

# Ohio Nutrient Balance

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Helping  
**nature**  
provide.

 PotashCorp

# Overview

- Nutrient removal
  - Crop yield trends
  - Nutrient removal
- Fertilizer/manures
  - Nutrient application
- Nutrient balance
  - How has Ohio been doing?



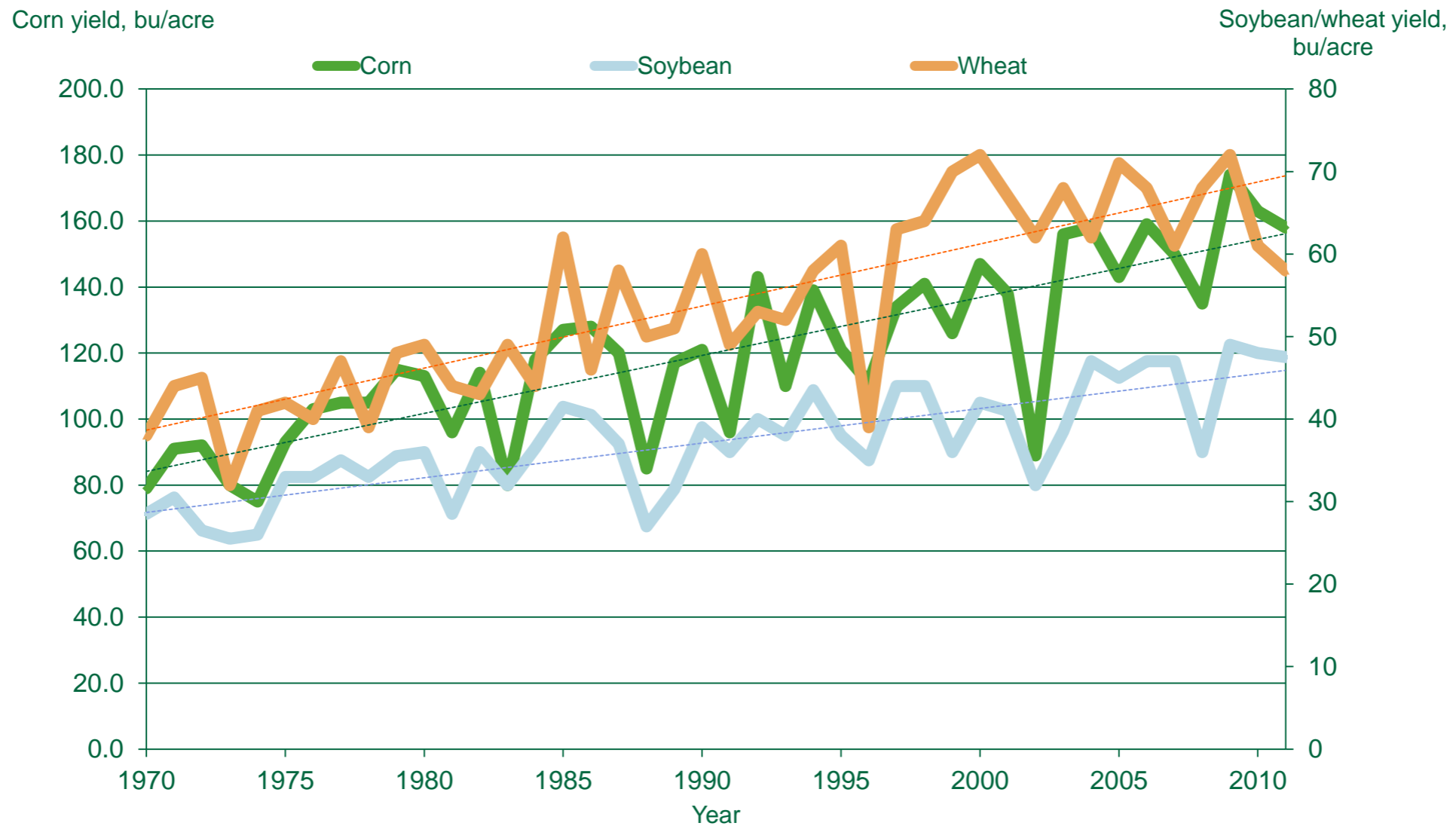
## ❖ Crop Yields/Nutrient Removal

# Crop Yield/Nutrient Removal Model Data

- What goes in as far as crop yields and nutrient removal
  - Crop used:
    - Corn, soybean, wheat, hay, corn silage, barley, oats, potato, sweet corn, tobacco, and tomato
  - Nutrient removal estimates provided by Tri-State Fertilizer Guide and IPNI



