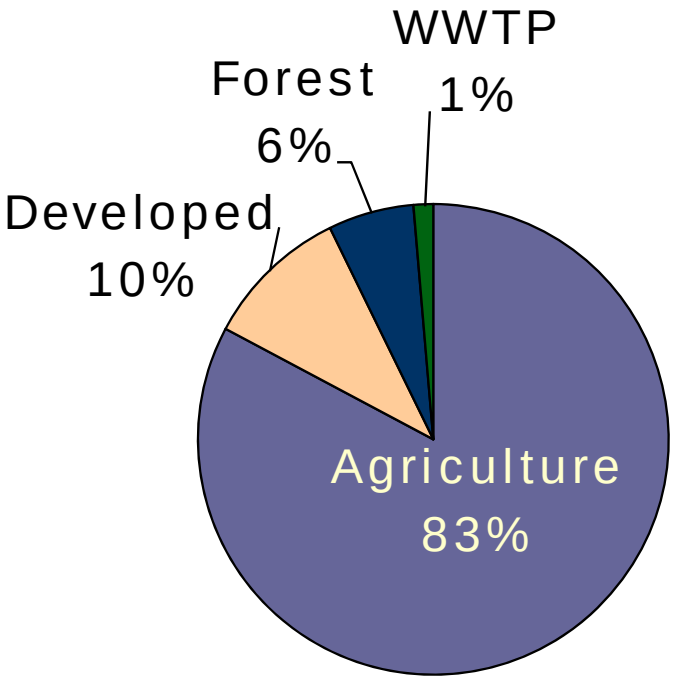


Phosphorus

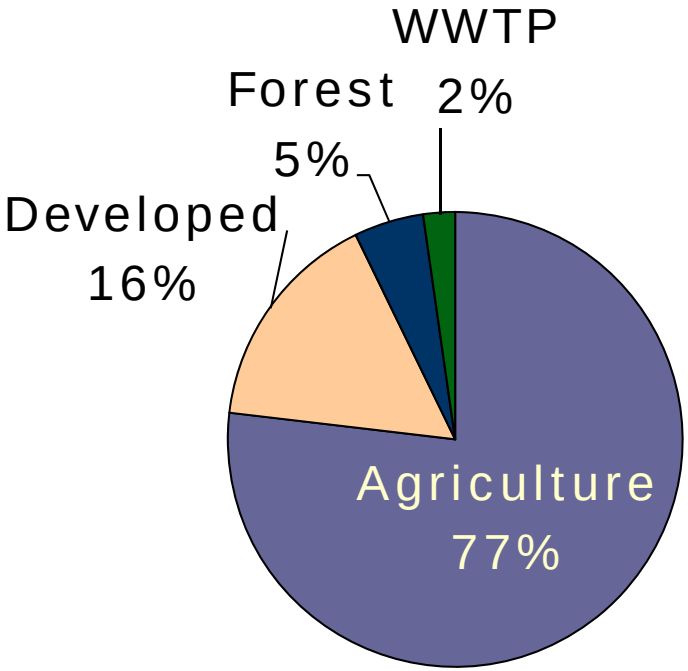
***EPA estimates a nitrogen load of 284 million lbs in 2008. EPA assumes a reduction of 7 million lbs due to the Clean Air Act. This leaves 77 millions lbs to be addressed through the TMDL process.**

