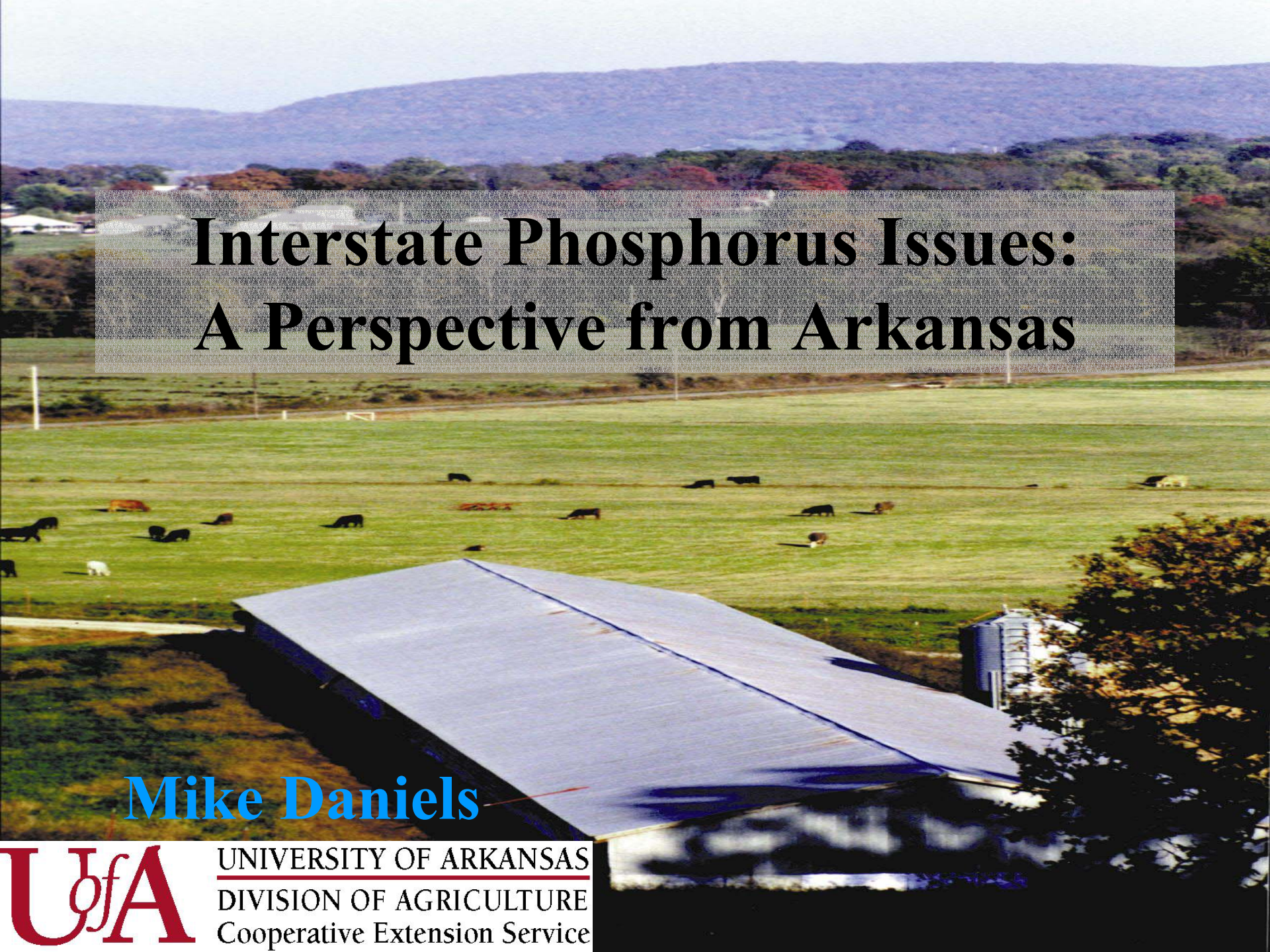

Interstate Phosphorus Issues: A Perspective from Arkansas

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A Brief History

- In early 90's, Regulation 5 for liquid animal waste implemented
- Represented the first required nutrient management plans
- Nitrogen-Based
- Prepared under the guidance of NRCS by district employees known as Soil and Water Technicians
- Will be moving to P-Based plans