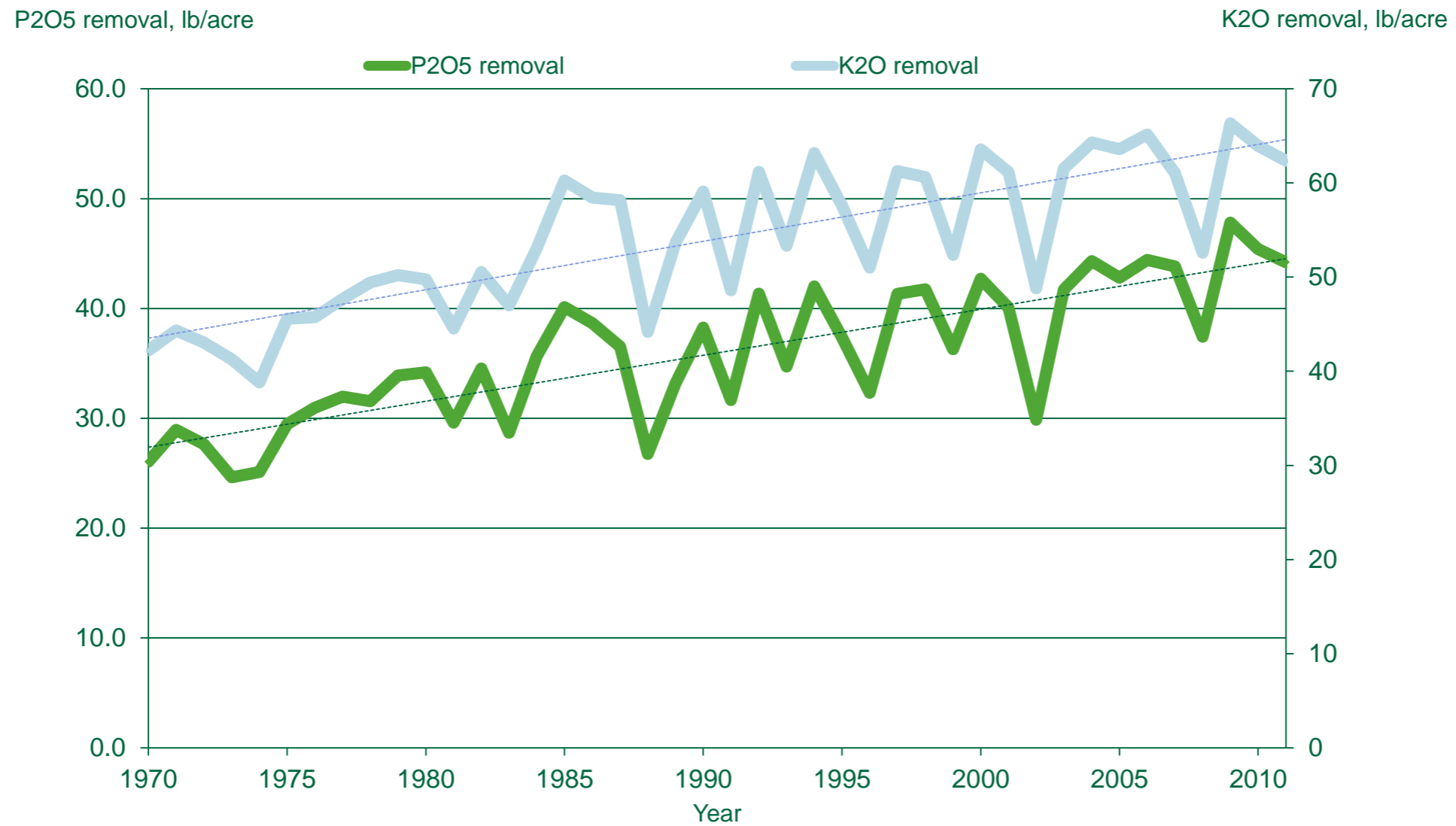
# Crop Yields



Source: USDA-NASS

# Nutrient Removal

P2O5 removal – increased from 27 to 45 lb/acre



# ❖ Fertilizer Sales/Manure Sources

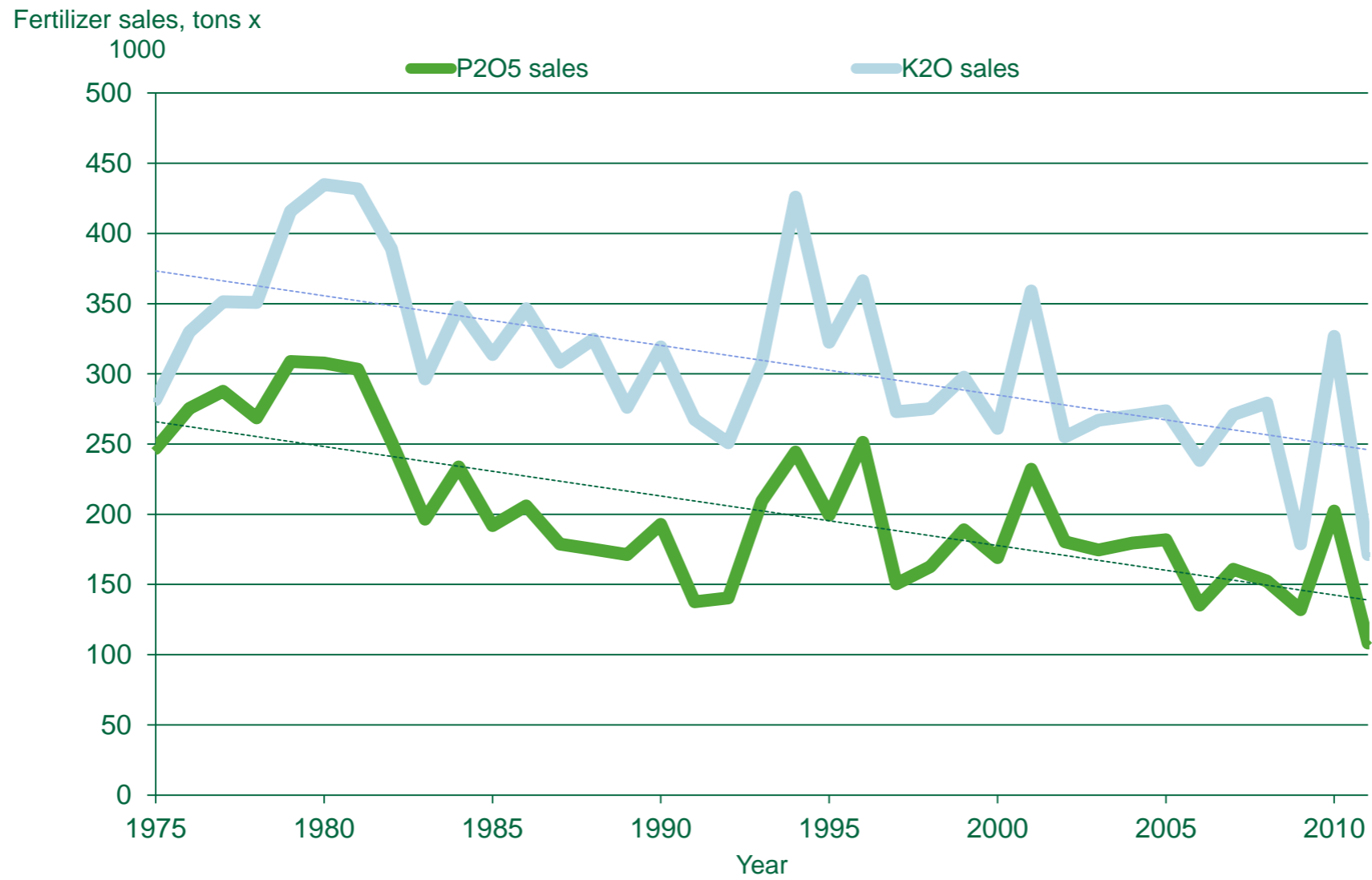
# Fertilizer Sales/Manure Generation Model Data

- Fertilizer sales data comes from the Association of American Plant Food Control Officials
- Manure generation data comes from the Midwest Planners publication
- Estimates of manure generated and nutrient concentration based upon animal type