Nutrient Sources of DE

Sources of Nitrogen from Delaware



Sources of Phosphorus from Delaware

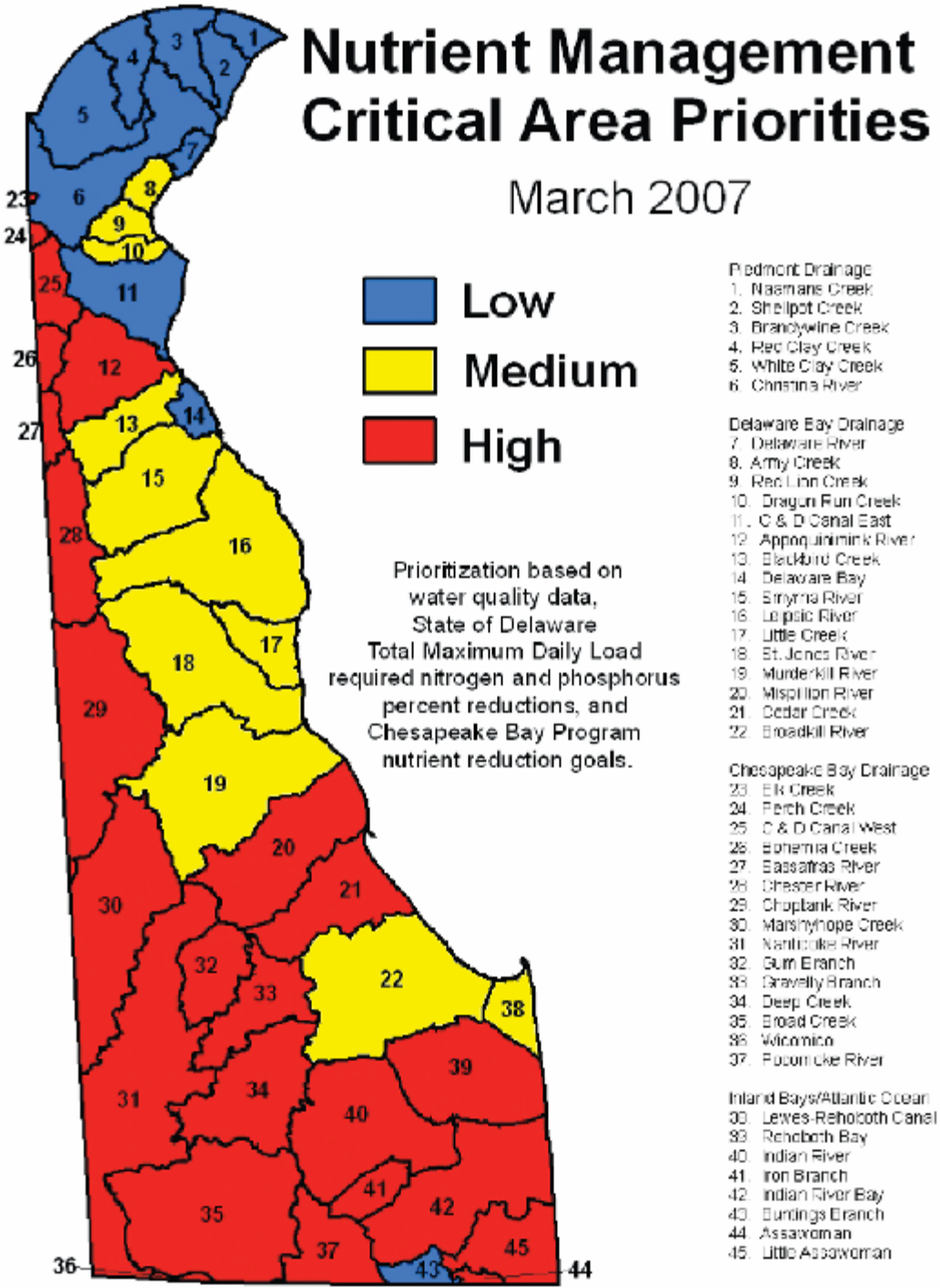


N and P values from 2008 Scenario of Phase 5.2 Watershed Model

Solutions for DE-AG

- Fill the data gap: NM activities and BMPs
- Maintain the continued success of the DE NM Law
- Stick to the basics:
  - Adequate storage
  - P based manure application
  - Keep manure staging sites from sensitive areas
  - Good housekeeping
- Pay extra attention to ditches and streams
- Limit stormwater exposure to manure and address new farm construction
- Pay attention to stormwater leaving your farm

