

# Defining the Time Scale for Future Phosphorus Scenarios

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# Draft Phase 6 Release Schedule

- June 1 Calibrated Model and Documentation
- June 15 Scenarios

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- June 15 Scenarios
  
- CAST is scenario tool so will also release CAST on June 15
- Dependent on June 12 decision from WQGIT on time frame for scenarios for phosphorus

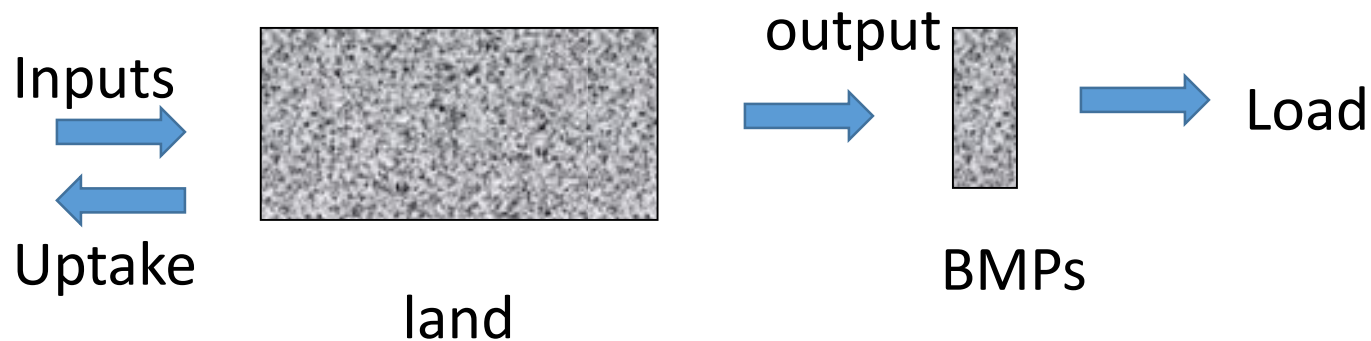
# Meaning of Scenarios

- If management was constant through time what would be the long term loading rate?

# Meaning of the WIPs

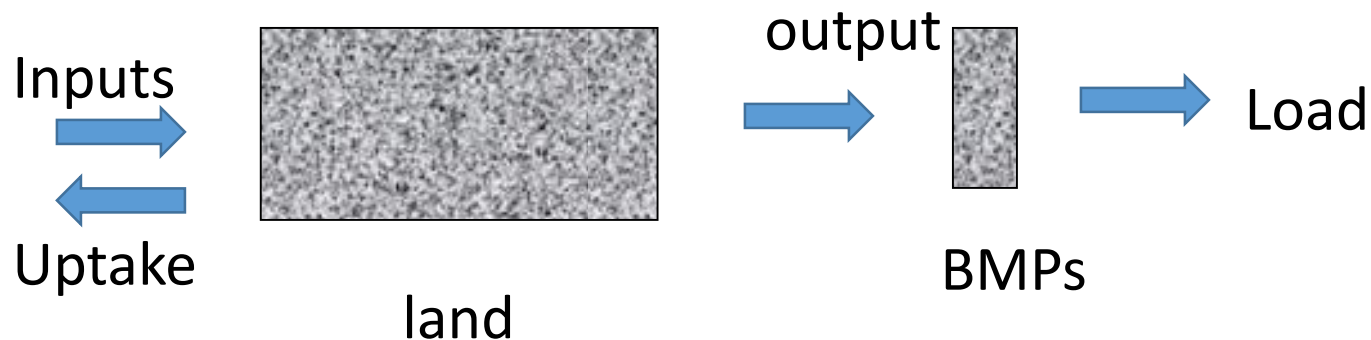
- Necessary implementation to ***eventually*** meet water quality standards

