Wisconsin Water Quality

Agricultural Performance Standards

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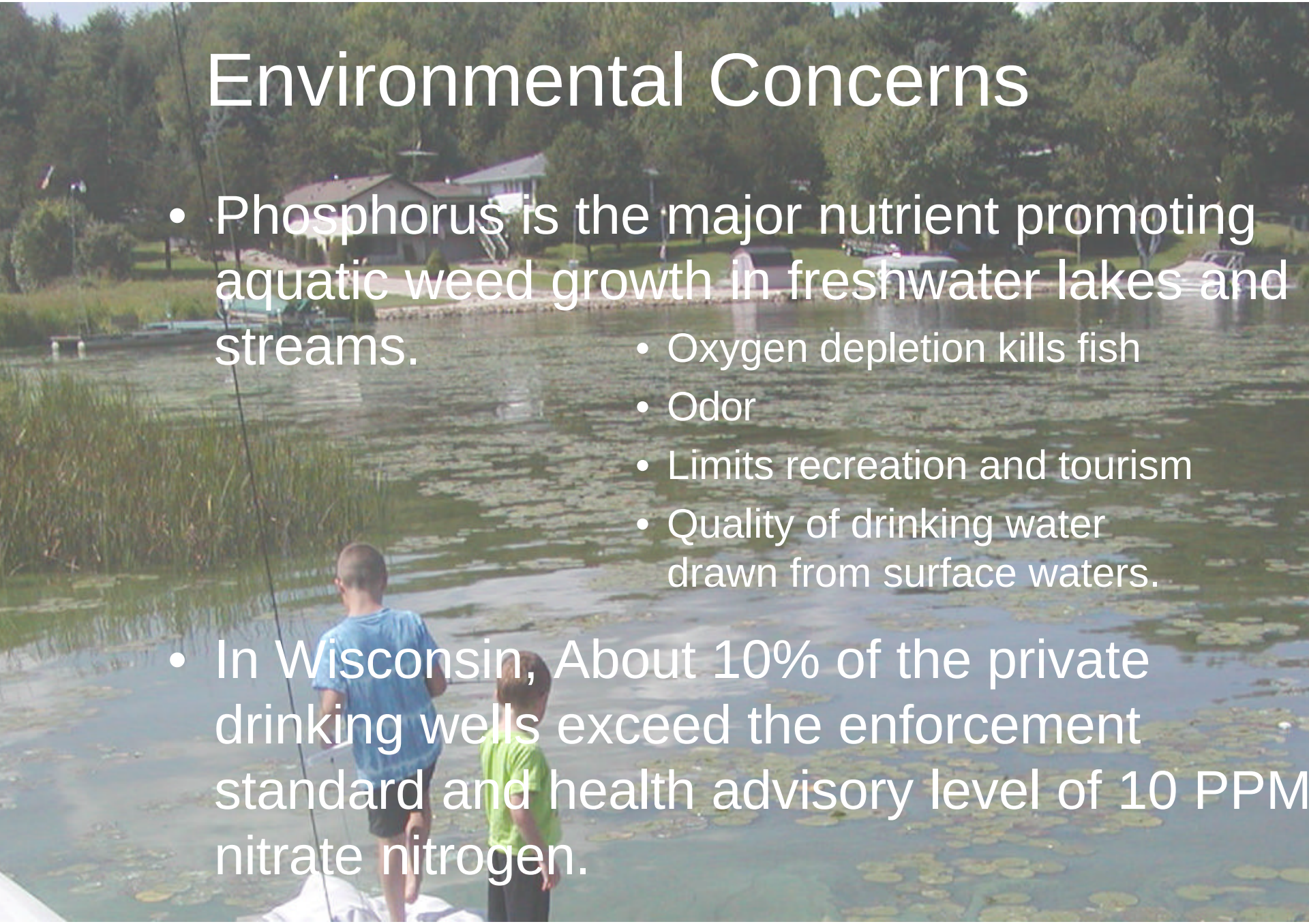
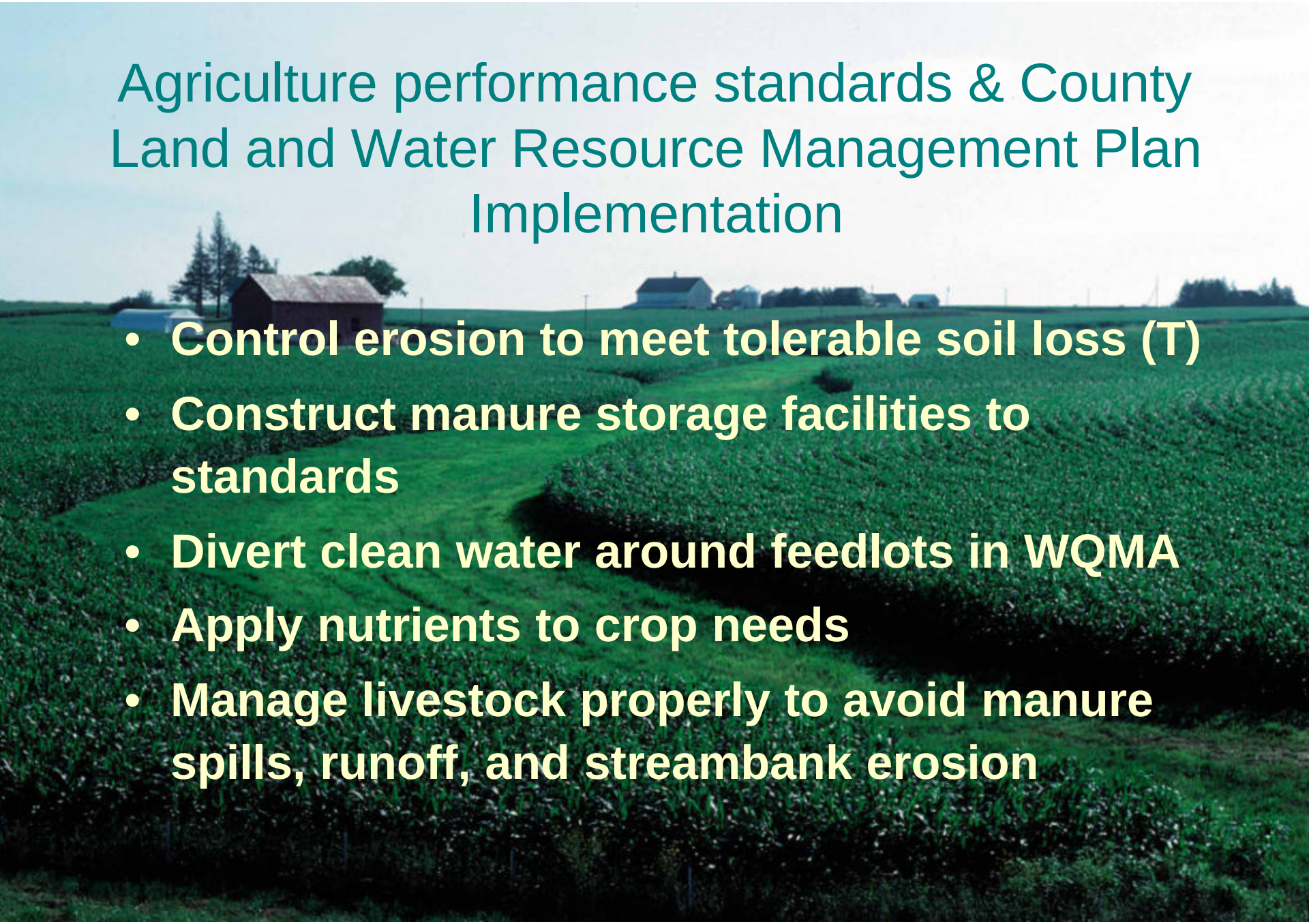