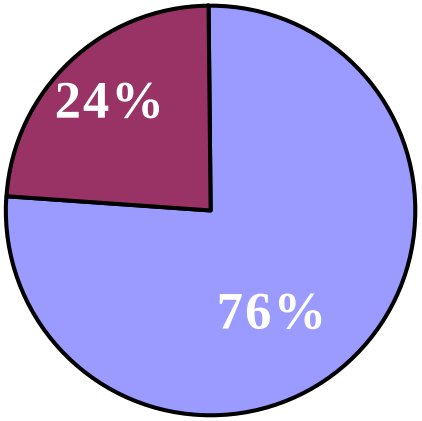
Strategic NM



Strategic NM
Phytase enzyme decreases the Phosphate in poultry litter/manure by 25-30%

Technical NM: Nutrient Planning

Acreage Phased Into Planning Since 2001
Total 453,291 acres

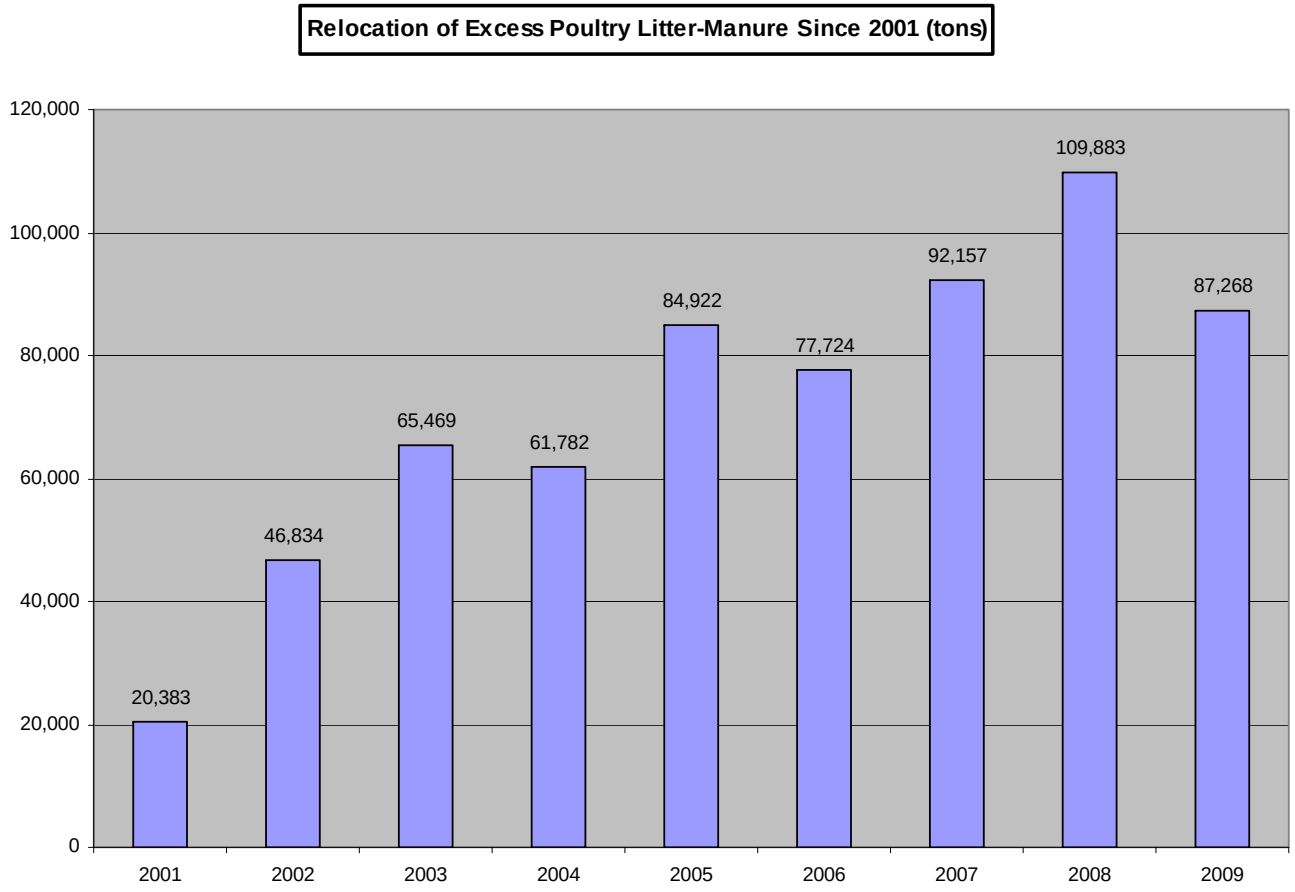


- Private Sector (Commission Funded) 344,286 acres
- Public Sector (Conservation Districts) 109,005 acres

Nutrient Management Certification

- University Cooperative Extension: 43 meetings with 1,716 individuals receiving credit;
- Private agri-service companies such as crop consultant meetings and farm meetings: 19 meetings with 353 individuals receiving credit;
- Others: 33 meetings with 980 individuals receiving credit.