# Nitrogen Conceptual Model



1 lb reduction in fertilizer is about a quarter lb reduction in output

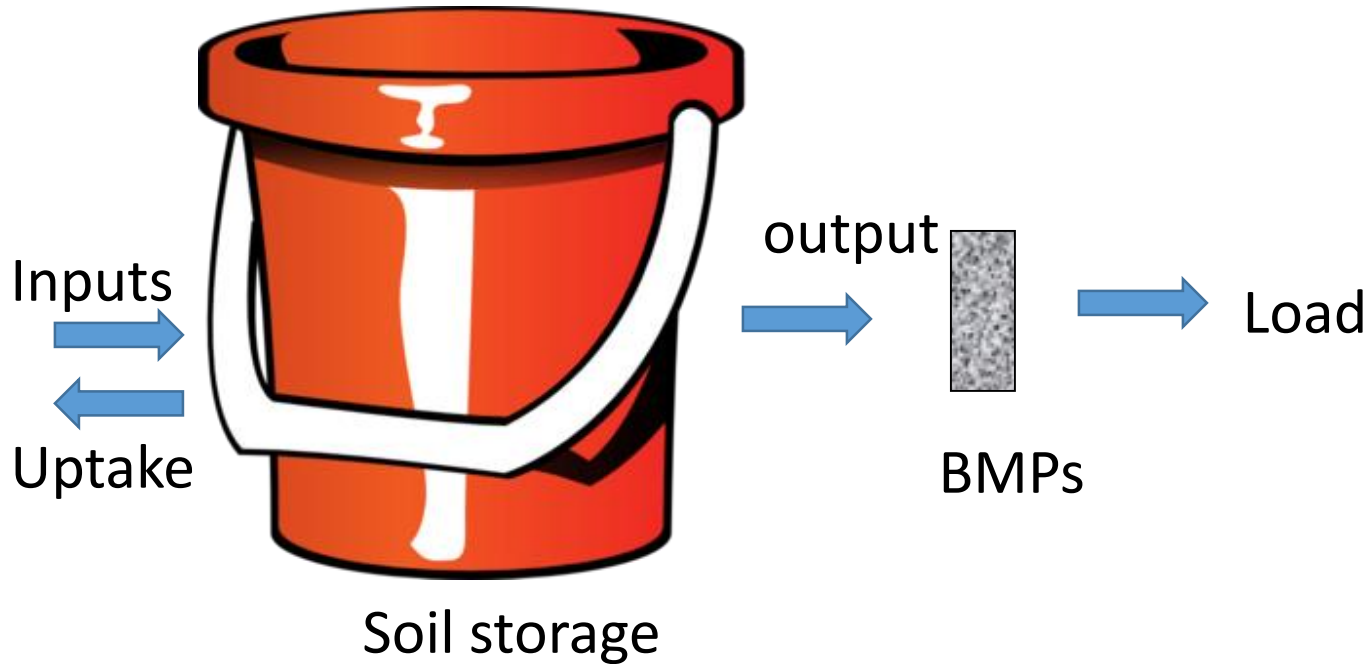
# Nitrogen Conceptual Model



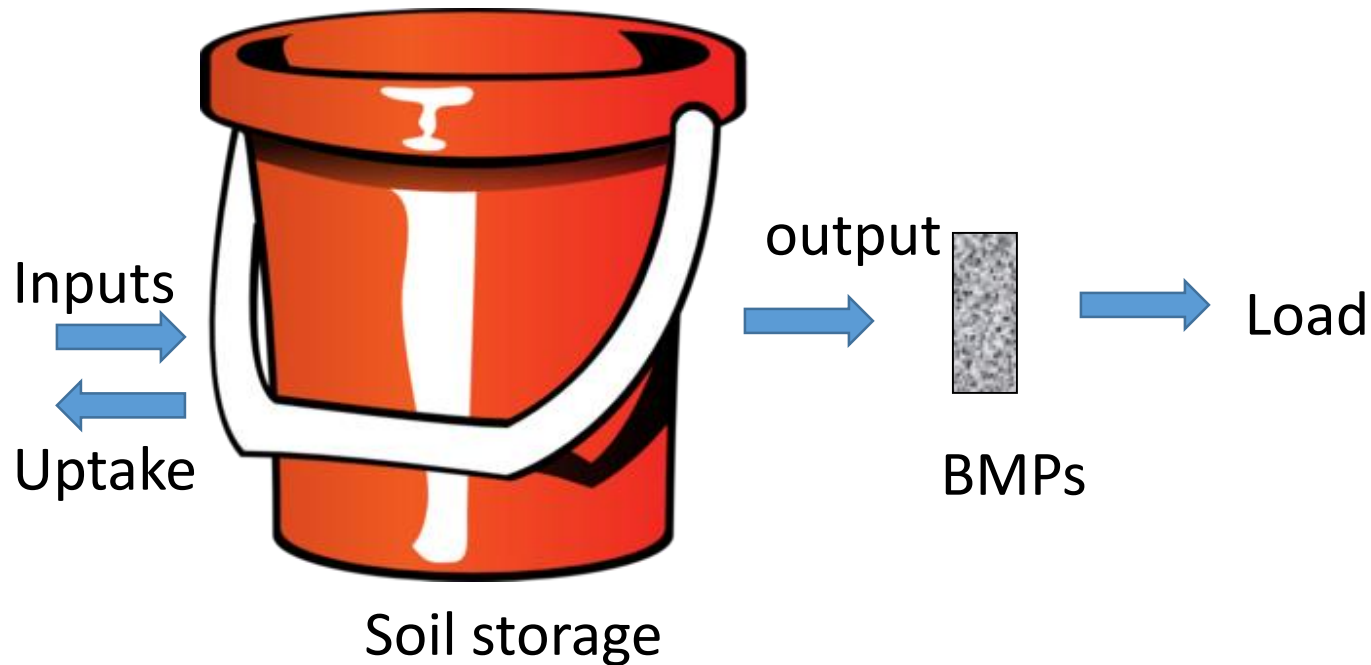
In the model, the benefits are received immediately