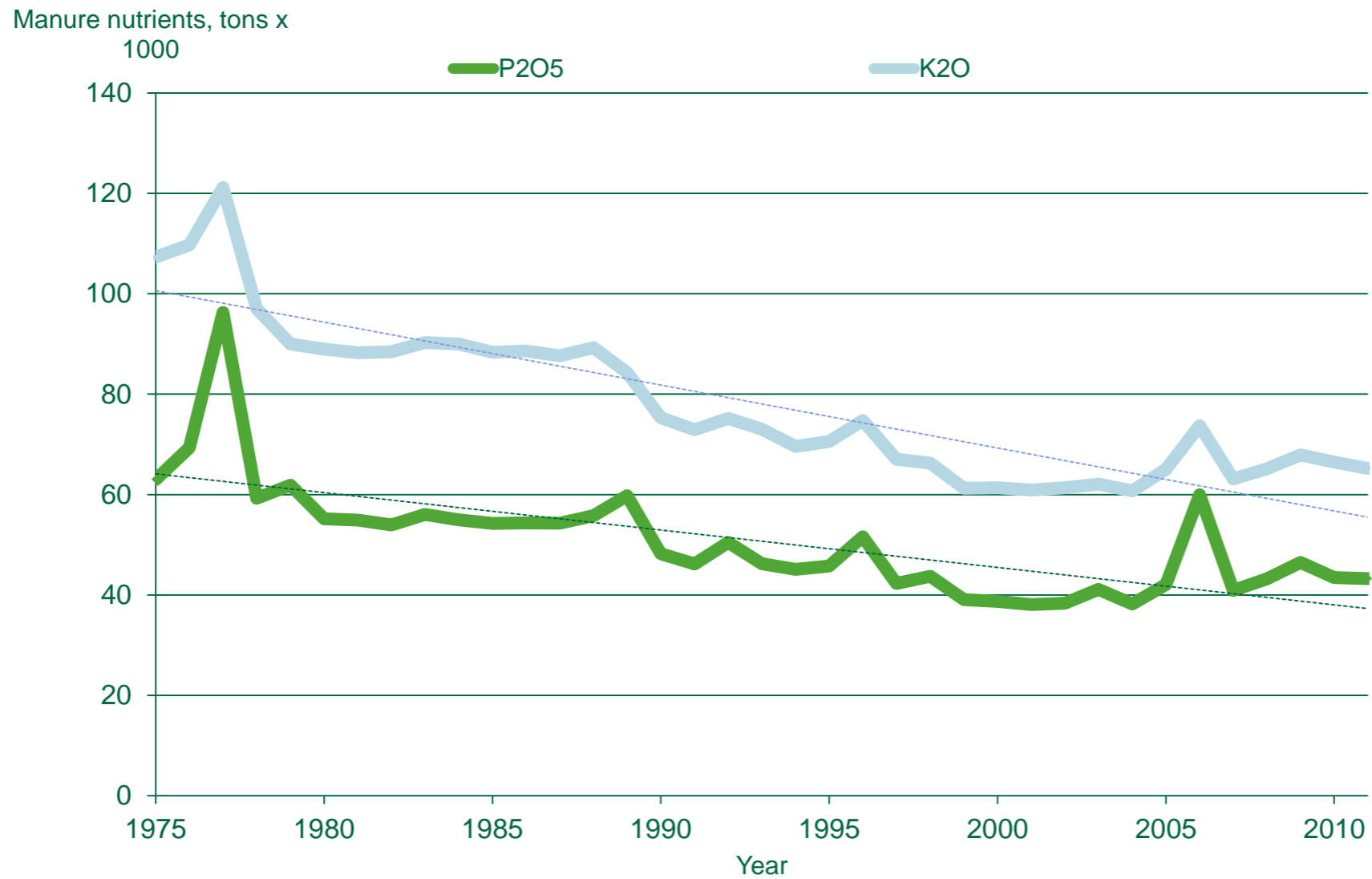


# Fertilizer Sales



Source: AAPFCO

# Manure Fertilizer Generation



Source: USDA-NASS, MWPS

# ☘ Nutrient Balance

# Nutrient Balance Model Data

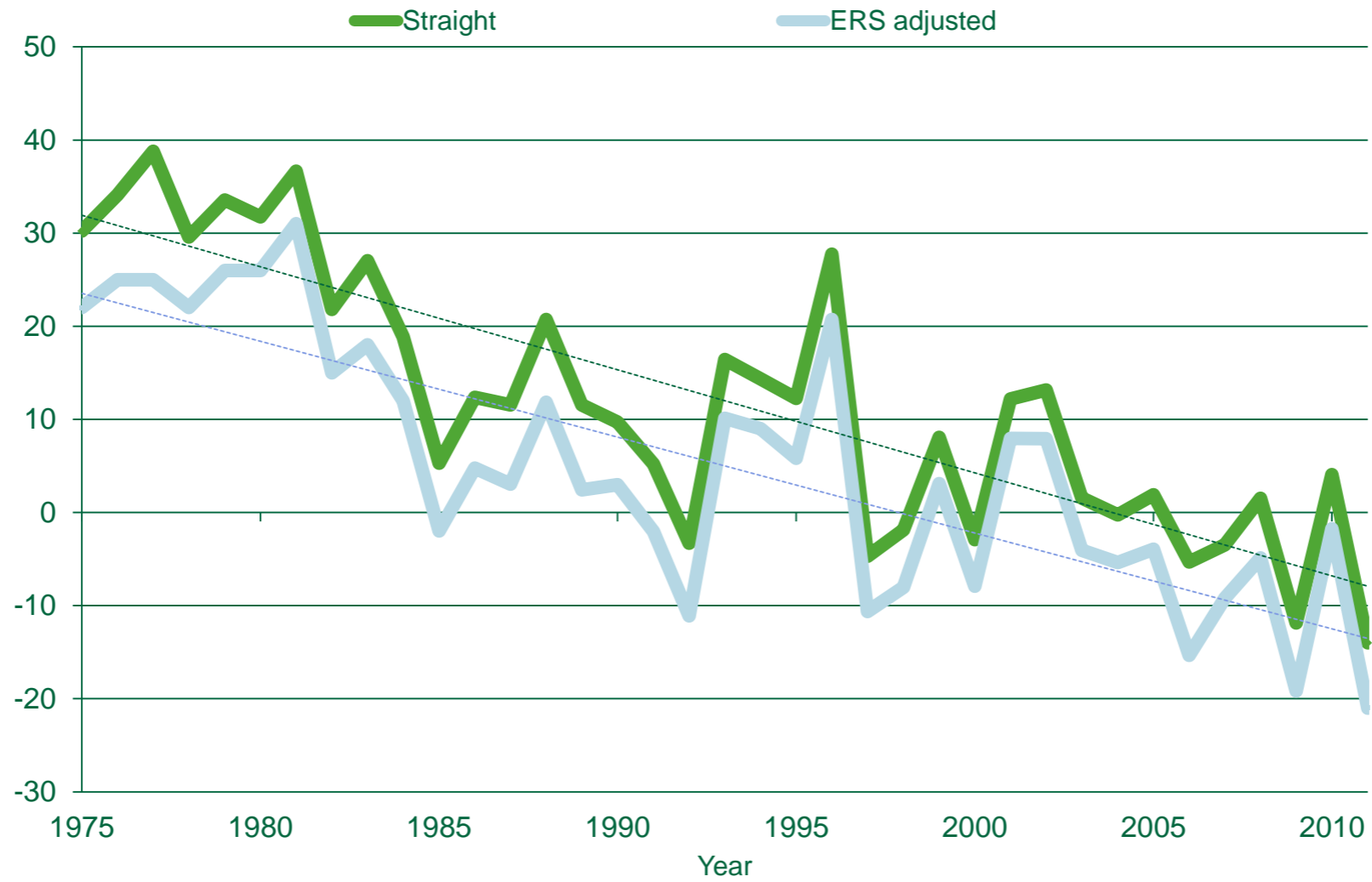
- Straight balance has a fundamentally flawed assumption (that manure nutrients can be separated and distributed well across all agricultural fields)
- ERS adjusted balance uses an estimate of crop acres receiving manure application based upon a USDA-ERS report
  - In the Corn Belt:
    - 10% of corn acres receive manure
    - 2.5% of soybean acres receive manure
    - 5% of wheat acres receive manure
    - 7% of hay acres receive manure