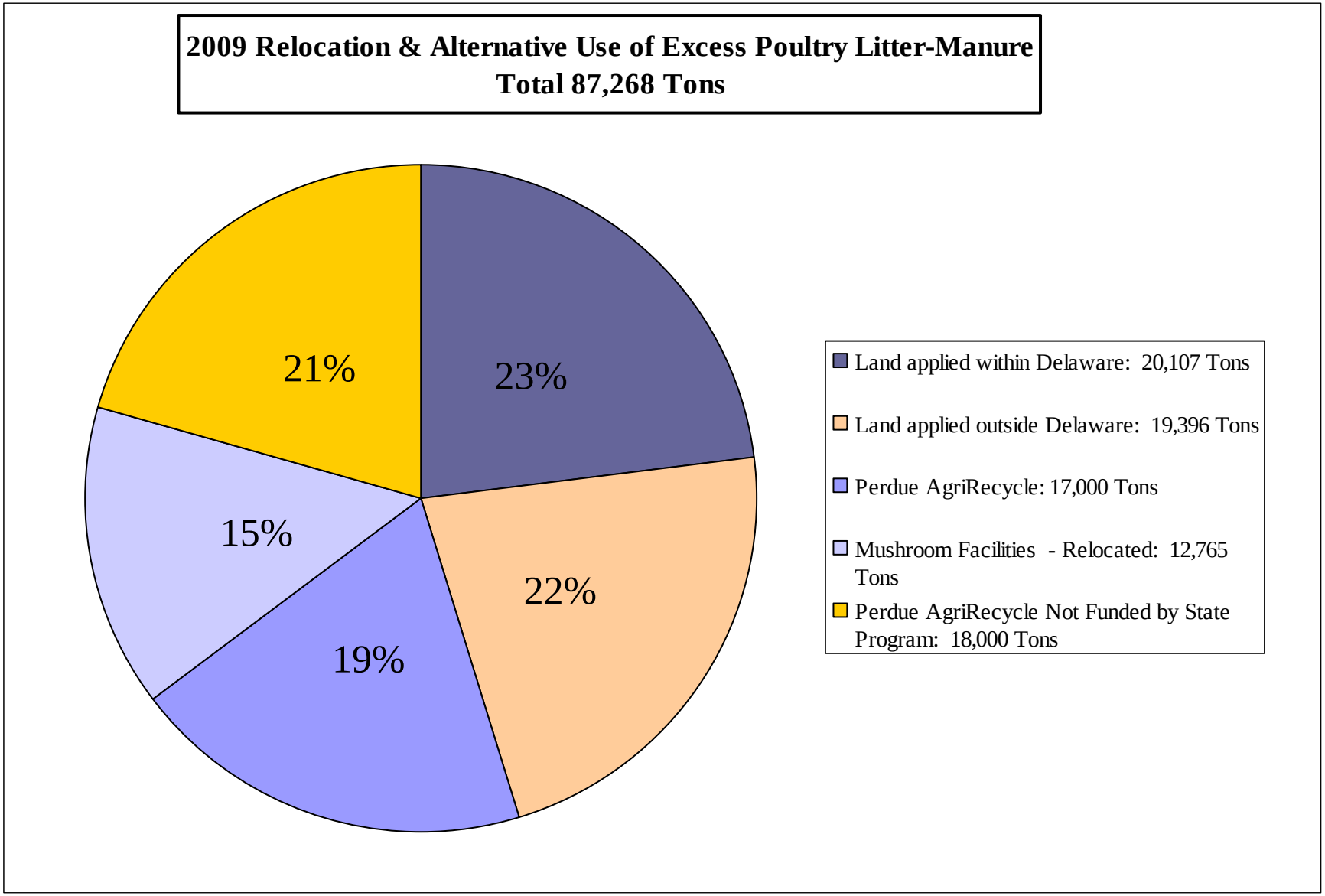
Strategic Nutrient Relocation



Perdue AgriRecycle, Blades DE

Bobcat
Bobcat

Poultry litter/manure distribution