A Brief History – Dry Manure

- Voluntary until 2003
- In 1999, Arkansas Poultry Industries request voluntary environmental training for contract growers and require NMP as part of contract
- In 2001, Oklahoma proposes a Phosphorus water quality standard 0.037 mg/l in scenic rivers, of which 6 begin in Arkansas

More Recently…

- In 2002, City of Tulsa files class action lawsuit against an Arkansas Municipality and 6 Poultry Integrators
  - Lawsuit Settlement and Consent Decree
    - No P application in Eucha-Spavinaw basin
    - Joint P-Index to be developed by UA and OSU by Jan ‘’04

    Non-profit agency created to oversee settlement
- In 2003, Arkansas passes new regulations for poultry litter and nutrient applications

State Regulations

ACT 1060: Registration of Poultry Feeding Operations

- All poultry operations confining or feeding 2,500 birds on any one day in a 12 month period must register annually ($10 fee).
- Items to be reported to ASWCC (Not for public record)
  - # and kind of houses, location, litter management system, litter storage system, Acreage, application method, amount of litter sold or transferred

ACT 1059: Nutrient Management Planner and Applicator Certification

- State implements a education, training, and certification program to ensure minimal competence and knowledge of planners
  - 4 day training and certification test
- State implements a education, training, and certification program to ensure minimal competence and knowledge of nutrient applicator in nutrient sensitive areas

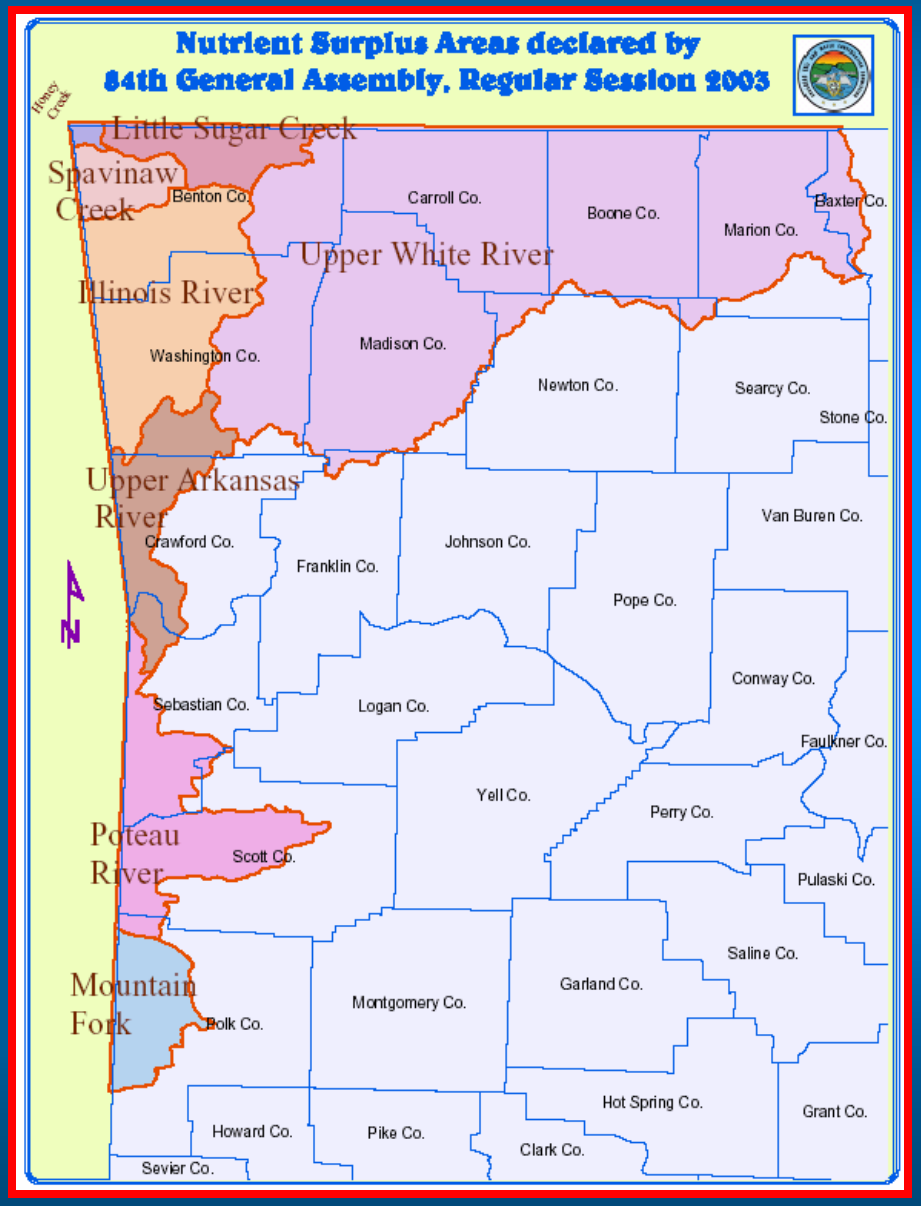
ACT 1061: Proper Nutrient Utilization in Sensitive Watersheds