Environmental Concerns

- Phosphorus is the major nutrient promoting aquatic weed growth in freshwater lakes and streams.
  - Oxygen depletion kills fish
  - Odor
  - Limits recreation and tourism
  - Quality of drinking water drawn from surface waters.
- In Wisconsin, About 10% of the private drinking wells exceed the enforcement standard and health advisory level of 10 PPM nitrate nitrogen.

Agriculture performance standards & County Land and Water Resource Management Plan Implementation



- **Control erosion to meet tolerable soil loss (T)**
- **Construct manure storage facilities to standards**
- **Divert clean water around feedlots in WQMA**
- **Apply nutrients to crop needs**
- **Manage livestock properly to avoid manure spills, runoff, and streambank erosion**

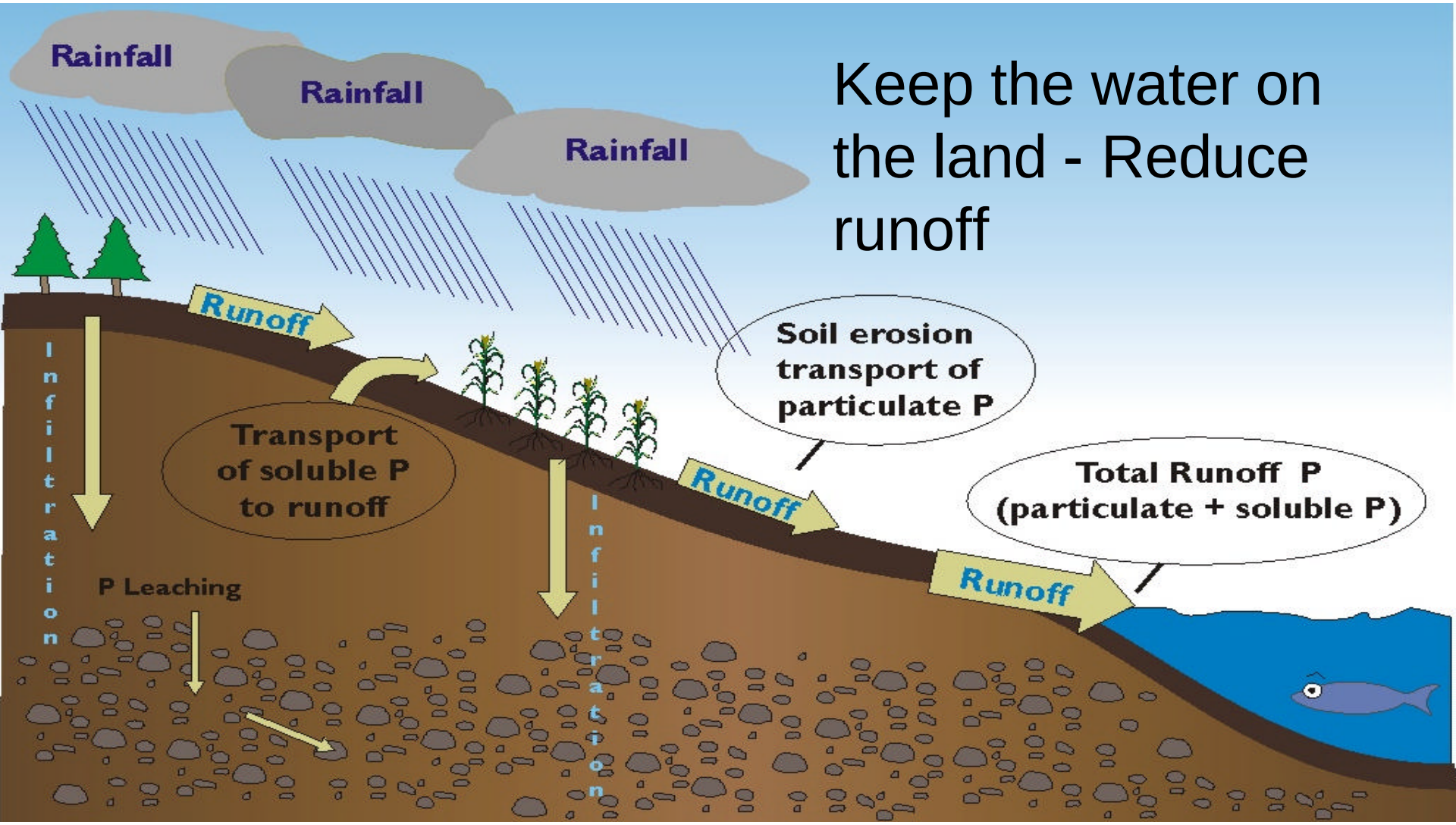
Manure Management Prohibitions

s.281.16 (3)(a)

- No overflowing manure storage facilities
- No unconfined manure piles in WQMA
- No direct runoff from feedlots and manure storage facilities
- Restricted livestock access to maintain adequate sod cover (vegetation) near water

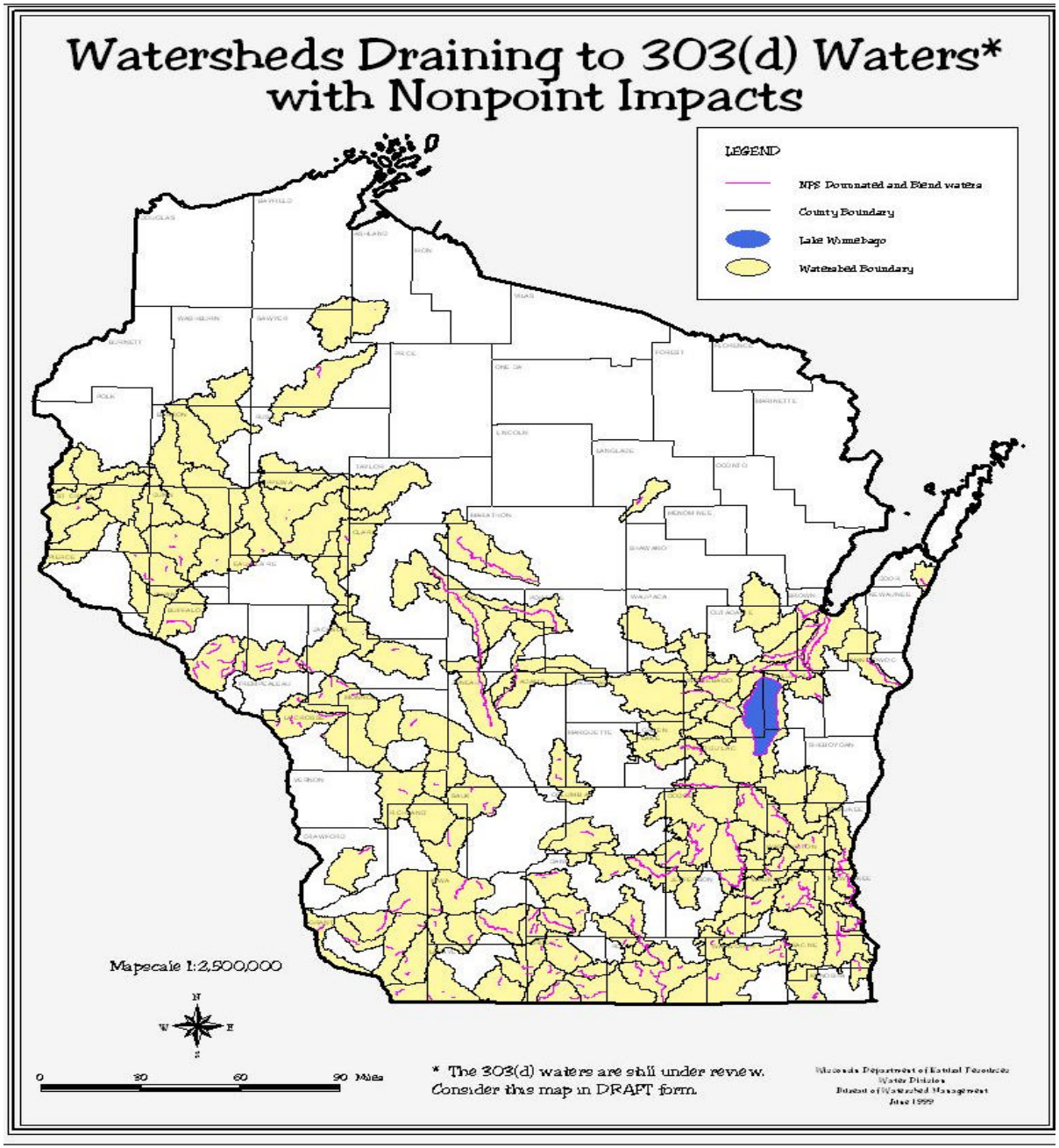
Erosion is still the number one source of nonpoint source pollution in the US

Phosphorus Transport



Existing operations that are required to comply - must be offered 70% cost share ($7/ac x 4 years). *Existing*- out of compliance when the standard becomes effective and have not received cost share.