In the real world, about half of the benefit is received right away, the other half is lagged an average of 10 years

# Phosphorus Conceptual Model



# Phosphorus Conceptual Model



In the model, the benefits depend on how long you have changed inputs

In the real world, a small portion of the benefit is received right away, the greater portion is lagged for many years.



# What determines P loads in a given year?

- Soil Storage
- Sediment Washoff
- Stormwater Runoff
  - Water Extractable P Applications
    - Manure
    - Fertilizer
    - Uptake

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- Soil Storage

- Sediment Washoff

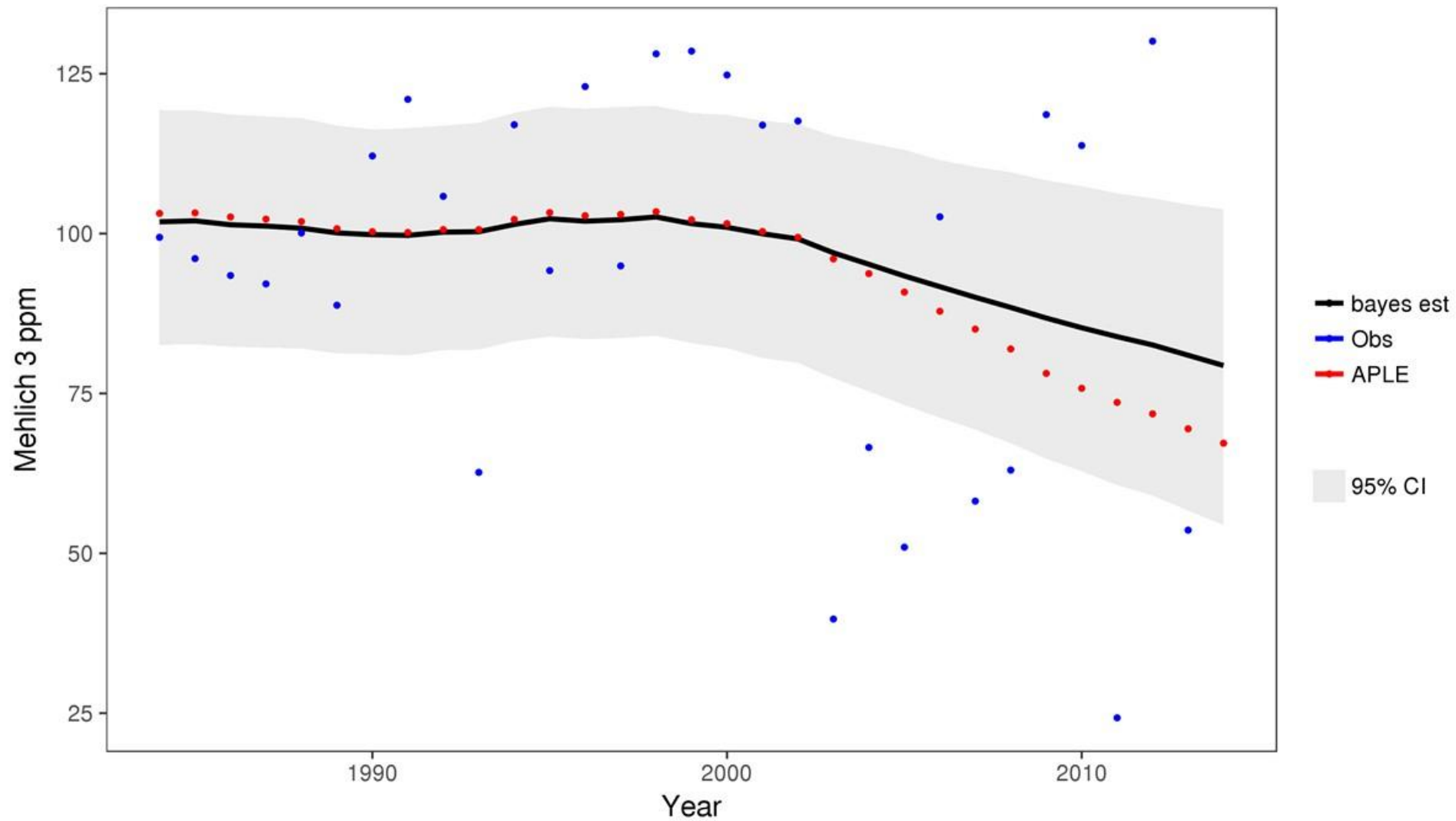
- Stormwater Runoff

- Water Extractable P Applications

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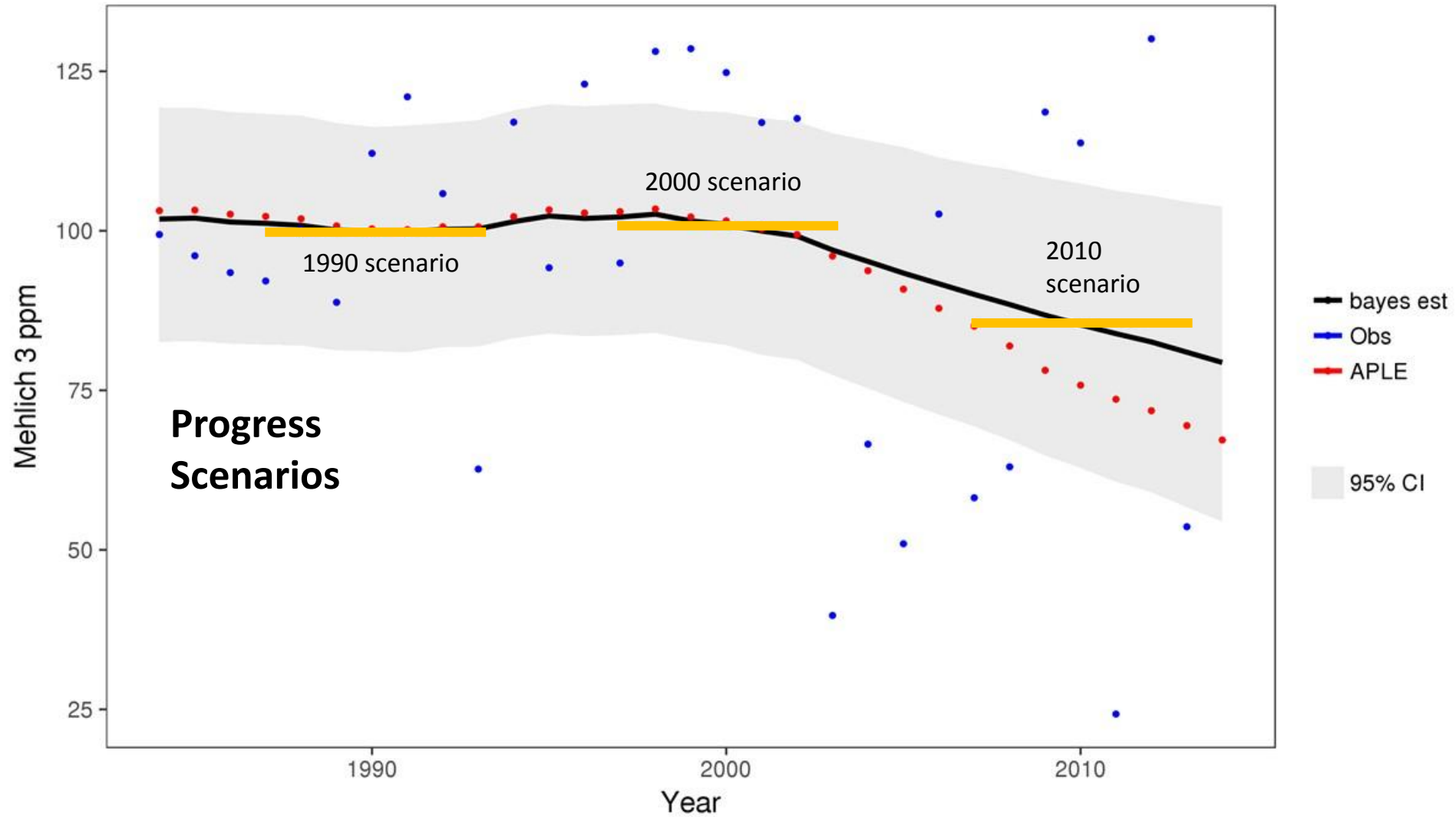
**Soil Storage is the history of applications and uptake over time.  
The current year's applications are not very important**