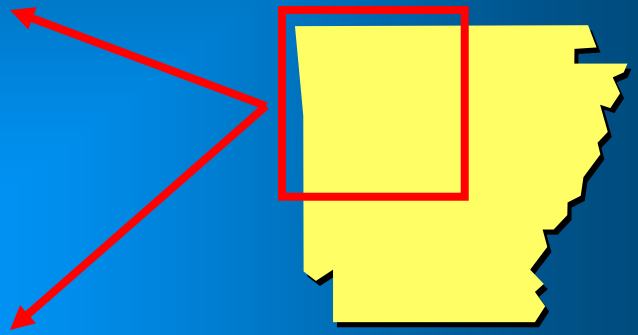
- Nutrients will be applied at protective rates determined by ASWCC
- Protective rate is the agronomic or other rate that provides for proper crop utilization, and prevention of significant impacts to waters within the State

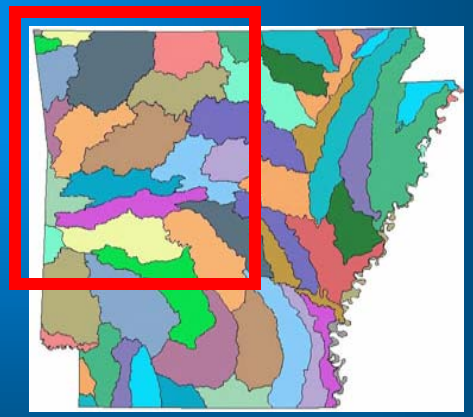
ACT 1061: Proper Nutrient Utilization in Sensitive Watersheds

- On residential parcels of 2.5 acres or more, nutrients have to be applied by certified nutrient applicator
- Poultry operations required to have NMP prepared by certified planner and nutrients applied by certified applicators

State Nutrient Surplus Areas







Arkansas P Index

- Developed by USDA and UA researchers
- Uses a risk assessment approach to consider many factors to determine manure application rates
- Each factor weighted based on their contribution for P movement as determined in research and/or professional judgement.

