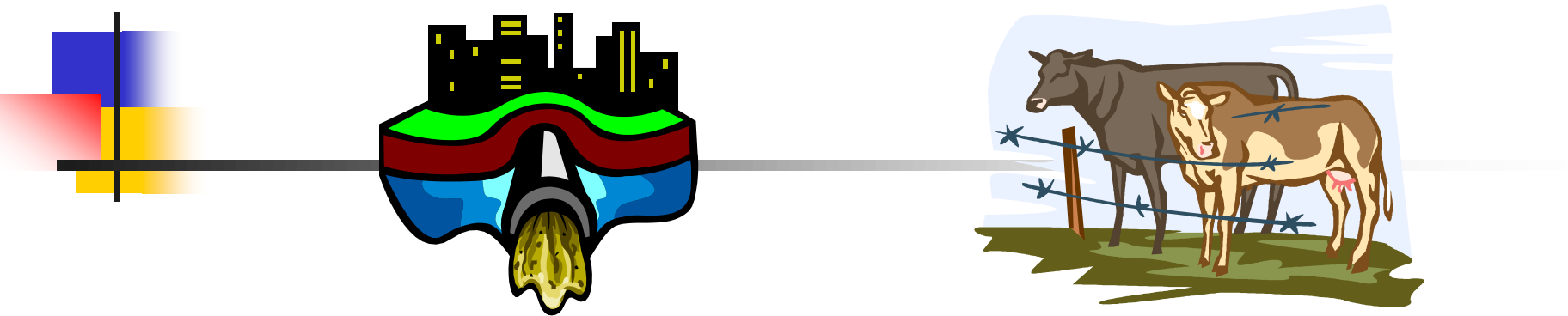


Watershed Projects and Agriculture



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Challenges with Trading



- The producers who are looking to get engaged with trading are probably the ones with the lowest levels of loss
 - Can they make changes that reduce losses to a level that is measurable in water quality
- Farmers want to protect water quality – they need to be involved throughout the process



Water Quality Trading

- Will changes in management show up in water quality
 - Annual variation
 - Lack of control in ag

P – Index (Management Tool)



- Excellent tool to evaluate the relative risk of fields or management practices against other fields or practices on the same farm

P – Index (Regulatory tool)



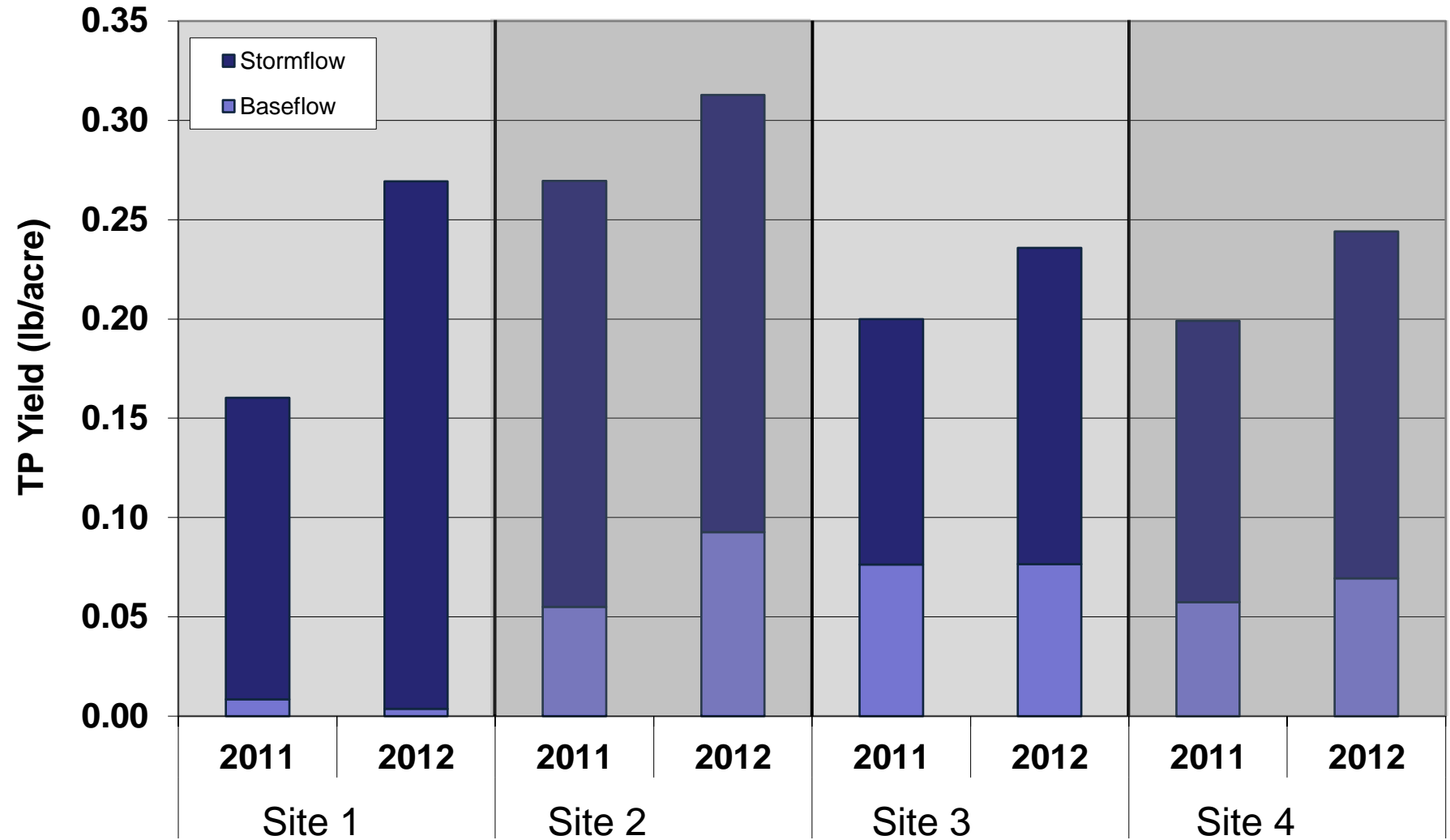
- Today the P-Index is a regulatory tool:
 - Croplands, pastures, and winter grazing areas shall average a phosphorus index of 6 or less over the accounting period and may not exceed a phosphorus index of 12 in any individual year within the accounting period.