NM performance stnd. applies to “new” operations 1 year after effective date of NR 151.



NM performance standard applies to “existing” operations and these areas, ORW, ERW, and source water protection areas 2005.

All other existing operations can not be required to comply until 2008.

Nutrient management planning

- Require qualified planners to sign-off on plans for cost-sharing
- Presumed qualified if a professional with credentials or approved farmer training
- Collect data on nutrient management planning from bulk fertilizer dealers
- Transfer soil testing lab certification from FSA to DATCP

Nutrient management standards

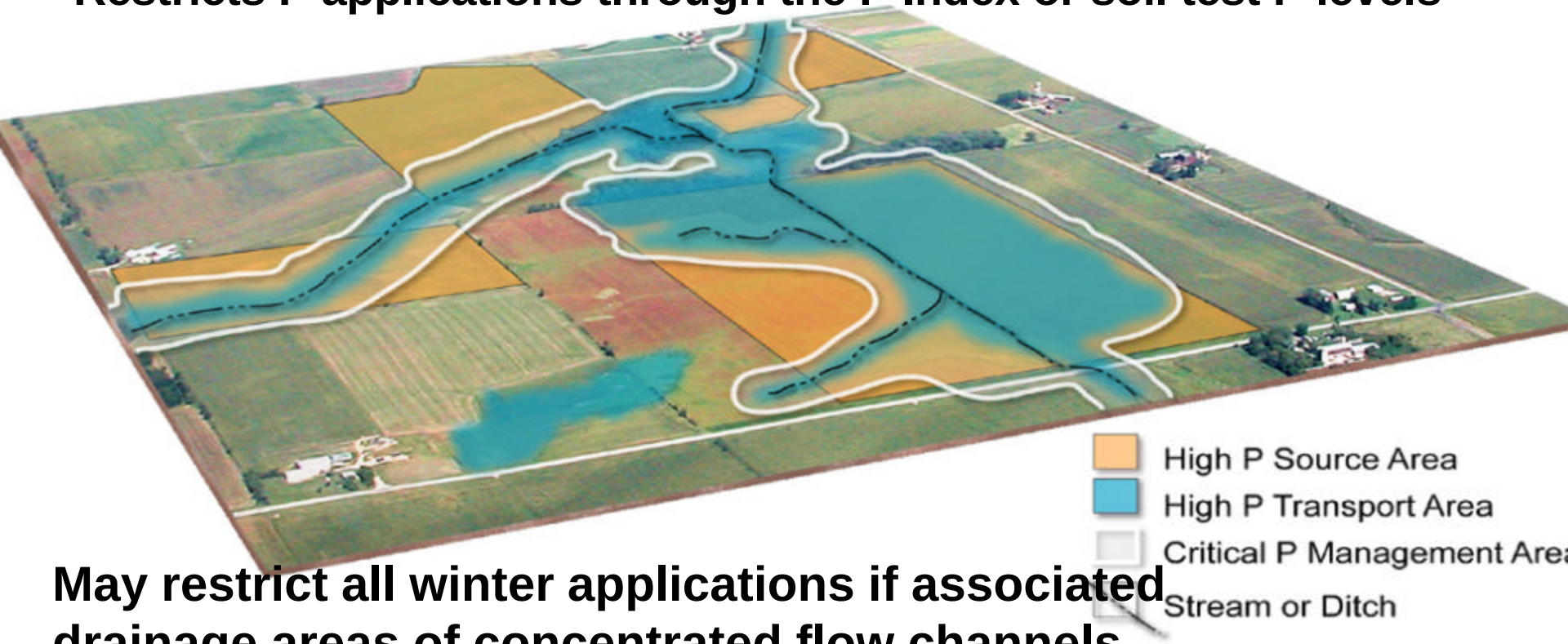
- Apply nutrients according to annual NM plan using current 590 standard
- Follow UW recommendations
- Do not apply ***nutrients*** to fields > T or in waterways
- Do not apply within 200 ft. groundwater conduits--unless incorporated within 72 hrs

New 590 Winter Manure Application Restrictions

- ***Plant perennial cover in flow channels*** AND do not apply nutrients to established channels
- Do not apply in excess of P removal (liquid manure applications > ***7000 gallons per acre***)
- ***Do not apply within 1000' of lakes & 300' of perennial streams***
- Do not apply within 200' of wells, sinkholes...
- Do not apply to slopes > 9 %, except up to 12% only if conservation measures are in place (residue, contoured, waterways, etc.)
- No commercial fertilizer applications to frozen soils except for grass pastures and on winter grains