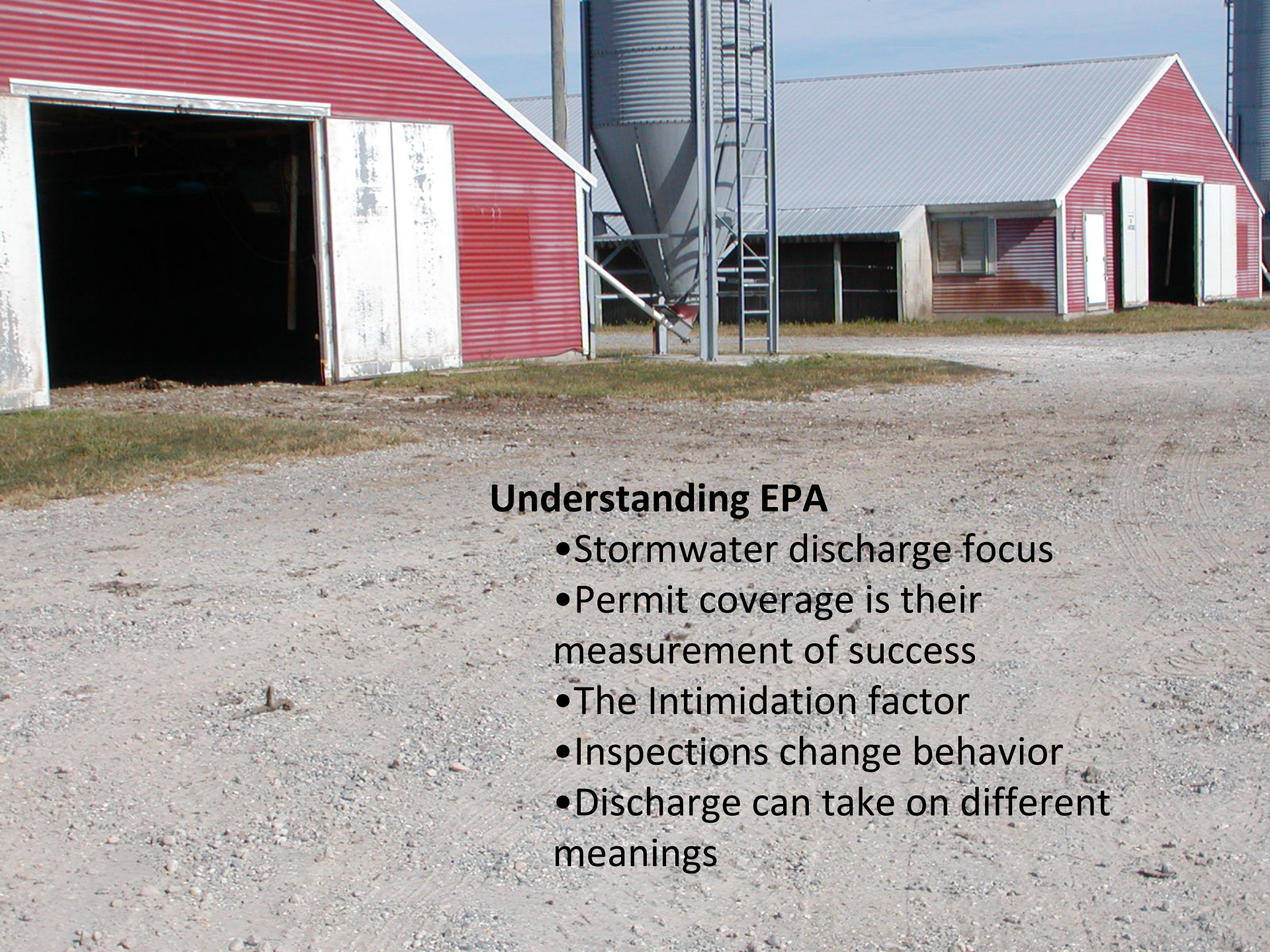
Poultry Production Areas

Voluntary projects with Drainage Ditches

- Stormwater containment?
- N & P highest during winter
