# Review of IFAS BMP program outside the EAA and Phosphorus transformation and movement in sandy soils

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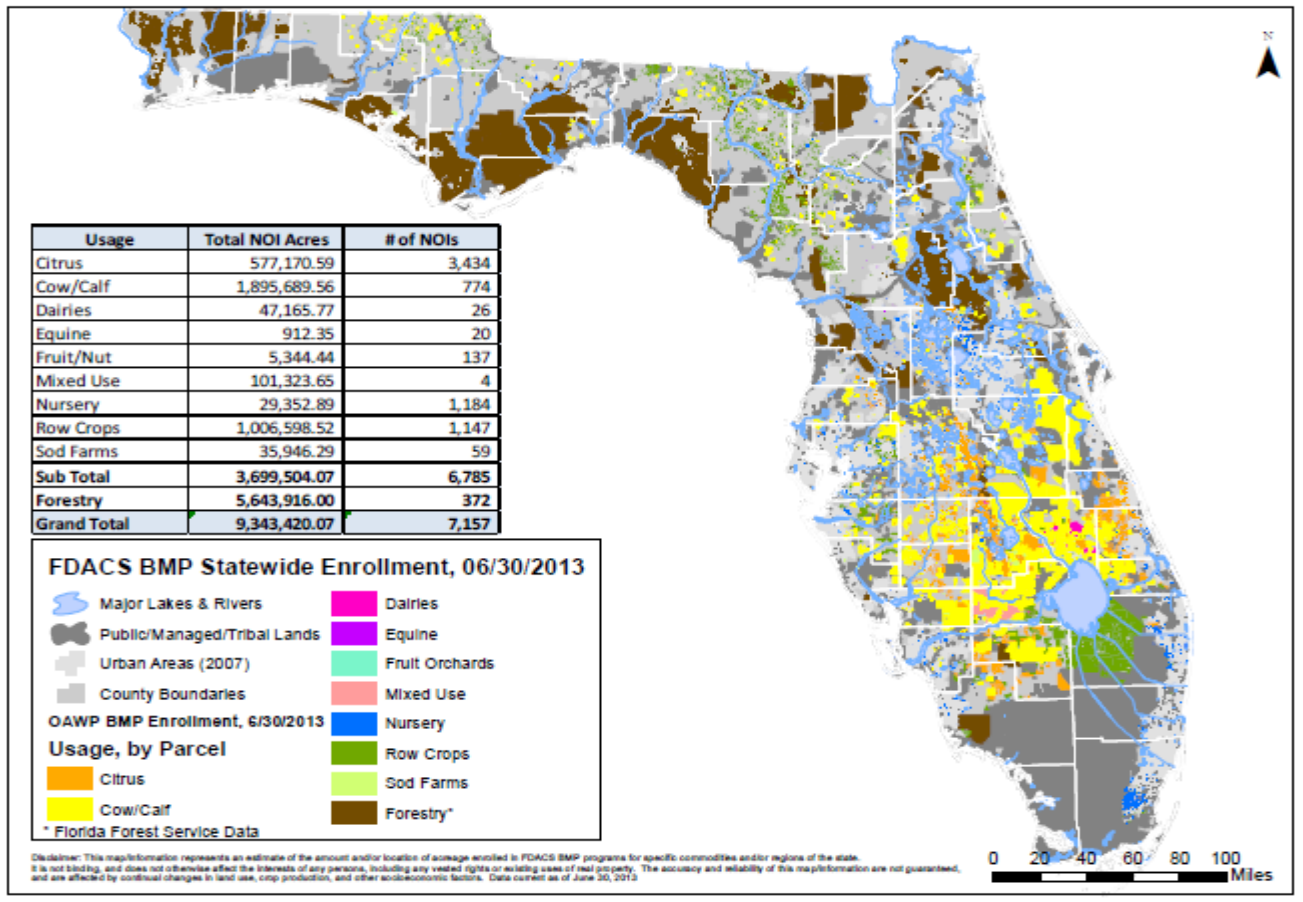
# BMP Implementation

