NRCS 590 Nutrient Management Who's Rules Apply

Fertilizer, Aglime and Pest Management Conference

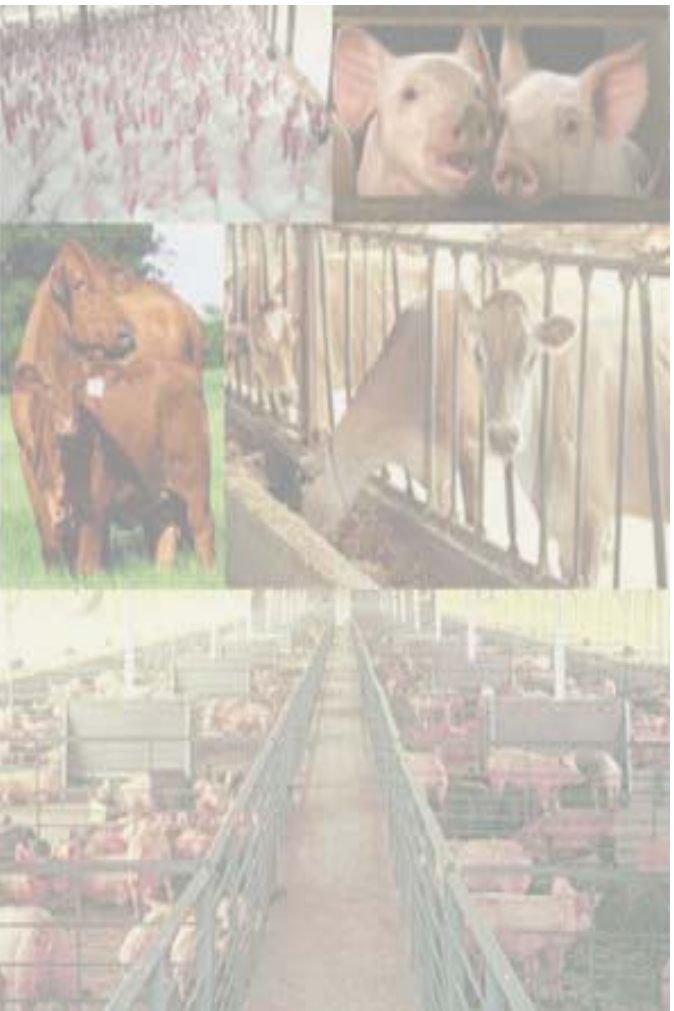
January 18, 2006

EPA USDA Joint Strategy

- EPA and USDA were directed to produce recommendations to address the impacts of livestock agriculture on water quality.
- Initiated by high profile manure spills and research demonstrating that elevated soil P levels in a watershed result in elevated P in surface waters (often a result of land application of manure) .
- NRCS was assigned responsibility to represent USDA.

EPA Actions

- December 2002 EPA released “revised” CAFO permitting requirements.



  - Clarified nutrient management plan requirements (land application areas subject to NPDES permit, manure transferred to non-permitted cropland must be tracked, pre-spreading soil moisture conditions).
  - Clarified 25 yr. storm discharge exemption.
  - Established Zero discharge for newly constructed poultry/swine operations.

NRCS Actions

- Update NRCS 590 Nutrient Management Practice Standard to include Phosphorus (P) management strategies.
- Develop a format for **C**omprehensive **N**utrient **M**anagement **P**lanning (permit “like” environmental protection on a “voluntary” basis).
- Enhance the availability of cost sharing to encourage voluntary adoption.

NRCS 590 National Practice Standard Revision

- 2001 NRCS National 590 Practice Std. revised.
  - Implement Phosphorus Index, Soil Test Limits or limit to crop need to address build up of soil P levels.
  - Increased emphasis on:
    - Planning winter land application of manure.
    - Assessing impact of P on groundwater and discharge to surface waters via drainage tile.
    - Calibration of application equipment.

Wisconsin NRCS P Based 590 Practice Standard Revision

- Panel of experts convened in September 2000 to revise the existing N based 590 practice standard.
- June 2002 P based 590 placed in the Wisconsin NRCS Field Office Technical Guide.
- Statewide training carried out fall and winter of 2002.