# N24033 Est Soil History

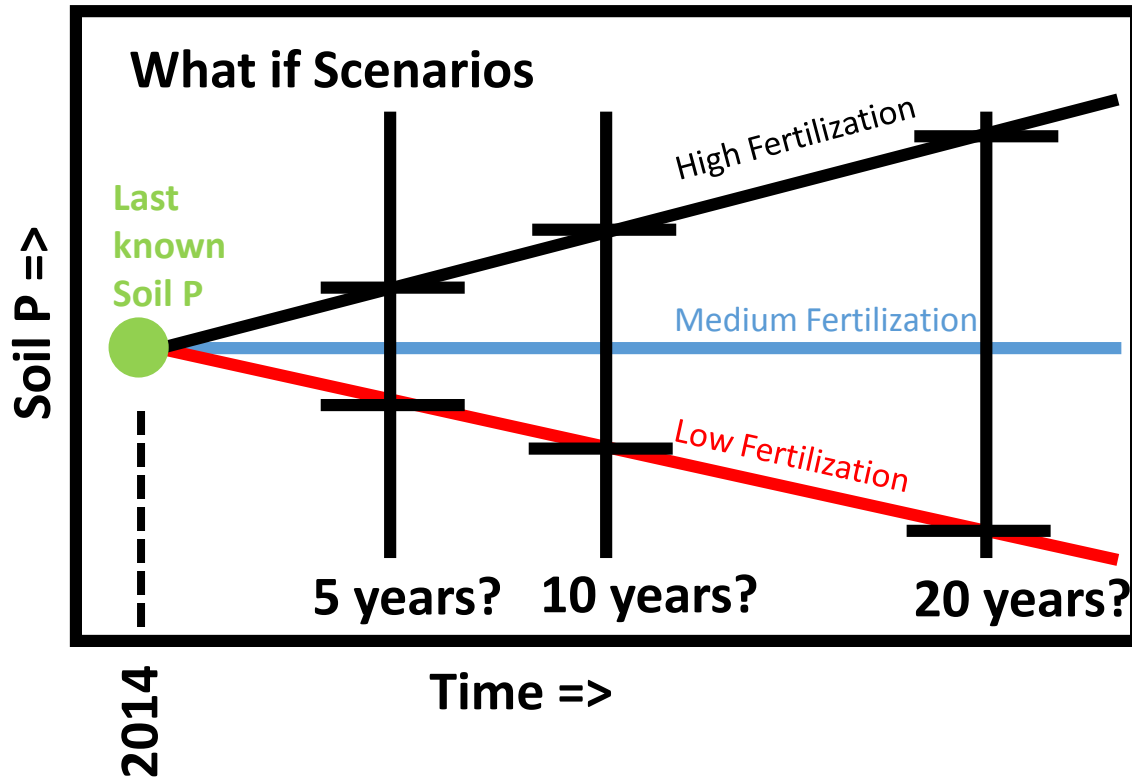


Double Crops in Prince George's County, Maryland