The Arkansas P Index for Pastures

P Index = Source * Transport * Precipitation * BMP

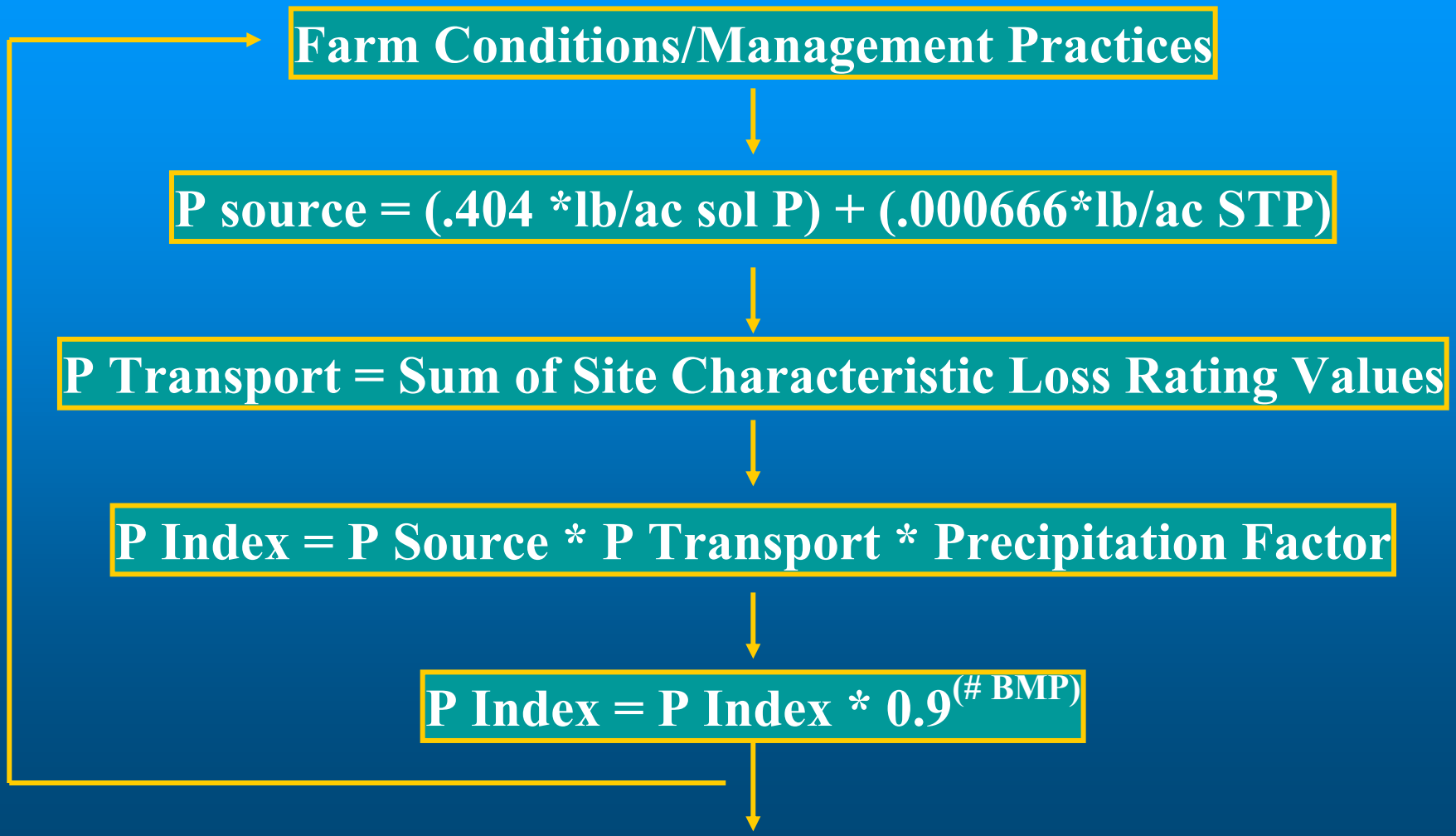
P Index Transport Factors

P Transport = Sum of Site Characteristic Loss Rating Values

Site Characteristic	Description				
Soil Erosion	**< 1**	**1 to 2**	**2 to 3**	**3 to 5**	**> 5**
	0	0.1	0.2	0.4	1
Runoff Class	**Negligible**	**Low**	**Moderate**	**High**	**Very High**
	0.1	0.2	0.3	0.5	1.0
Flooding Frequency	**None**	**Occasional**		**Frequent**	
	0	0.1		2.0	
Application Method	**Incorporated**	**Surface Applied**		**Surface Applied on Frozen Ground or Snow**	
	0.1	0.2		0.5	
Application Timing	**June-Oct**	**March - May**		**Nov – Feb**	
	0.1	0.2		0.3	
Grazing Management	**Hayed Only**	**Grazed and Hayed**		**Grazed Only**	
	0.1	0.2		0.3	