New 590- P Requirements

Restricts P applications through the P Index or soil test P levels



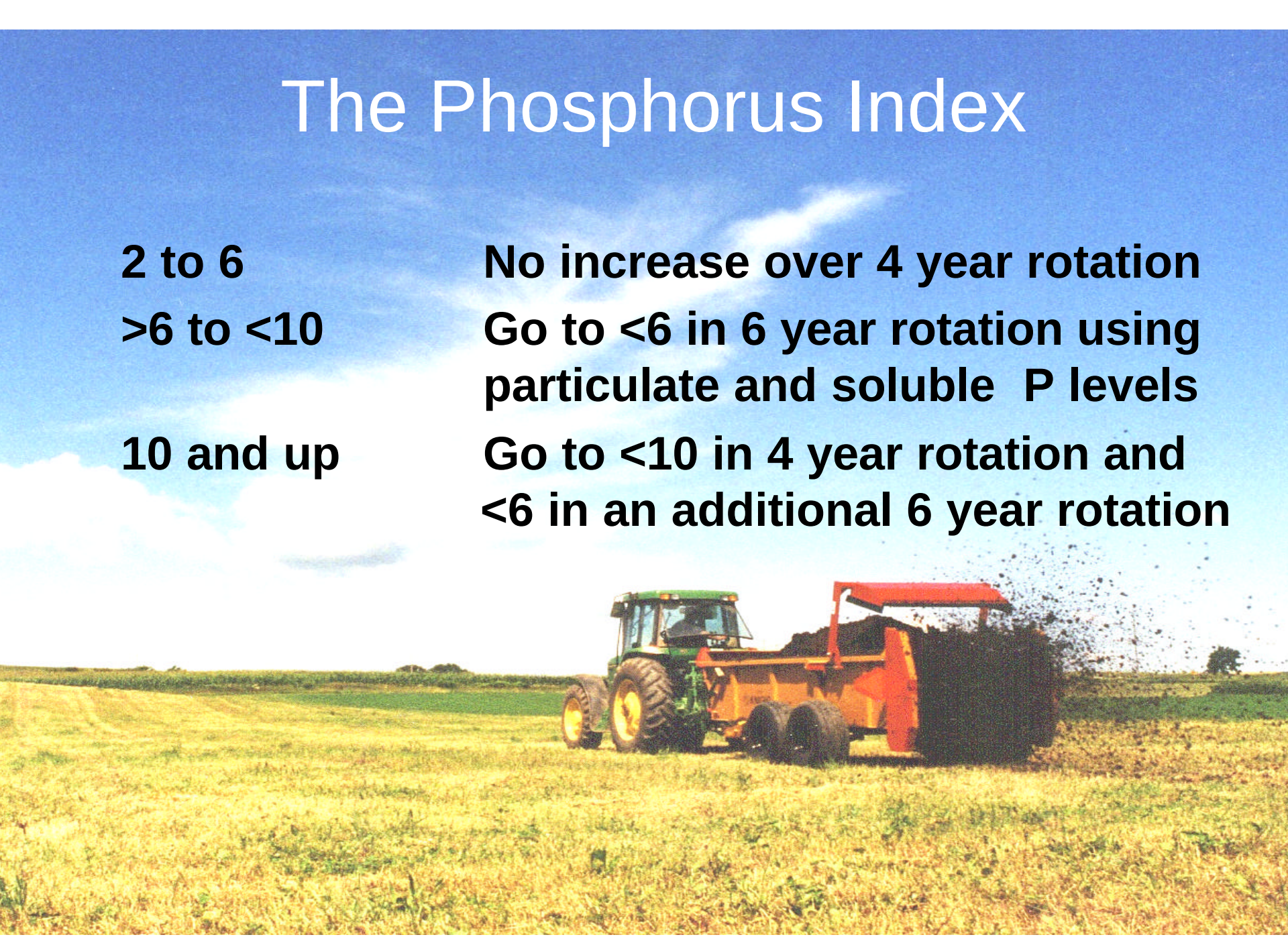
May restrict all winter applications if associated drainage areas of concentrated flow channels contribute to water and are identified on-site; approved in a conservation plan; & are > 1/3 of field

Critical Soil Test P Values

- 50-100 ppm P
  - P removal for crops to be grown in rotation (4 years)
  - Potatoes, P applications shall not exceed rotational crop removal if soil tests are optimum or higher
- >100 ppm P
  - Stop manure applications or apply less than removal
  - Also, apply one of the practices to limit P loading
    - Leave 30% residue on the soil surface after planting or
    - Establish fall cover crops or
    - Establish contour strips or buffer strips