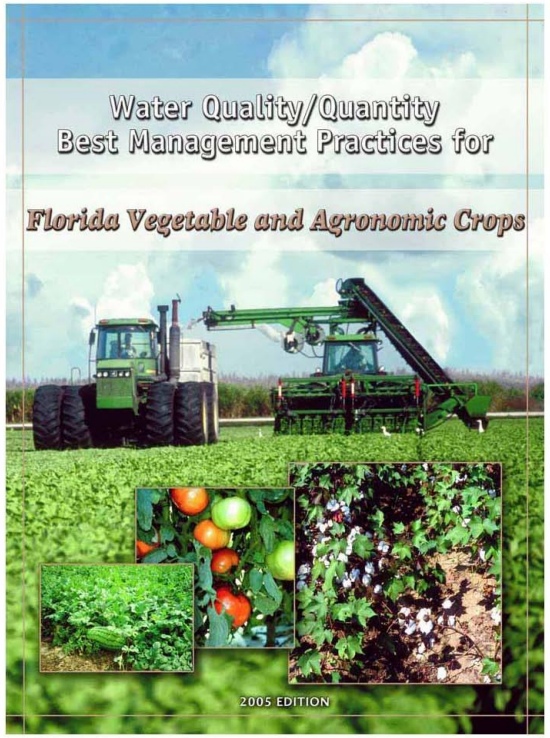



| Usage | Total NOI Acres | # of NOIs |
|---|---|---|
| Citrus | 577,170.59 | 3,434 |
| Cow/Calf | 1,895,689.56 | 774 |
| Dairies | 47,165.77 | 26 |
| Equine | 912.35 | 20 |
| Fruit/Nut | 5,344.44 | 137 |
| Mixed Use | 101,323.65 | 4 |
| Nursery | 29,352.89 | 1,184 |
| Row Crops | 1,006,598.52 | 1,147 |
| Sod Farms | 35,946.29 | 59 |
| **Sub Total** | **3,699,504.07** | **6,785** |
| **Forestry** | **5,643,916.00** | **372** |
| **Grand Total** | **9,343,420.07** | **7,157** |

- >60% of agricultural land under BMPs statewide
- Approx. 100% for some commodities

# FDACS-OAWP BMP Manuals

- Vegetable & Agronomic Crops
- Container Nursery
- Sod
- Cow/Calf
- Specialty Fruit & Nut
- Commercial Equine
- Consolidated Citrus

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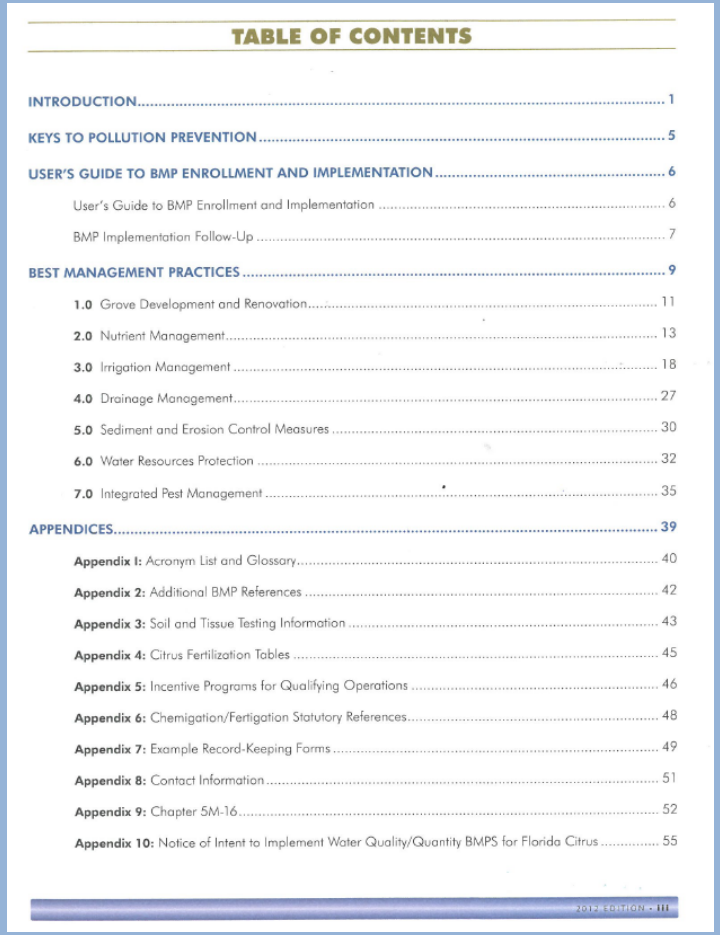
# BMP Manuals