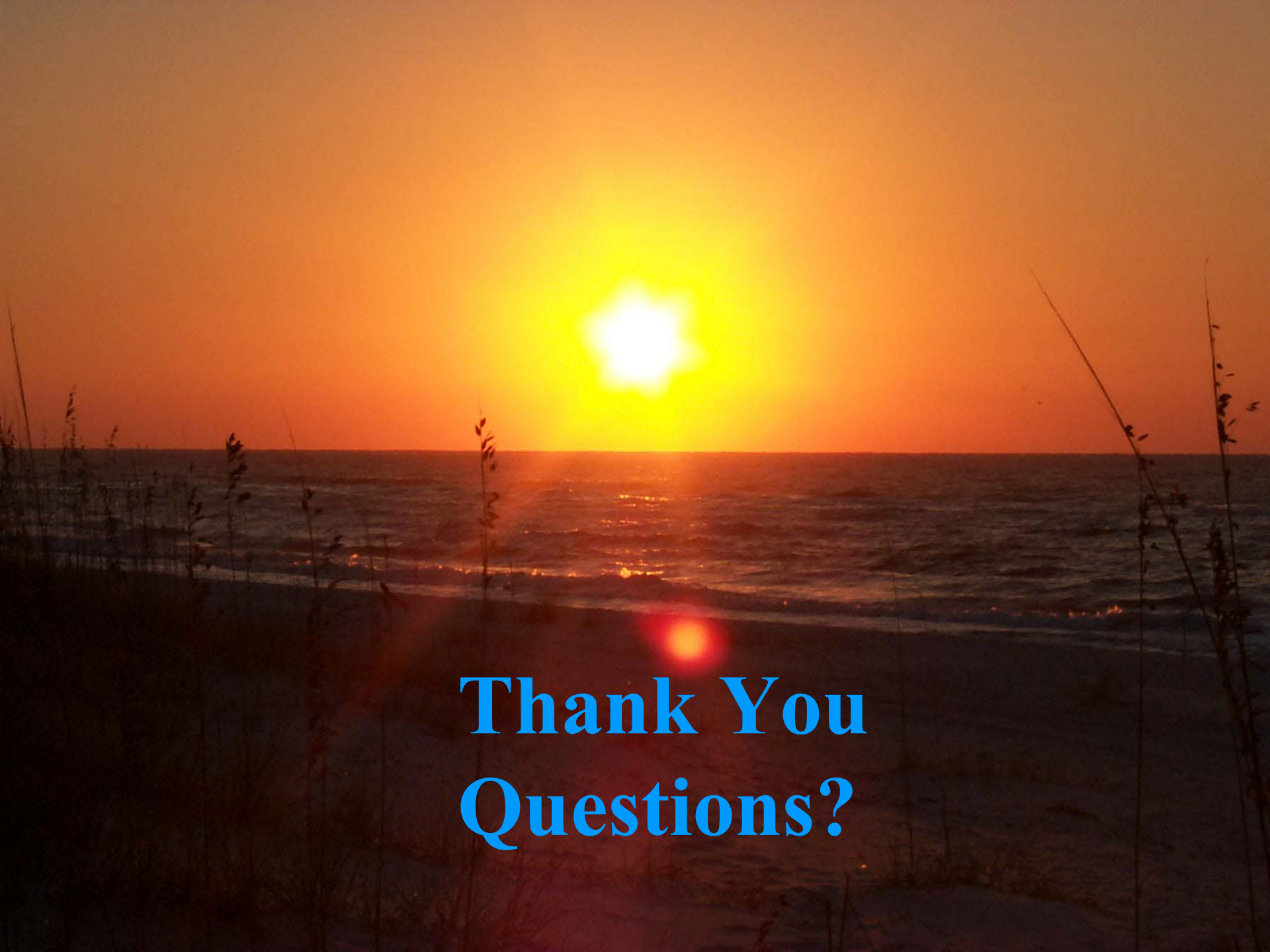
Green text represents typical values

P Index Process
(Putting It All Together)



P Index Interpretive Guidance

P Index	Site Interpretation and Guidance
< 0.6	Low **potential for P movement from site. Apply nutrients based on crop needs**, normally nitrogen. **Caution against long term buildup.**
0.6 to 1.2	Medium **potential for P movement from site. Evaluate the Index and determine any areas that could cause long-term concerns. Consider adding conservation practices or reduced P application to maintain the risk at 1.2 or less.** Apply nutrients based on crop needs, normally nitrogen.
1.2 to 1.8	High **potential for P movement from site. Evaluate the Index and determine elevation cause. Add appropriate conservation practices and/or reduce P application. The immediate planning target is a PI value of 1.2 or less. If this cannot be achieved with realistic conservation practices and /or reduced P rates in the short term, then a progressive plan needs to be developed with a long term goal of a PI less than 1.2.**
>1.8	Very High **potential for P movement from site.** No litter application. **Add conservation practices to decrease this value below 1.8 in the short term and develop a progressive conservation plan that would reduce the PI to a lower risk category, with long term goal of a PI of less than 1.2.** **Apply nutrients to meet** crop phosphorus needs **according to NRCS Nutrient Management Standard (590).**


Thank You
Questions?