- Sed. Traps and water control structures
- Vegetation: plant uptake and stabilization
- Shading water from high temperatures

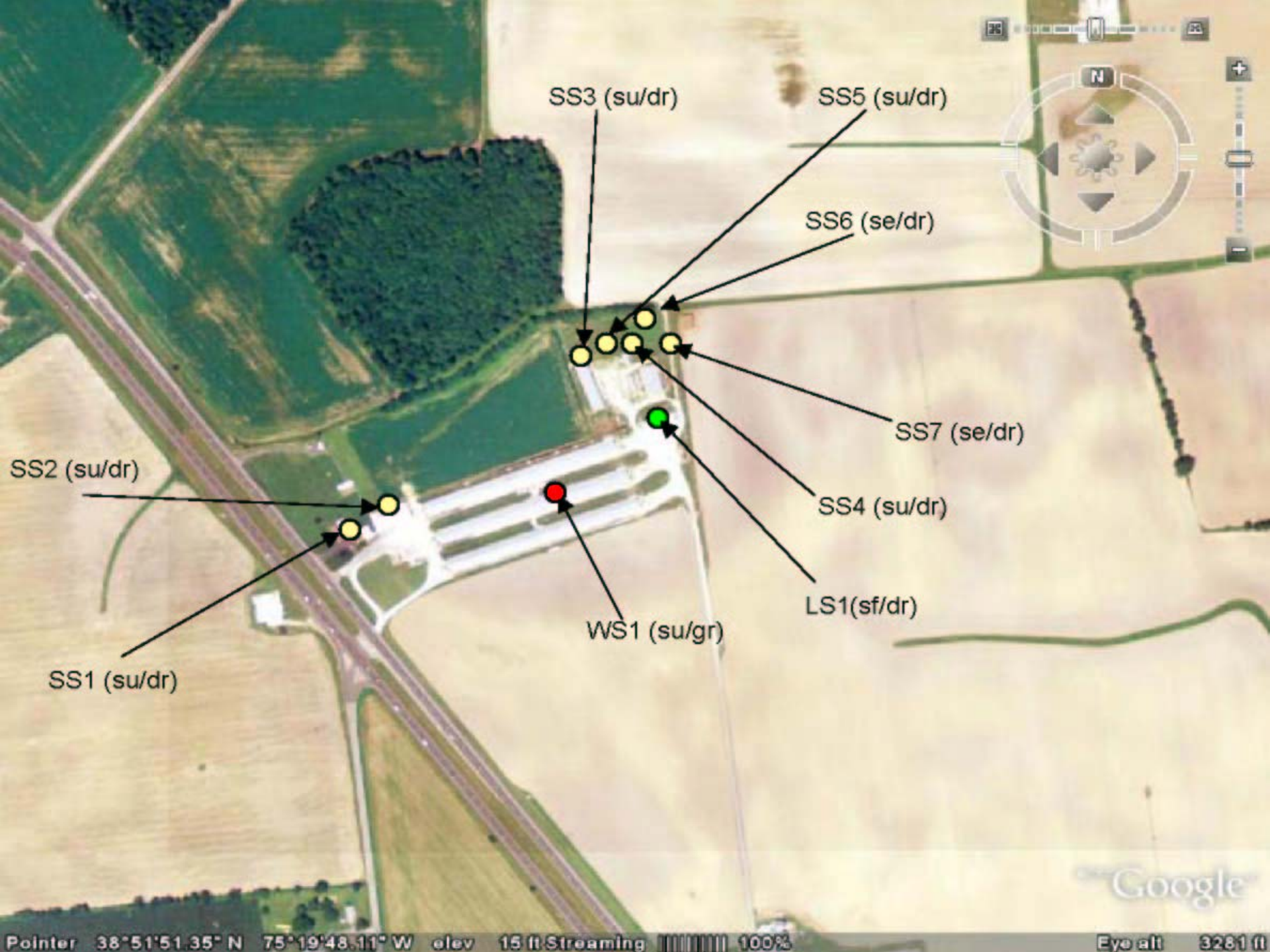
SCALE 1"=150'