# N24033 Est Soil History



Double Crops in Prince George's County, Maryland



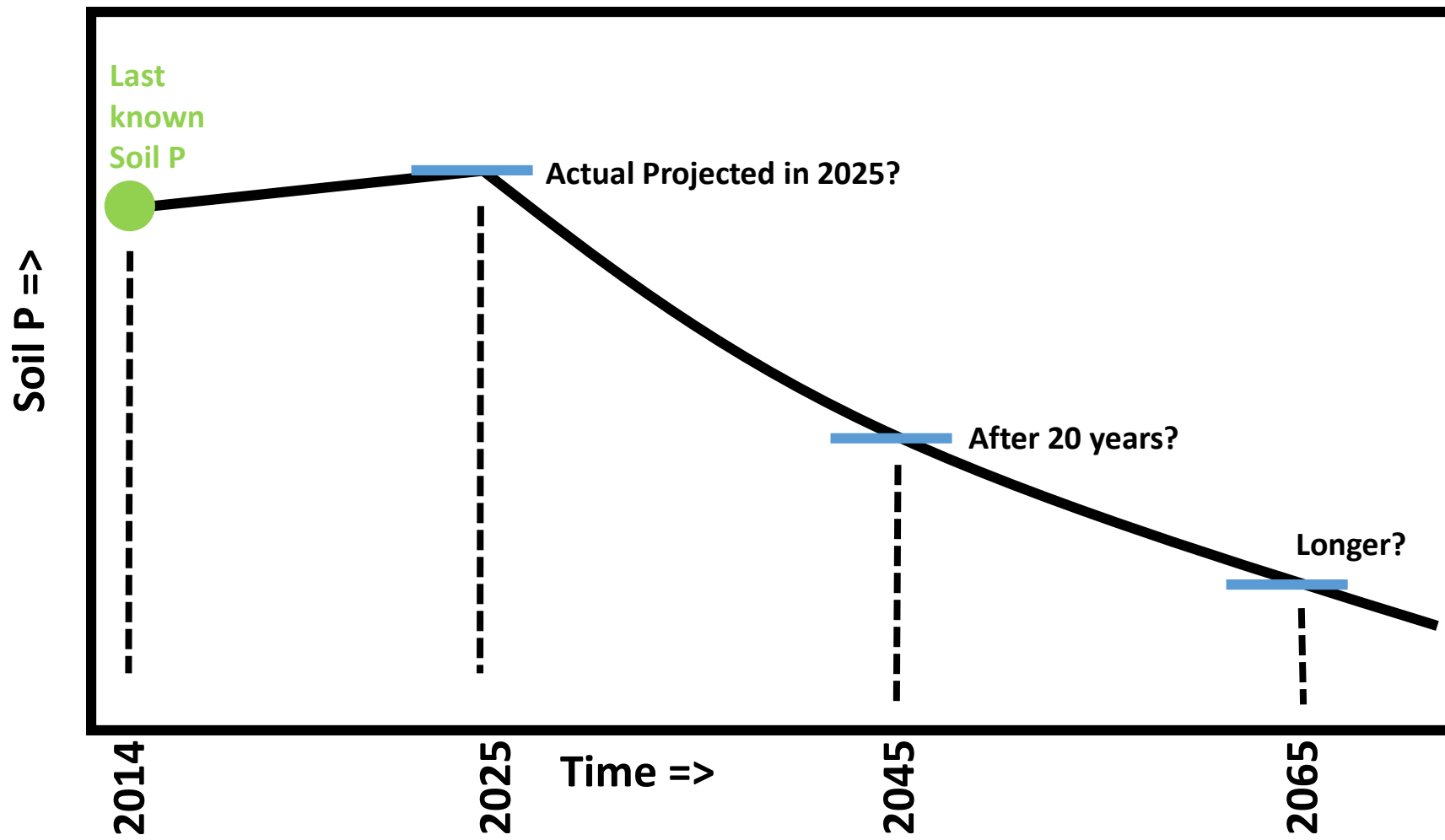