Example Watershed



- Target watershed with a TMDL
- Adaptive management program:
 - **Need to reduce P loss by 0.25 lbs / acre**
 - **Producers were asked to decrease their P-index by 0.25 lbs and told that the watershed would then achieve its TMDL!**

Phosphorus Loss FY2011 vs. FY2012



Example Watershed



- 95% of all land (16,600 acres) had a soil test level below 50 ppm
- 11,000 acres (63% of all acres) had a PI of 1 or 2,
- 4,500 acres (25%) had a PI of 3 or 4
- Area identified by PI is incorrect based on data

Nutrient and Soil Conservation Assessment (SNAP):

| Rot. Ave Soil Loss | | | Phosphorus Index | | | Soil Test Phosphorus (ppm) | | |
|-----------------------|-----------------|----------------|-----------------------|-----------------|----------------|----------------------------|-----------------|----------------|
| Ave | 1.3 | | Ave | 1.5 | | Ave | 57.9 | |
| Min | 0 | | Min | 0.0 | | Min | 0 | |
| Max | 4.1 | | Max | 6.0 | | Max | 256 | |
| | | | | | | | | |
| Individual Field Data | | | Individual Field Data | | | Individual Field Data | | |
| Loss | # fields | # Acres | Field PI | # fields | # Acres | Soil Test | # fields | # Acres |
| <0.5 | 27 | 316.6 | 0 | 20 | 266.2 | < 20 | 23 | 290.2 |
| 0.6 - 2.0 | 62 | 586.7 | 1 | 46 | 384.0 | 21 - 50 | 38 | 330.5 |
| 2.1 - 4.0 | 20 | 238.0 | 2 | 26 | 303.8 | 51 - 90 | 23 | 236.5 |
| 4.1 - 5.0 | 1 | 7.9 | 3 | 11 | 150.5 | 91 - 150 | 21 | 269.9 |
| > 5.1 | 0 | 0.0 | 4 | 4 | 32.2 | 151 - 200 | 3 | 14.2 |
| | | | 5 | 2 | 4.6 | > 201 | 1 | 7.9 |
| Total | 110 | 1149.2 | 6 | 1 | 7.9 | | | |
| | | | 7 | 0 | 0 | Total | 109 | 1149.2 |
| | | | >7 | 0 | 0 | | | |
| | | | Total | 110 | 1149.3 | | | |