# Nutrient Balance

## P2O5 balance

P2O5 balance, lb/acre

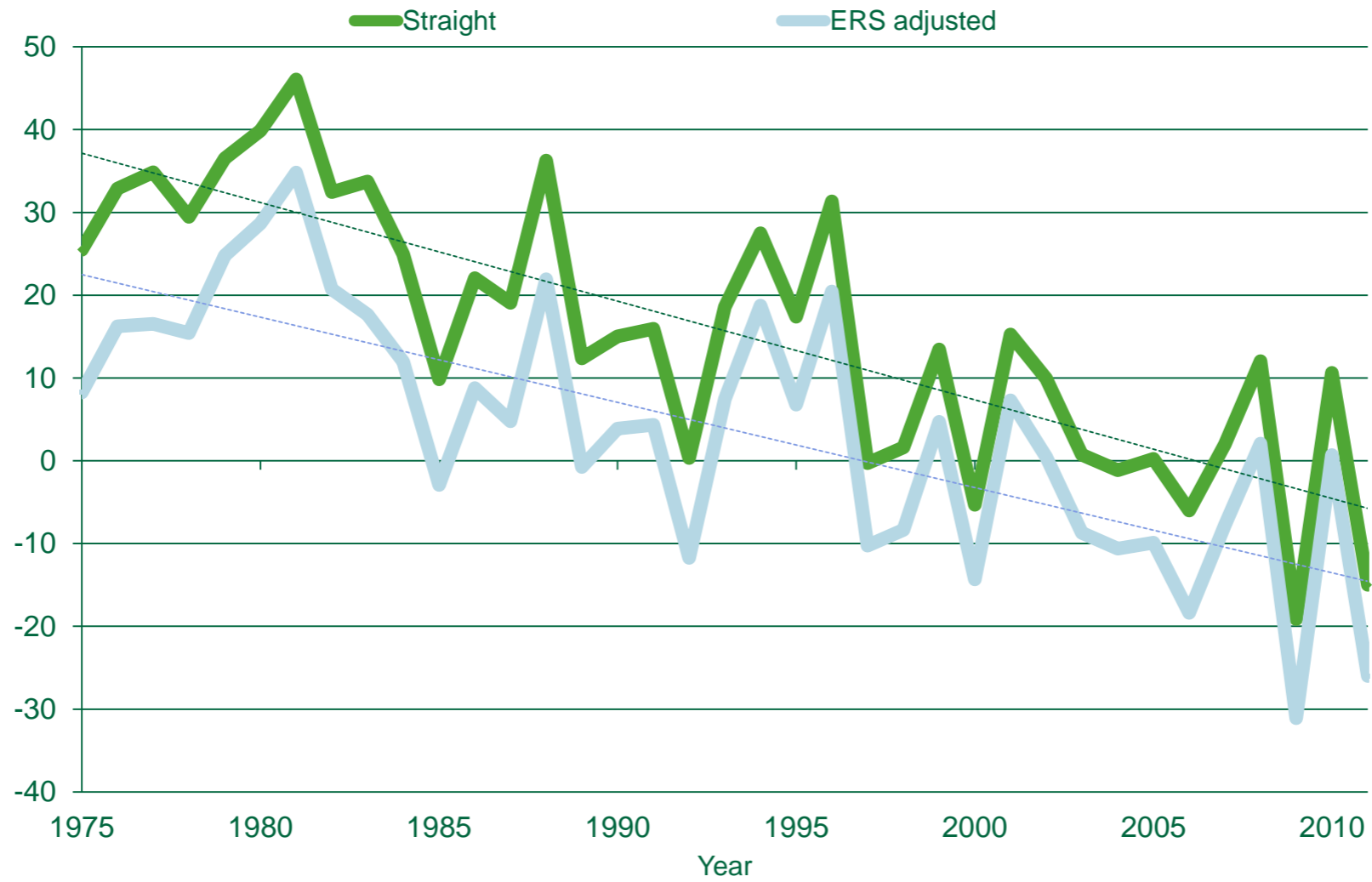


Source: USDA-NASS, MWPS, IPNI, USDA-ERS, Tri-State Fertilizer Guide

# Nutrient Balance

## K2O balance

P2O5 balance, lb/acre

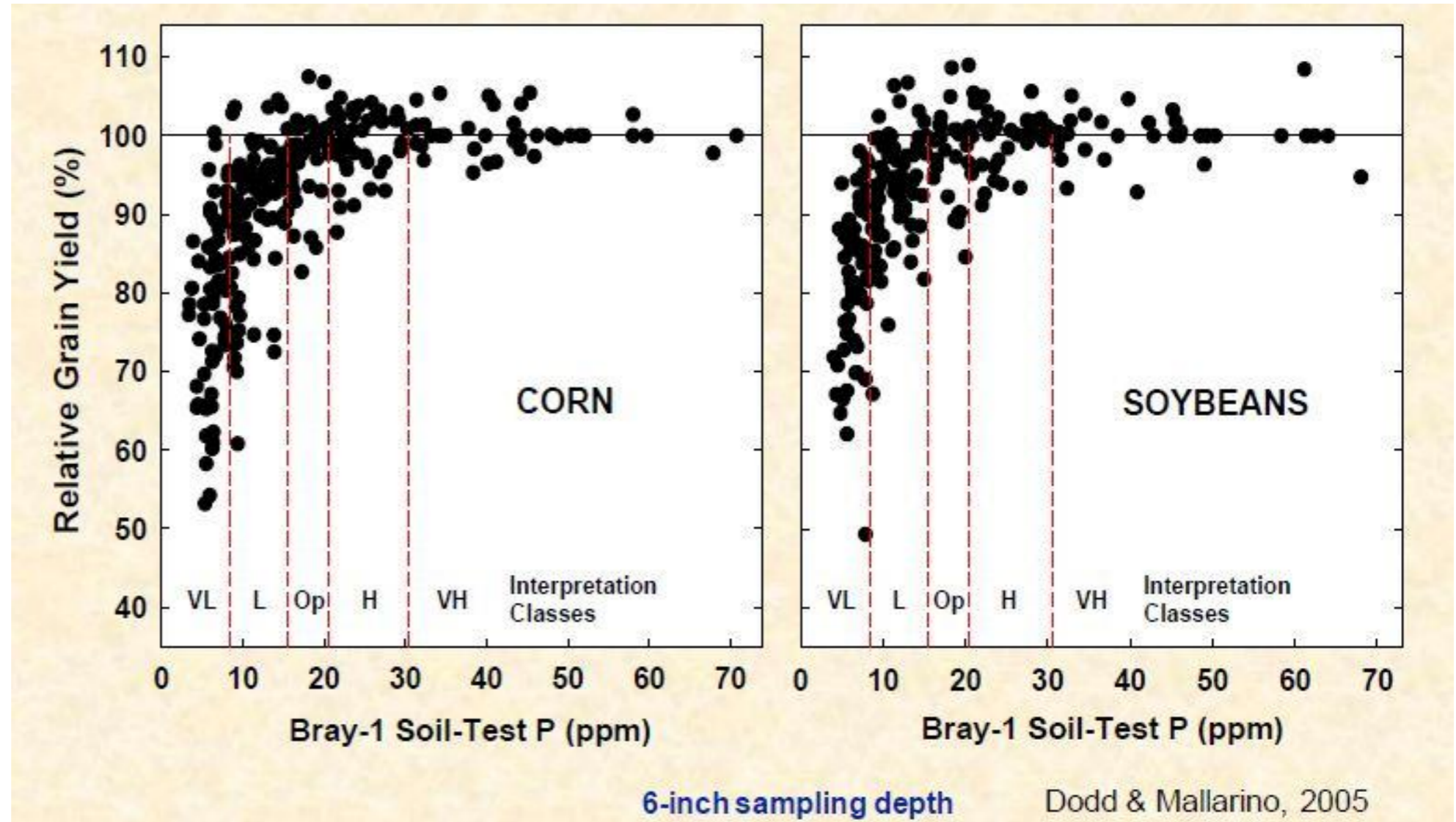


## Implications

# Declining Soil Test Levels

What happens to yield as soil test levels fall?