Wisconsin NRCS 590 2005 Revision

- February 2004 the 590 panel of experts re-convened to review 2002 P based 590 in anticipation of adoption of Agricultural Performance Standards.
- March 2005 a revised DRAFT 590 Practice Standard taken to public hearings with ATCP 50/51 rule package.

Wisconsin NRCS 590 2005 Revision

- September 2005 Wisconsin NRCS placed a slightly revised P based 590 in the Wisconsin Field Office Technical Guide.
- 2006 EQIP cost sharing will require use of the 2005 version of the 590 Practice Standard.

Emerging Issues

- Surface Water Nutrient Criteria: EPA has developed surface water target levels for P.
  - In 2007 Wisconsin DNR will begin to develop state criteria to prevent EPA limits from taking effect.
- Impact of Nitrates and pathogens on groundwater and drinking water source areas must also be addressed.

Proposed ATCP 50 Revisions

- Incorporates NRCS 2005 NM Std. 590 & UW soil test recommendations
- Requires soil tests (4 yrs)
- Requires all nutrients applied to be credited towards crop need and not runoff the field during application
- Requires qualified planners to prepare the plan *CCA's, CPAg, SSSA, CPCC, farmer planners*

P based 590 is required

EQIP - USDA NRCS cost share program

NR 243 – WPDES permit federal CAFO regs

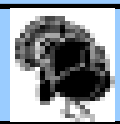
NR 151 - Water quality performance standards

ATCP 51 – Sets livestock siting standards March 05

ATCP 50 - Add N&P-based 590 std. March 05 Hearing

ATCP 40 – Requires bulk fertilizer sellers to ask purchasers if they have a NM plan for tracking NM progress (773,000 acres in 2005). Exempts distributors of manipulated manure from fertilizer tonnage fee if applied to fields practicing NM.

Current Animal Unit (AU) Numbers

Animal Type	Number = 1,000 AU
Milking and Dry Cows 	**700**
Heifers (800–1,200 lbs.)	910
Heifers (400-800 lbs. 	1,670
Calves (up to 400 lbs.)	5,000
Beef Steers/Cows 	**1,000**
(1,000 lbs. to market)	
Pigs (55 lbs. to market) 	**2,500**
Feeder pigs (up to 55 lbs.)	10,000
Turkeys 	**55,000**
Layers 	**100,000**
Broilers	**200,000**

Water Quality Rule (NR151 & ATCP 50)

Counties Implement WQ Performance Standards Using LWRM Plans

- Close to water divert clean water around feedlots
- Close to water no unconfined manure piles
- Construct manure storage facilities to standards
- No overflowing manure storage facilities
- No direct feedlot runoff
- Restrict livestock to maintain cover near water
- Control erosion to meet tolerable soil loss (T)
- Apply nutrients to crop needs limiting nutrient delivery potential

ALL STANDARDS BECOME EFFECTIVE Oct. 1, 2002 EXCEPT NM

ATCP 50 Revisions

- Still entitles most farmers to 70% cost sharing from counties and compliance stays with the land
- Compliance required by counties without cost sharing:
  - WPDES permits (~ 140 farms)
  - EAZ Farmland Pres. (~ 12,000 farms)
  - Under local ordinance
    - Voluntarily constructing manure storage (~ 150 farms / year)
    - New or expanded livestock facility with 500 AU or more (ATCP 51)(~ 70 farms / year)

Proposed ATCP 50 Revisions

- Nutrient applications prohibited on fields over "T-value" - Gully erosion must be controlled
- Manure nutrient content using a lab. enrolled in the **M**anure **A**nalysis **P**roficiency program or **book values**
- No mechanical manure applications within 50 feet of drinking wells - incorporate applications
- For 1,000' of municipal wells, sandy soils, 20" to bedrock, 10" to water table (590 Tech. Note) apply the majority of N after crop establishment