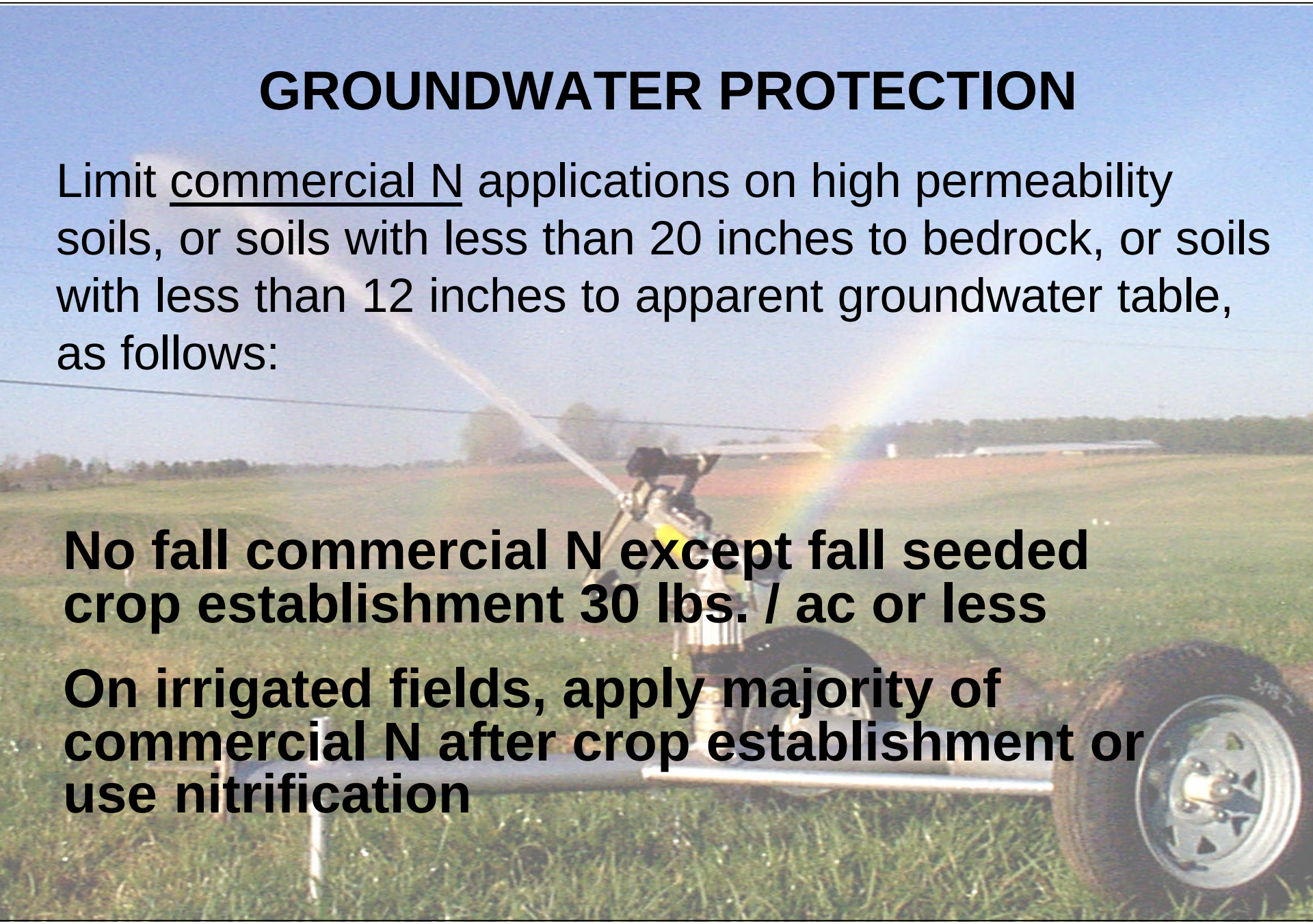
The Phosphorus Index

2 to 6	**No increase over 4 year rotation**
>6 to <10	**Go to <6 in 6 year rotation using particulate and soluble P levels**
10 and up	**Go to <10 in 4 year rotation and <6 in an additional 6 year rotation**



GROUNDWATER PROTECTION

Limit commercial N applications on high permeability soils, or soils with less than 20 inches to bedrock, or soils with less than 12 inches to apparent groundwater table, as follows:



No fall commercial N except fall seeded crop establishment 30 lbs. / ac or less

On irrigated fields, apply majority of commercial N after crop establishment or use nitrification

Limit available manure N applications on restricted soils:

Where soil temperatures are:

50ºF or less in the fall --Limit available N to 120 lbs. / ac

> 50ºF in the fall-- Pick one

- Limit available N to 120 lbs. / ac + nitrification inhibitor
- Limit applications to crop N need or 120 lbs. ac + on perennial or fall seeded crops
- Limit available N to 90 lbs. / ac + apply after Sept. 15th

Apply remaining crop N need in spring or summer. **Restrictions do not apply to spring manure applications prior to planting**.