- Phosphorus

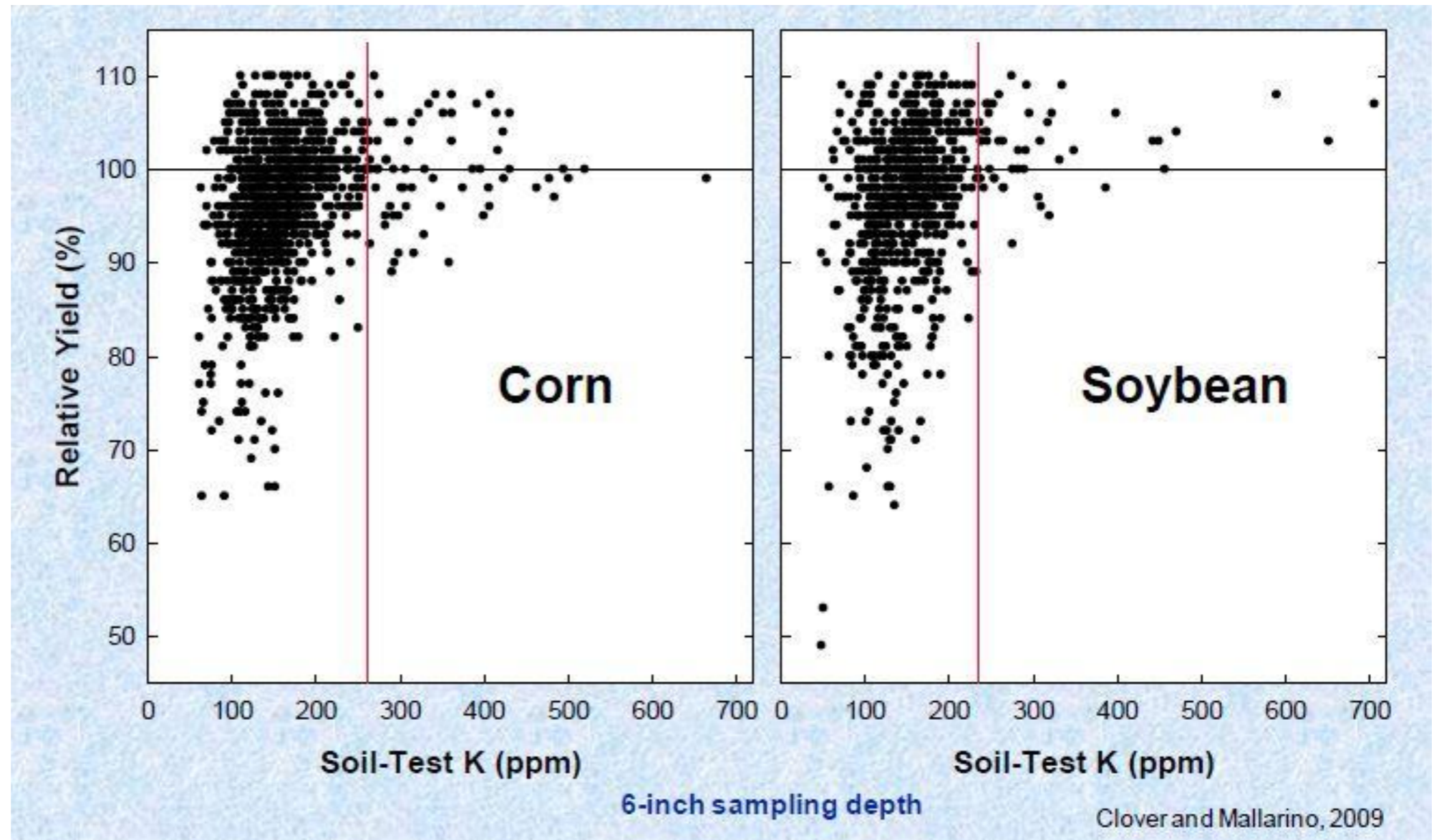




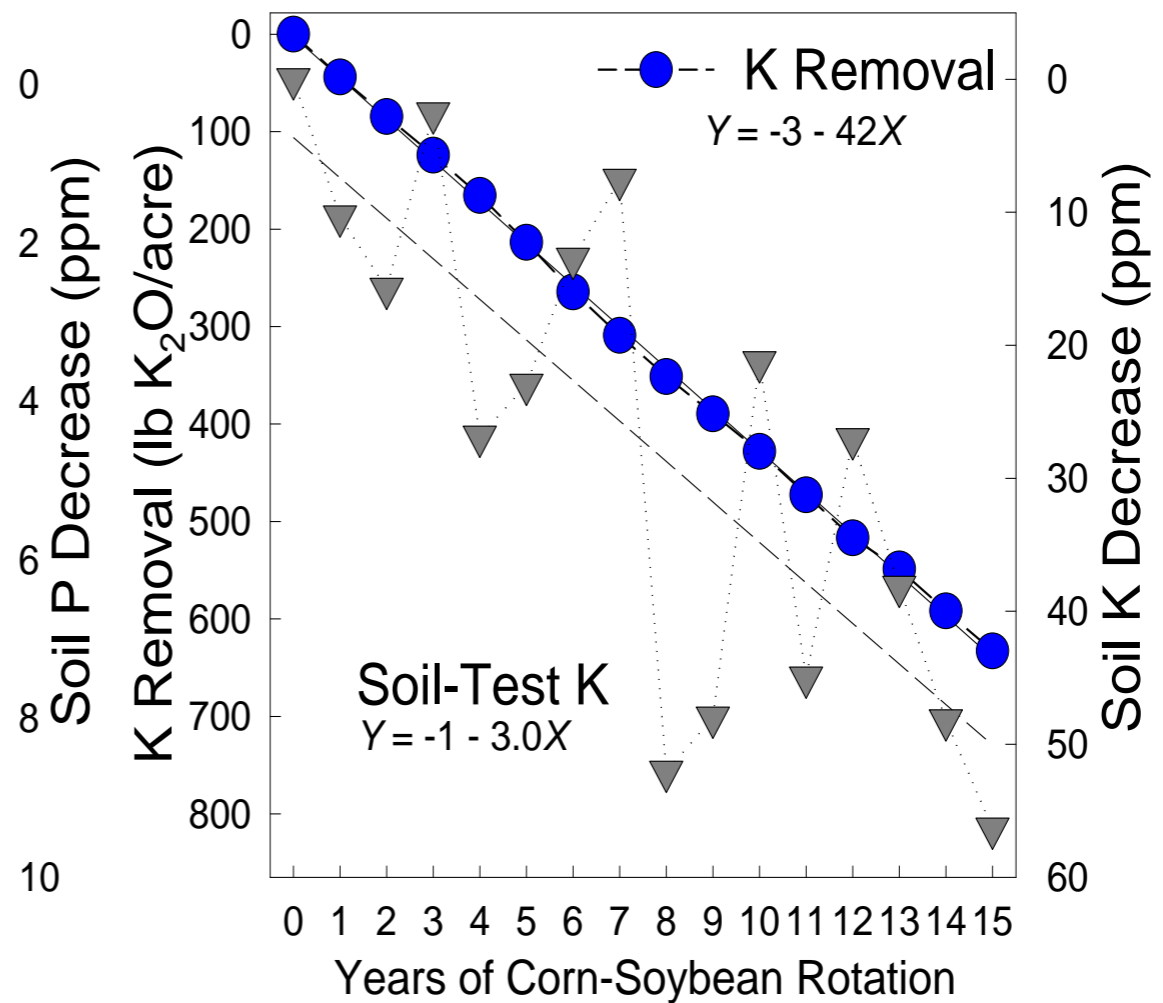
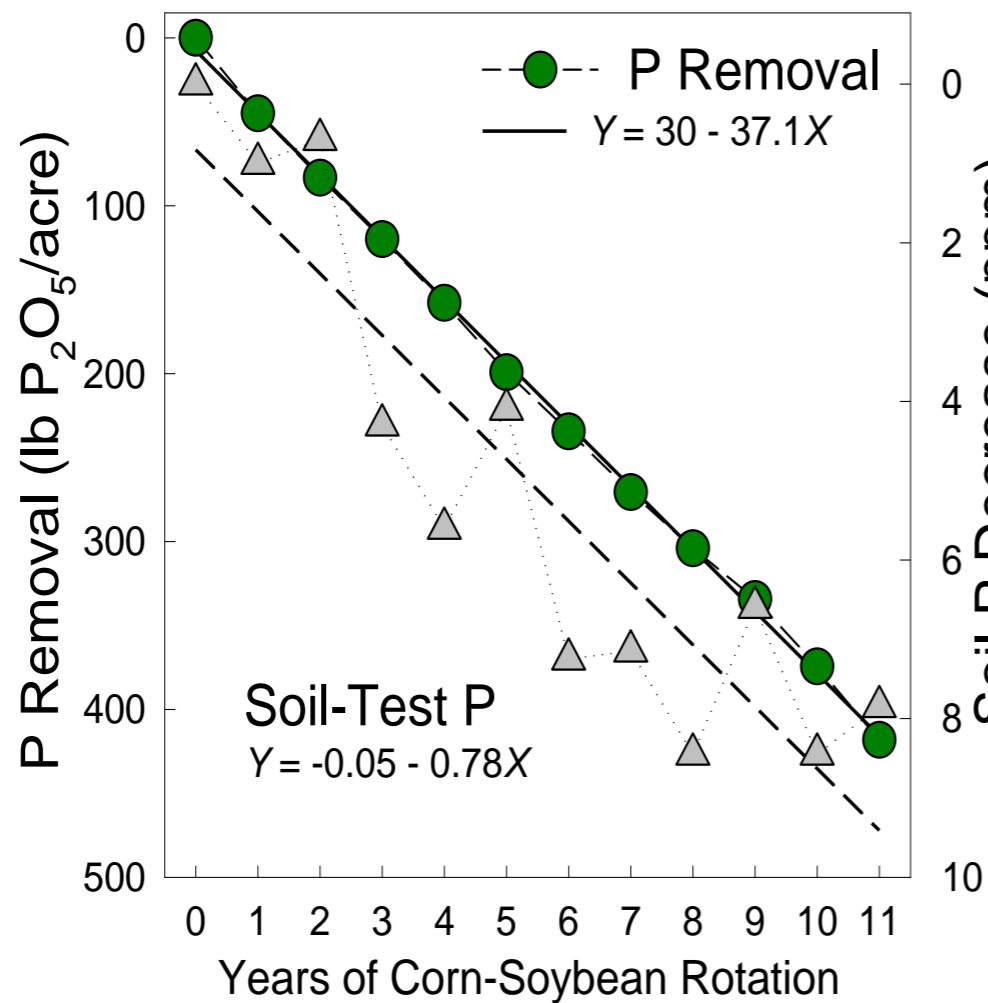
# Declining Soil Test Levels

What happens to yield as soil test levels fall?

- Potassium



# Changing Soil Test Levels



6-inch sampling depth

Mallarino, 2011



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# Thank you

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