Proposed ATCP 50 Revisions

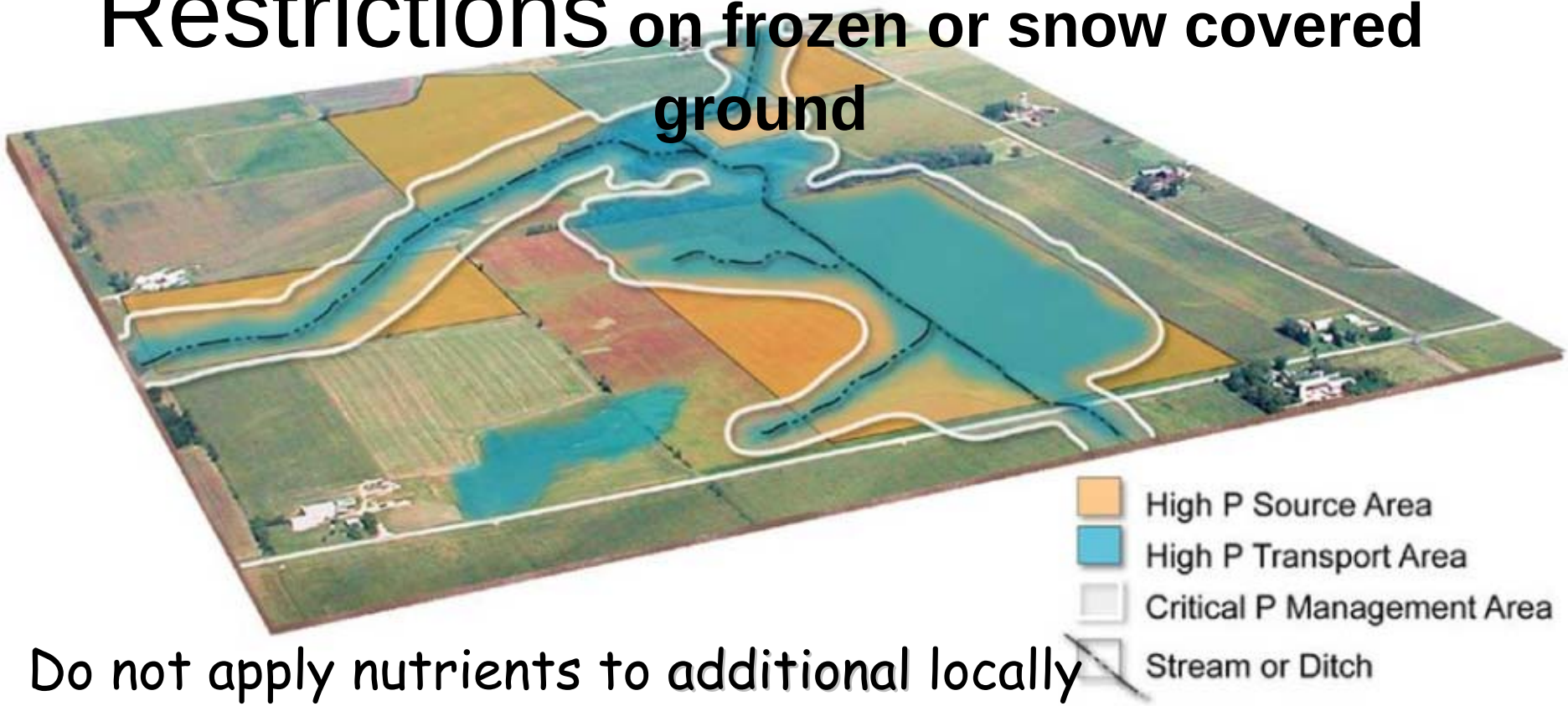
- Farmers are not required to have a 590 NM P-based plan if the application is *primarily* from these materials
  - septage (NR113)
  - municipal sludge (NR 204)
  - industrial waste or byproducts (NR 214)
- Nutrients are applied according to DNR N-based plan

New 590-Application Restrictions **on frozen or snow covered ground**

Do not apply nutrients:

- To fields greater than 9% slope (12% if contoured)
- 1000' of lakes or 300' of perennial streams
- In the form of commercial N & P fertilizer except on pastures or winter grains
- Liquid manure at rates > 7000 gallons per acre or the P removal of the next crop

New 590-Application Restrictions **on frozen or snow covered ground**



Do not apply nutrients to additional locally identified areas delineated in a conservation plan as contributing nutrients to direct conduits to groundwater or surface water as a result of runoff.