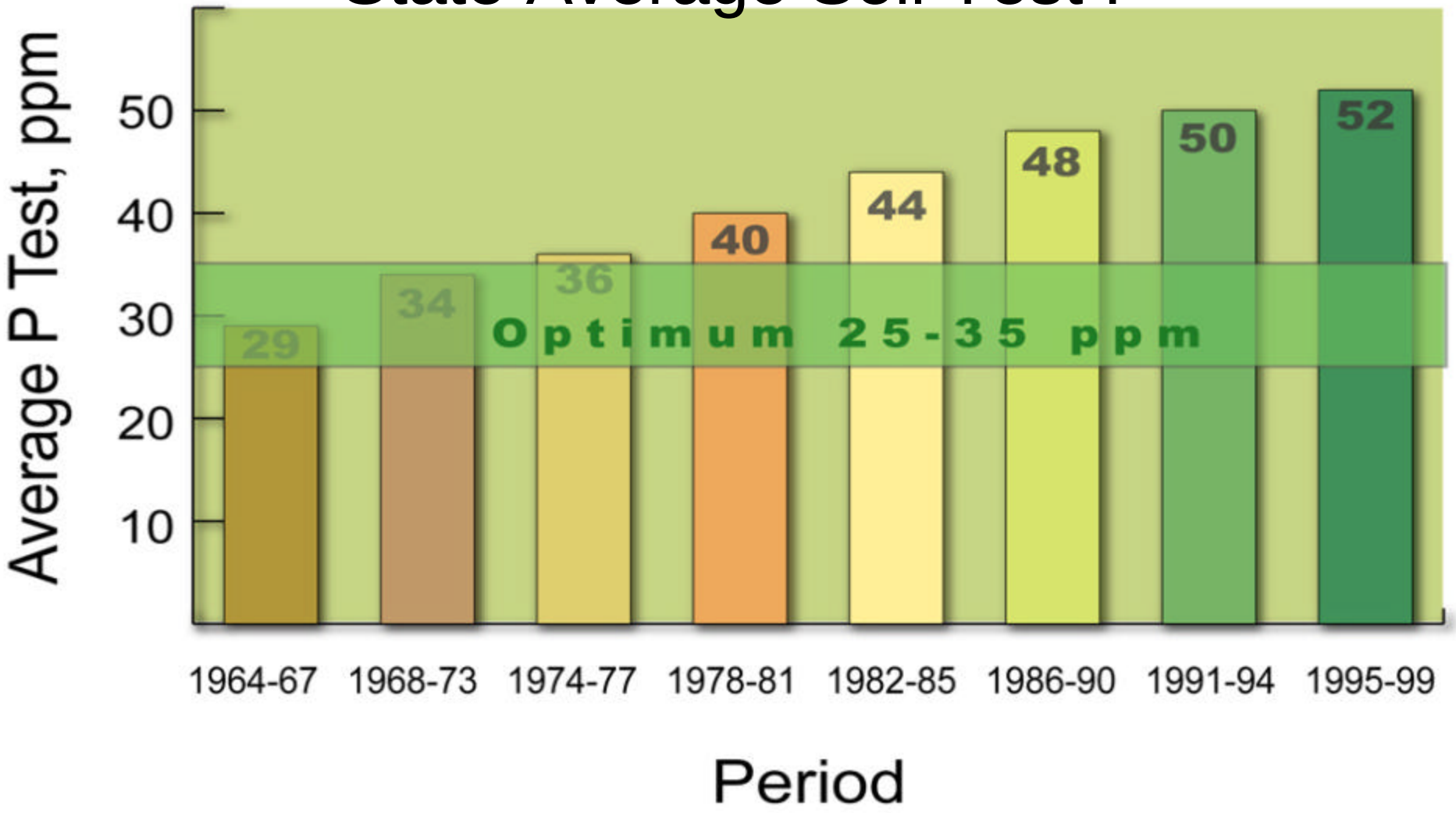
New 590 Standard Information

- **Conservation planner** (crop rotation, field acres, soil series, % slope, annual soil loss, average soil loss, app. restrictions in ww drainage areas)
- **Nutrient planner** (soil test Bray P1 PPM P, yield goals for P removal, high permeability soils, distance to concentrated flow, perennial streams, annual applications rates projected 4 yrs., irrigated fields, soil temp. at application)

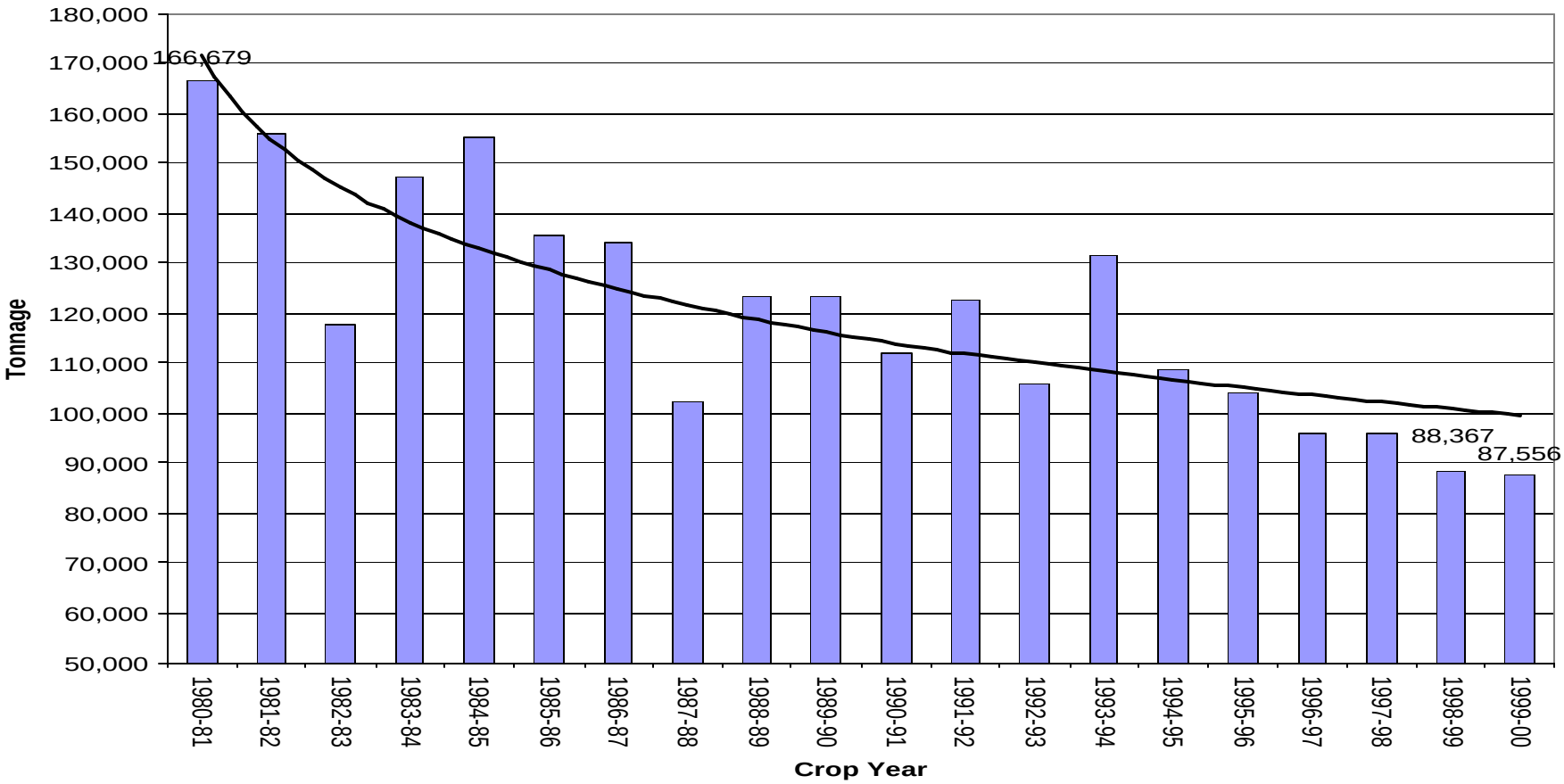
Comparing Crop Removal With Manure Nutrient Content

- Corn utilizes approximately three times more nitrogen than phosphorus.
- Manure supplies N & $P_2 0_5$ at approximately a 1:1ratio.
- Result = Soil test phosphorus levels increase if applying manure to meet crop nitrogen needs annually.