Potential
Wetland
Cell



Understanding EPA

- Stormwater discharge focus
- Permit coverage is their measurement of success
- The Intimidation factor
- Inspections change behavior
- Discharge can take on different meanings


SS3 (su/dr)
SS5 (su/dr)
SS6 (se/dr)
SS7 (se/dr)
SS4 (su/dr)
LS1(sf/dr)
WS1 (su/gr)
SS2 (su/dr)
SS1 (su/dr)
Google
Pointer 38°51'51.35" N 75°19'48.11" W elev 15 ft Streaming 100%
Eye alt 3281 ft

Who are the DE CAFOs

- 2008: 16 CAFO permits
- 2009: 366 CAFO permits
- Transition in progress

	# of farms	# Animals
Total Active CAFO Permits	366	
Poultry-broiler farms	347	29,302,363
Dairy farms	9	2,268
Horse farms	4	1,797
Beef farm	1	2,000
Swine farm	1	1,800
Poultry-layer farm	1	1,143,768
Number of poultry (Broiler & Layer) farms over 125k capacity	51`	10,038,468
Total annual poultry production under CAFO permits	N/A	130,607,643
% of total annual state poultry production under permit	N/A	52.9%
Permit coverage within the Chesapeake Bay		
Poultry-broiler farms	232	18,730,343
Beef farm	1	2,000
Dairy farm	2	407
Poultry-layer farm	1	1,143,768

CAFO Requirements

- Adequate manure storage
- AWMP or NM plan
- NOI and Plan approval
- Best management practices for storm water
- Good housekeeping
- Application setbacks for ditches and streams
- Temporary staging
- Records and annual report

Storm water management

- Avoid the CAFO permit by diverting stormwater
- Existing farms: Apply practical BMPs
    - Good housekeeping
    - Vegetative buffers
    - Divert stormwater
    - Water control structures
- New farms: Control stormwater for a one year event (3-4 inches)

What to expect in 2010

- Updated CAFO regulations
- Ag-Watershed Implementation plan for Chesapeake Bay watershed
- Temporary staging regulations
- Expanded annual report (Choptank and Gravely Branch pilot)