Nutrient and Pest Management Program 2002

590-Application Restrictions

on non-frozen fields

300 ft. from perennial streams or 1,000 ft. from lakes or ponds

- Install or maintain permanent vegetative buffers
- Maintain 30% crop residue or vegetative cover on the soil surface
- Incorporate nutrients within 72 hours - meet T
- Establish fall cover crops promptly following application
- Follow 590's reduced rates for unincorporated liquid manure

New 590-P Management Options

Select either method (by tract) when manure or organic byproducts are applied

- Soil Test P
  - Allows manual development of plan
  - Soil test P levels less than 50 PPM, can apply to the N needs of the crop
  - Fields in potato rotations or with soil tests between 50 -100, balance inputs and uptake by crops over the rotation (up to 8 years)
  - Fields with soil tests greater than 100 PPM, P applications must be 25% less than crop removal rates (up to an 8 year rotation)
- P Index
  - Risk estimate of P delivery to surface waters - target is 6 or less usually achieved by managing soil erosion
  - Requires computer software to calculate (SNAP+).

Concentrated Animal Feeding Operations (CAFOs)

- 1,000 Animal Units (AUs) or more
  - Large CAFO
  - Automatically required to obtain coverage under a DNR permit
  - ~140 permitted operations with ≥ 1000 AUs
- Fewer than 1,000 AUs
  - May be defined or designated as a CAFO on a limited basis and be required to obtain a DNR permit if they have discharges to navigable waters
  - Medium CAFO = 300-999 AUs
  - Small CAFO = <300 AUs

NR 243 - CAFO WPDES Permit

- DNR delegated by US EPA to issue Wisconsin Pollutant Discharge Elimination System (WPDES) permits
- CAFO WPDES permit program in place since mid-1980's with creation of NR 243
- Water quality permits (streams, lakes, groundwater and wetlands)
- Same program that applies to other industries (e.g., paper mills) and municipal treatment plants
- Reissued every five years
- Does not address air, odor, noise or traffic issues

Revisions to State CAFO Rules
Ch. NR 243 and CAFO WPDES Permits

Revision timeline

- April 2003 - Federal CAFO rule changes
- Sept. 2003 - Feb. 2005 - NR 243 Technical Advisory Committee meetings (14)
- August 2005 - Hearings (5)
- September 2005 - Additional informational sessions (8)
- October 14, 2005 - End of public comment period
- 2006 - To Natural Resources Board for adoption

Nutrient Management (NR 243.14)

- 2nd year nutrient crediting
- Manure may not be applied to saturated soils
- Manure may not be applied when snow is actively melting
- Manure or process wastewater may not pond on or run off the application site or leave the field via subsurface drains
- Additional groundwater protection

Nutrient Management (NR 243.14)

- Restrictions on applications within the Surface Water Quality Management Area, or SWQMA 1000 feet of a lake, 300 feet of a stream or direct conduit to a navigable water
  - Setbacks
  - Residue management
  - Limits on amount of manure applied
- These practices are intended to address:
  - Federal setback (100 feet or equivalent) or vegetated buffer (35-foot) requirement
  - Acute and chronic delivery of pollutants

Nutrient Management (NR 243.14)