# Meaning of Scenarios

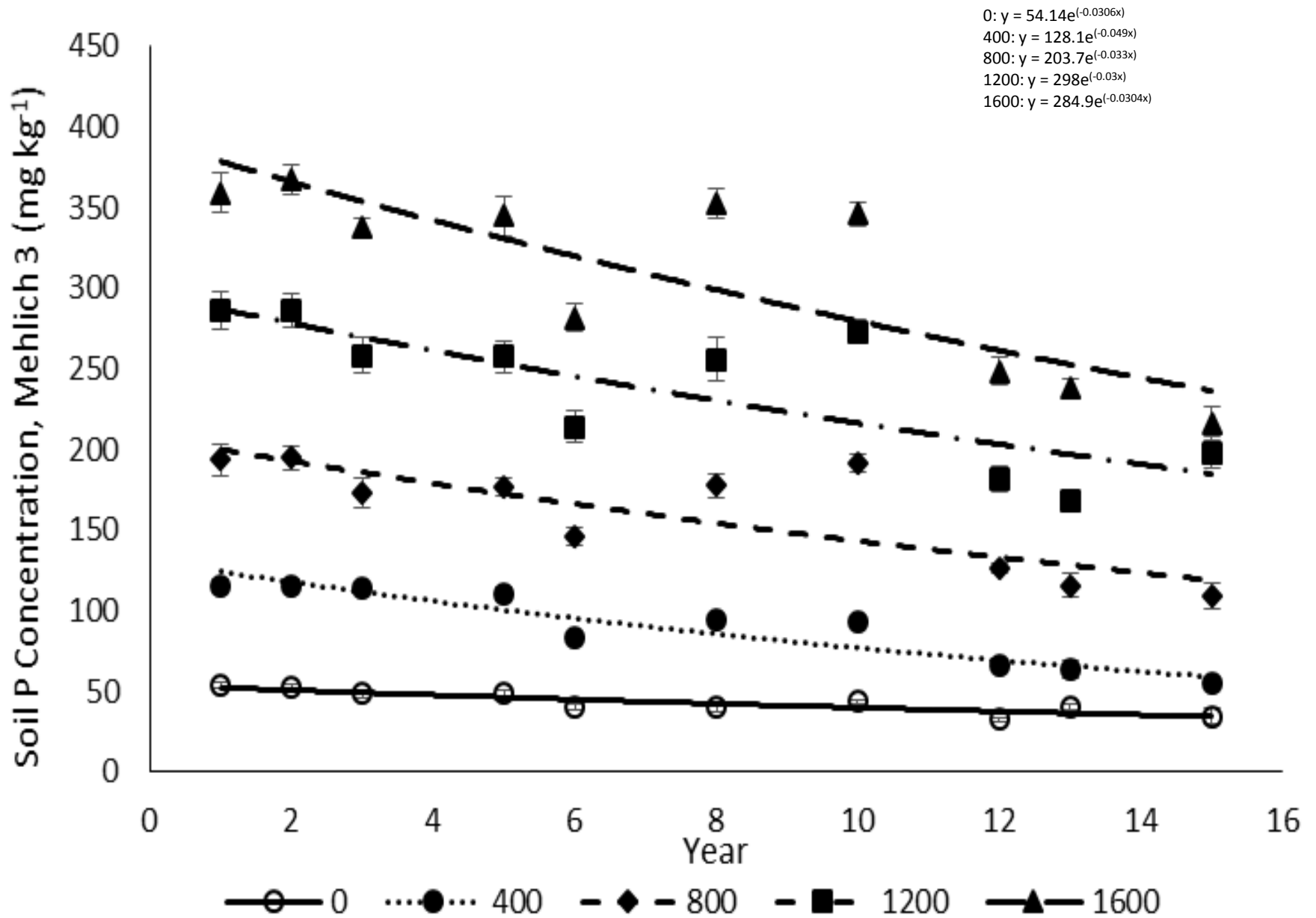
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# Meaning of the WIPs