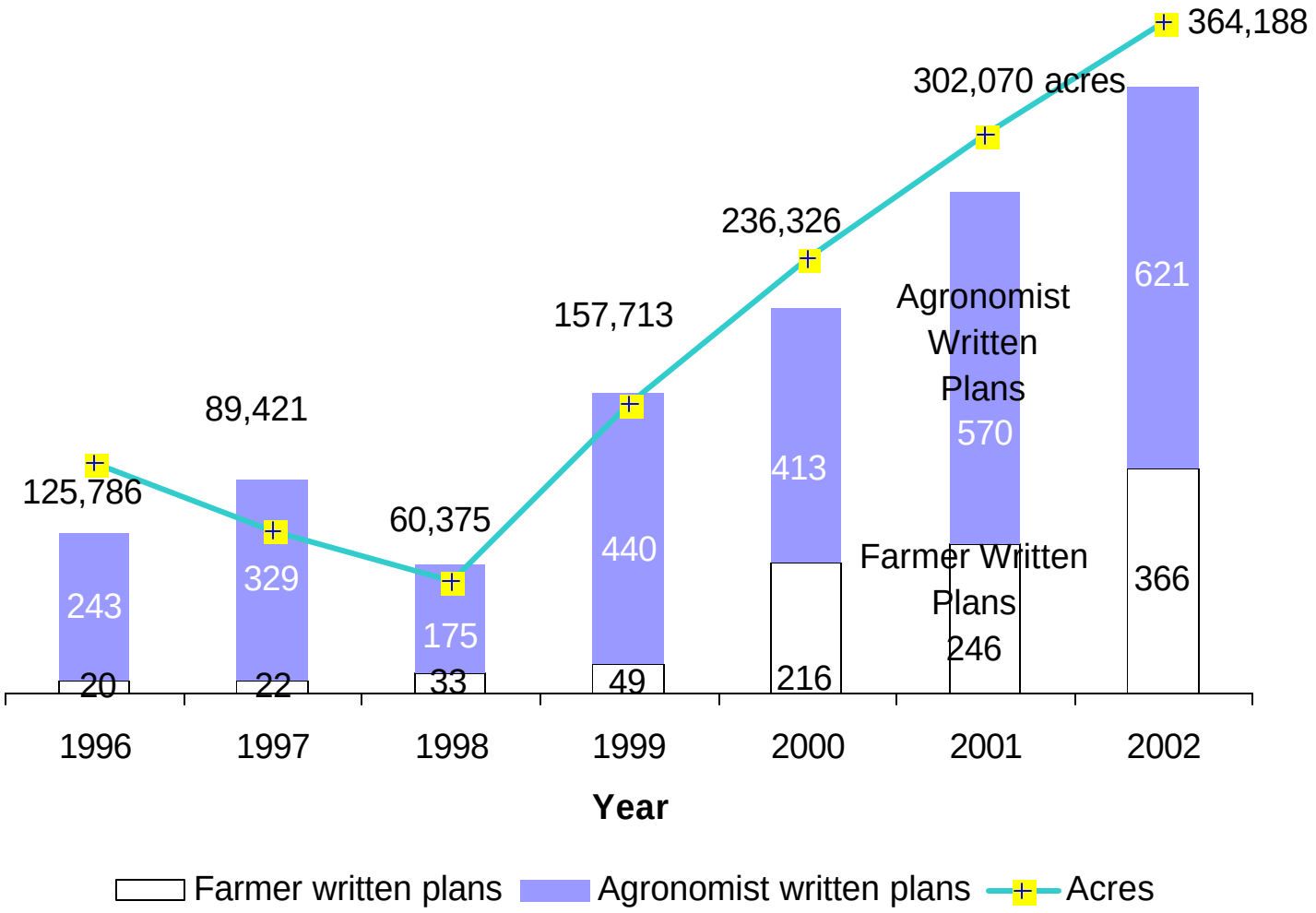
State Average Soil Test P



Commercial Phosphate Consumption in Wisconsin



Nutrient Management Plans and Acres Reported 1996-2002



Planning for implementation

Cost for 9 million acres @ $7 per acre

30 years 300,000 acres 6,000 new acres
$2.1 million per year ($8.4 m 4 year cost)

15 years 600,000 acres 12,000 new acres
$4.2 million per year (16.8 m 4 year cost)

10 years 900,000 acres 18,000 new acres
$6.3 million per year (25.2 m 4 year cost)

2003 annual allocation

- SWRM funds
  - $9.4 million (cash)
  - $4 million (bond revenue)
- Other sources of funds
  - Conservation Reserve Enhancement Program
  - Environmental Quality Incentives Program
  - Priority Watershed Program
  - County cost-sharing

Nutrient Management Initiatives

Compare old and new 590 for implementation changes and cost comparison

Recommend improvements to the standard

Update producer training

Research management practices effects on P loss

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Websites For Copies

- 590 Nutrient Management Standard July 2002
  http://www.wi.nrcs.usda.gov/fotg/print_all.asp

- Technical Note
  http://www.wi.nrcs.usda.gov/technote/notes/cptn1.pdf