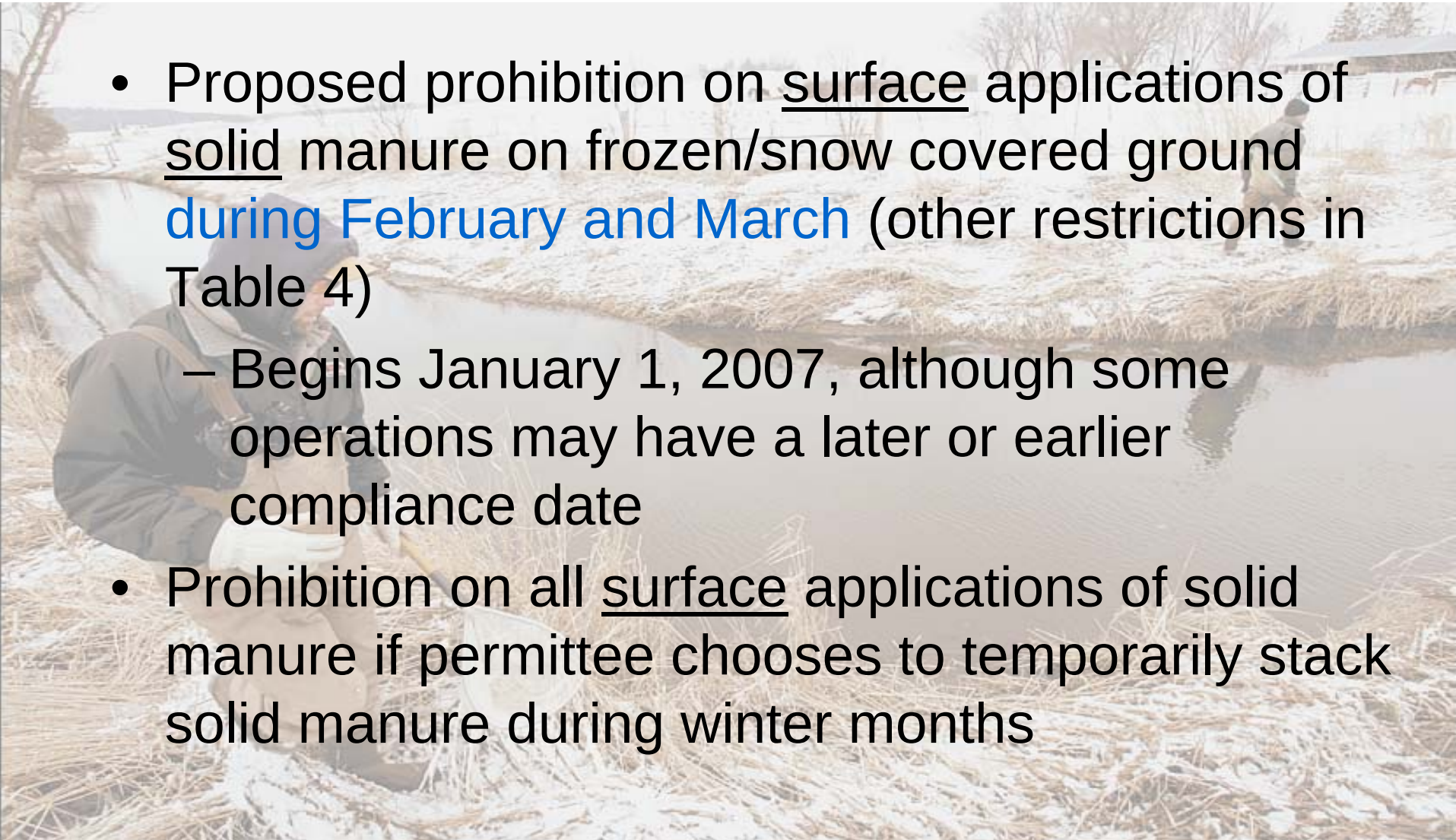
Operations must implement phosphorus-based nutrient management using one of the following methods:

- Soil test phosphorus
- Phosphorus risk/delivery assessment (e.g., P-Index)

Liquid Manure and Frozen or Snow-Covered Ground

- Proposed prohibition on non-emergency surface applications of liquid manure on frozen/snow covered ground
  - Already permitted operations without 180-day storage for liquid manure have until Jan. 1, 2010 to build required storage and comply with frozen/snow-covered ground restrictions
  - Operations built brand new on a site after April 14, 2003 must comply upon permit issuance

Solid Manure and Frozen or Snow-Covered Ground



- Proposed prohibition on surface applications of solid manure on frozen/snow covered ground during February and March (other restrictions in Table 4)
  - Begins January 1, 2007, although some operations may have a later or earlier compliance date
- Prohibition on all surface applications of solid manure if permittee chooses to temporarily stack solid manure during winter months