- Necessary implementation to ***eventually*** meet water quality standards

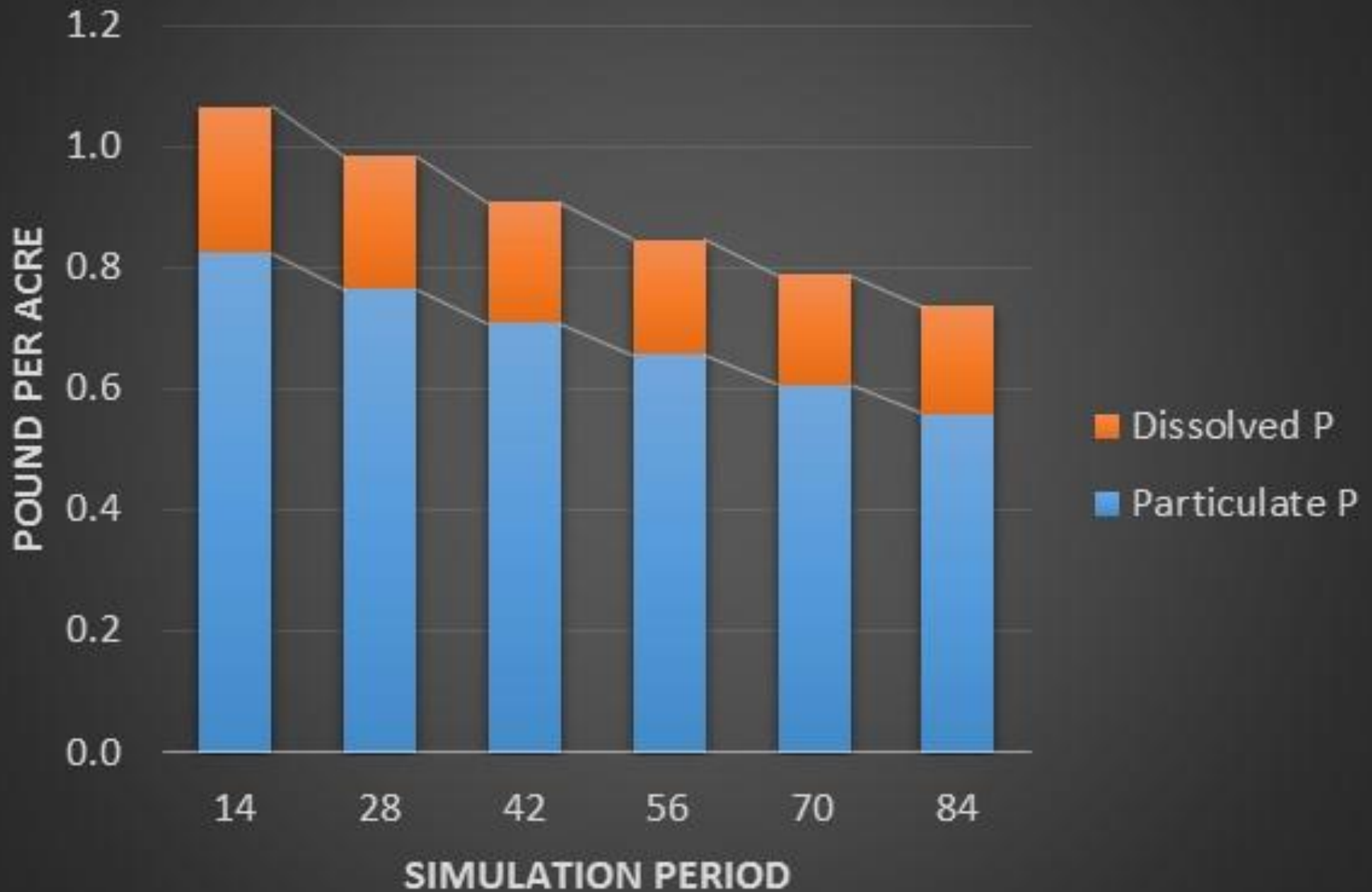
# What Does a 2025 scenario mean?







# Frederick VA – Phosphorus Loss

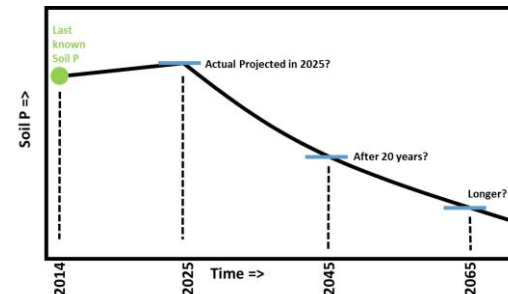


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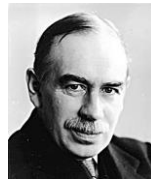
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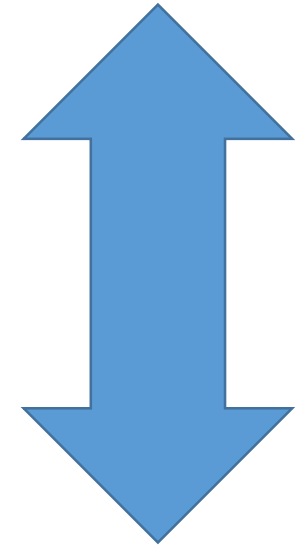
# Decision for June 12 – Define ‘Eventually’

- 0 years – no benefit
- 2 years – milestones
- 10 years – like nitrogen
- 25 years – A generation, Buffer Growth
- 50 years
- 100 years



In the long run...

Small change in load  
from  
Large change in inputs



Large change in load  
from  
Small change in inputs