The P-Index versus actual loss



- 2006 P Index

6.4

- 2007 P Index

1.3

- 2008 P Index

5.6

- 2006 Actual Loss

1.6

- 2007 Actual Loss

0.34

- 2008 Actual Loss *

6.3

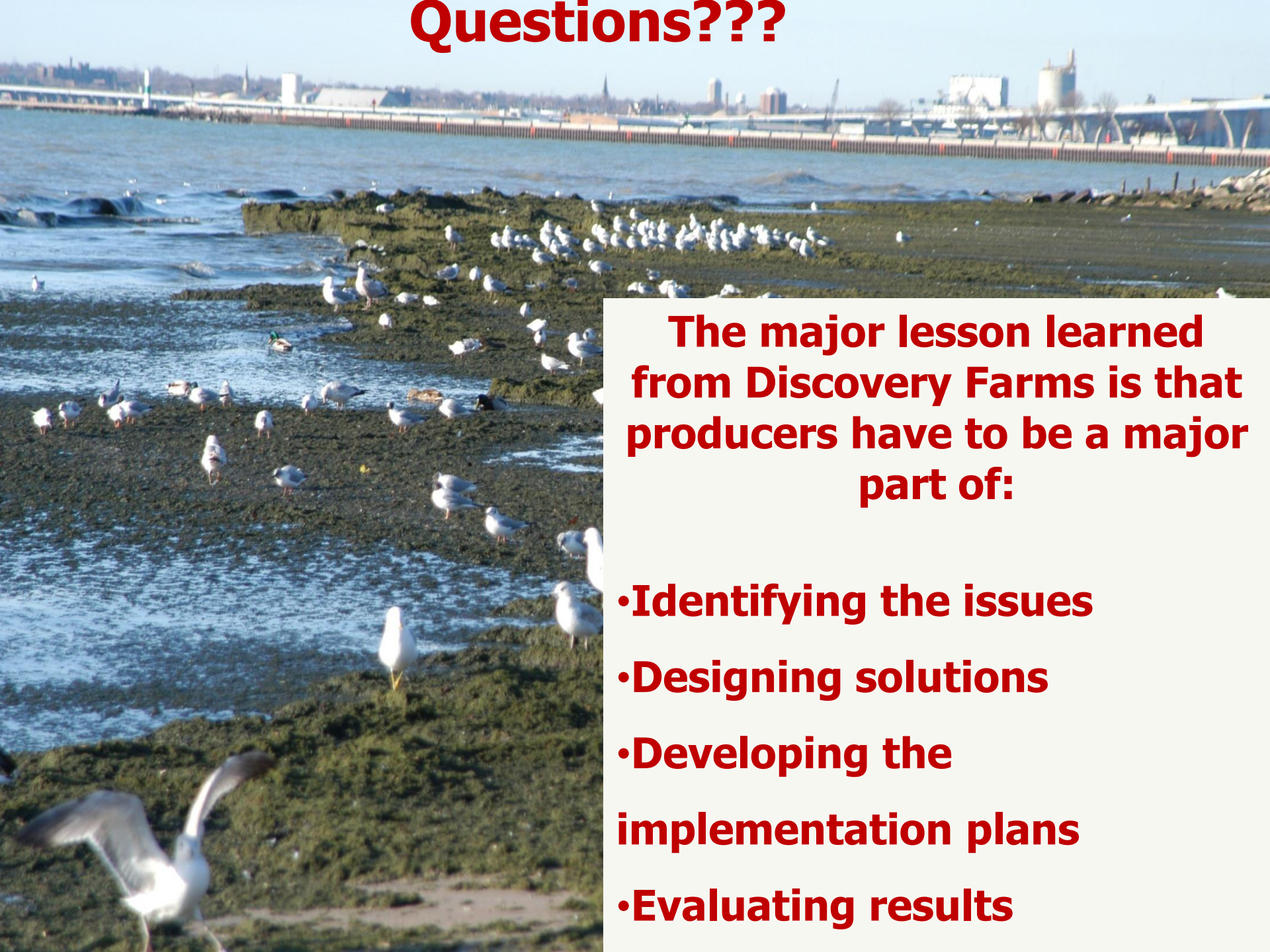
4.4 lbs delivered in 7.5" rain

New Challenge



- Data confidentiality
- Agencies having a larger regulatory role
- Where do farmers go for advice, evaluation and information?

Questions???



The major lesson learned from Discovery Farms is that producers have to be a major part of:

- Identifying the issues**
- Designing solutions**
- Developing the implementation plans**
- Evaluating results**