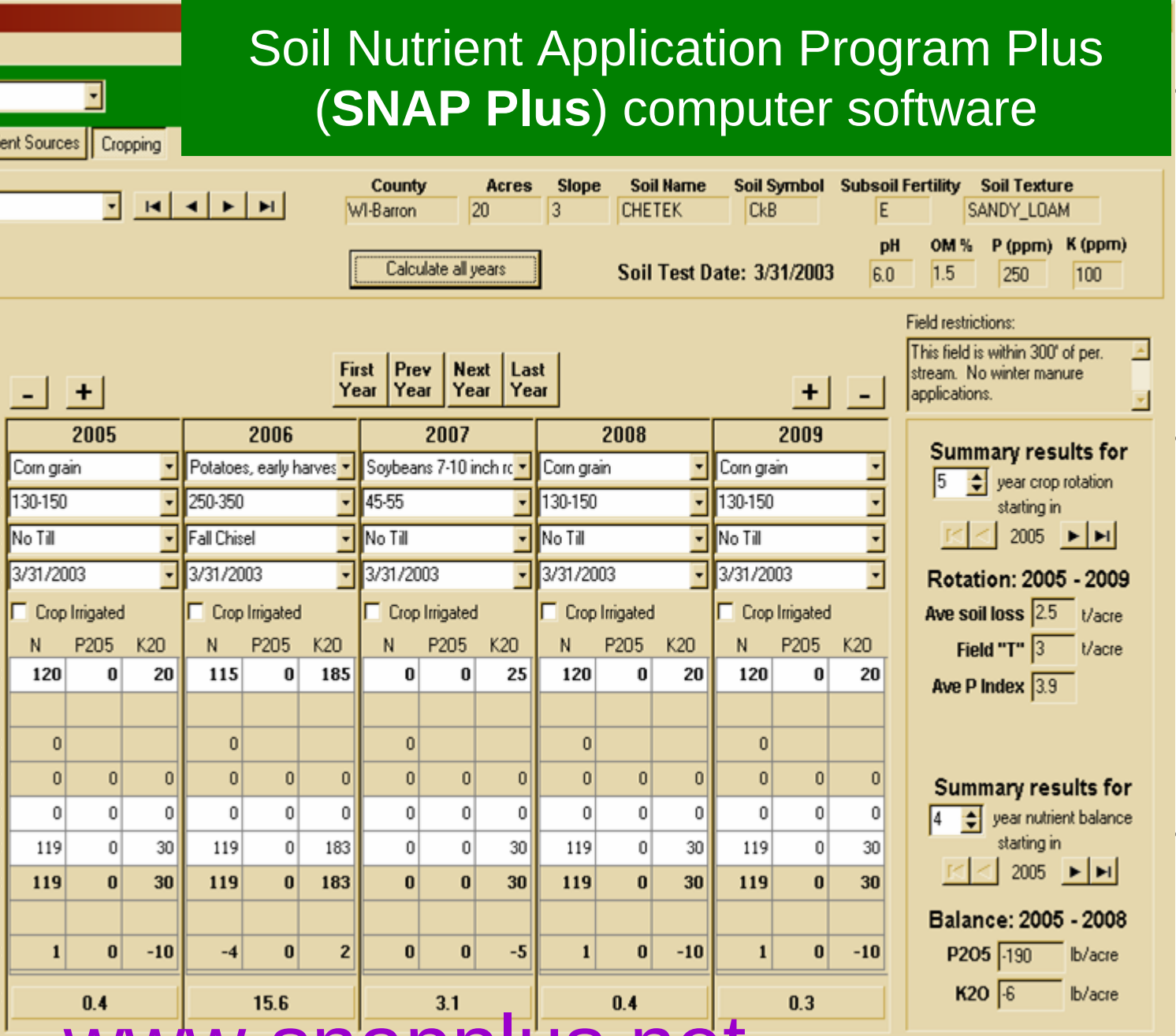
Manure Stacking (243.141)

- Allowed during winter months for manure with a solids content of 16% or greater
- Stacking may be allowed during other times of the year for manure with >32% solids
- Approved stacking must be done on sites that meet restrictive siting and operational criteria to protect waters of the state

Designed Structures (243.15-17)

- 180-day storage for liquid manure
  - Applies to currently permitted CAFOs that do not have 180-days of storage beginning Jan. 1, 2010
  - Applies upon permit issuance to operations built brand new on a site after April 14, 2003
  - Once you build 180-day storage, must maintain it
  - Operations with good operation and maintenance can temporarily reduce storage to 150-days

Soil Nutrient Application Program Plus (**SNAP Plus**) computer software



- Tracks annual crops, nutrients apps, and credits.
- Provides soil loss estimate of sheet and rill erosion rates.
- Calculate s risks with the Wis. P Index.

www.snapplus.net

Print 590 documents from:

Contact Information

- Pat Murphy, NRCS (608) 662-4422 ext. 258
  - pat.murphy@wi.usda.gov
- Sue Porter, DATCP (608) 224-4605
  - sue.porter@datcp.state.wi.us
- Tom Bauman, DNR (608) 266-9993
  - thomas.bauman@dnr.state.wi.us