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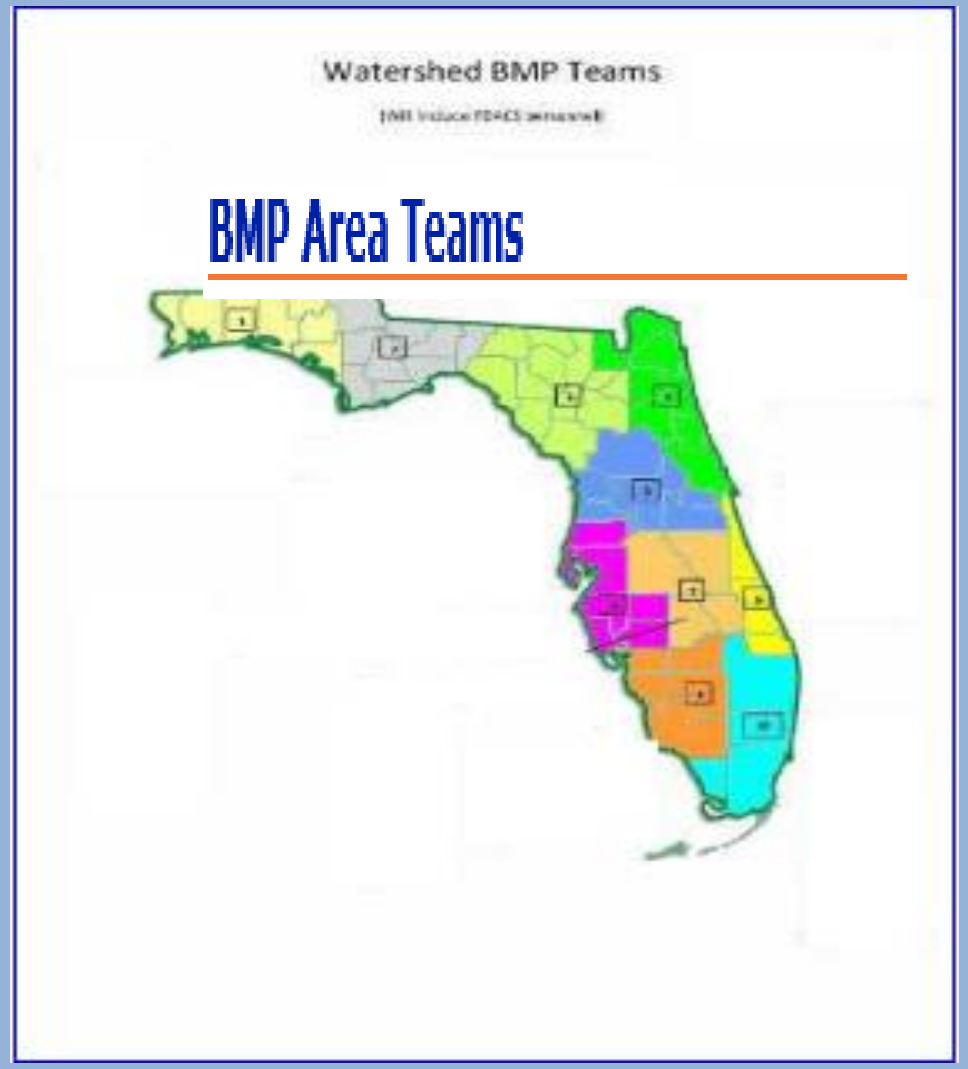
- Provides BMPs on:
  - Land preparation
  - Nutrient management
  - Irrigation management
  - Drainage Management
  - Sediment and erosion control
  - Water resource protection
  - Integrated pest management

# 10 Basin Area Teams




- Each Team has a leader
- Approx. 140 extension agents
- In-service training
- implement grower meetings and demonstrations
- Coordinate efforts with FDACS and WMDs

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# Use of the 4Rs Plant Nutrient Stewardship Concepts

- 4Rs – Right Source, Right Rate, Right Time and Right Place
- The concepts emphasized in with in-service training and development of commodity-based meeting curriculum and materials
- The concepts are not new to most agents but will allow for  a more consistent message

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# UF/IFAS - BMP WEB SITE
# http://bmp.ifas.ufl.edu/


- Central information for IFAS agents and specialists as well as growers
- meeting schedules
- publications
- Event presentations
- FDACS links
- Water Management Resources

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# BMP Minigrants

- Five year total (2013 to 2018) = >$346,000
- 16 Total Projects - FY 2017/18 = $109,321
- All have field demonstrations
- 10 Project funded FDACS ($74,004)
- 4 Projects funded by Legislative Budget Request ($22,259)
- 3 Projects funded by Mosaic Foundation ($ 13,058)

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# 2017/2018 BMP Minigrants

- Demonstrations of crop nutrients/irrigation management
- Soil test sampling and interpretations
- Soil moisture sensor use and irrigation scheduling
- Soil Phosphorus management
- Practices to prevent soil nutrient leaching and runoff
- Production using compost and manure
- Nursery irrigation scheduling
- Cover crops

# 2017/2018 In-Service Training

- Use of Precision Agriculture Technology for Water and Nutrient Best Management Practices
- Use of Soil Moisture Sensors and Weather Data in Irrigation Scheduling for Best Management Practices
- Soil Health and Sustainability Best Management Practices
- How to Conduct Successful On-Farm Research/Demonstration Trials

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# Success Stories

- Improved irrigation practices conserve water and nutrients
- “Best management Practices are what’s current for the time and farmers have always tried to adapt to that”
- “Soil moisture sensors are able to show where the water is going and how deep in the soil it travels in real time”

# Success Stories

- "Technology makes irrigation management easier"
- "It was interesting that most of the improvement was made on the irrigation side and that made the fertilizer use more efficient"
- "We have these new sensors and they're going to go to a computer program, like an app, and we will see that the moisture is at on three different levels"

# Research Project Support

- Three studies have been started using BMP program funds until further support is found
- Project 1 – Use of smartphone app to schedule irrigation and fertilizer applications
- Project 2 – Field study of soil base P fertilizer recommendations at four potato farms
- Project 3 – Carrot N, P and K recommendations (currently none exist)

# Selected Soil Properties (pre-plant samples)

| Farm | pH | M-1 P | M-1 Ca | M-1 Mg | M-1 Fe | M-1 Al |
|---|---|---|---|---|---|---|
| Farm 1 (alkaline and non-calcareous) | 7.43 | 99 | 829 | 52 | 18 | 56 |
| Farm 2 (alkaline and calcareous) | 7.08 | 454 | 3102 | 81 | 44 | 215 |

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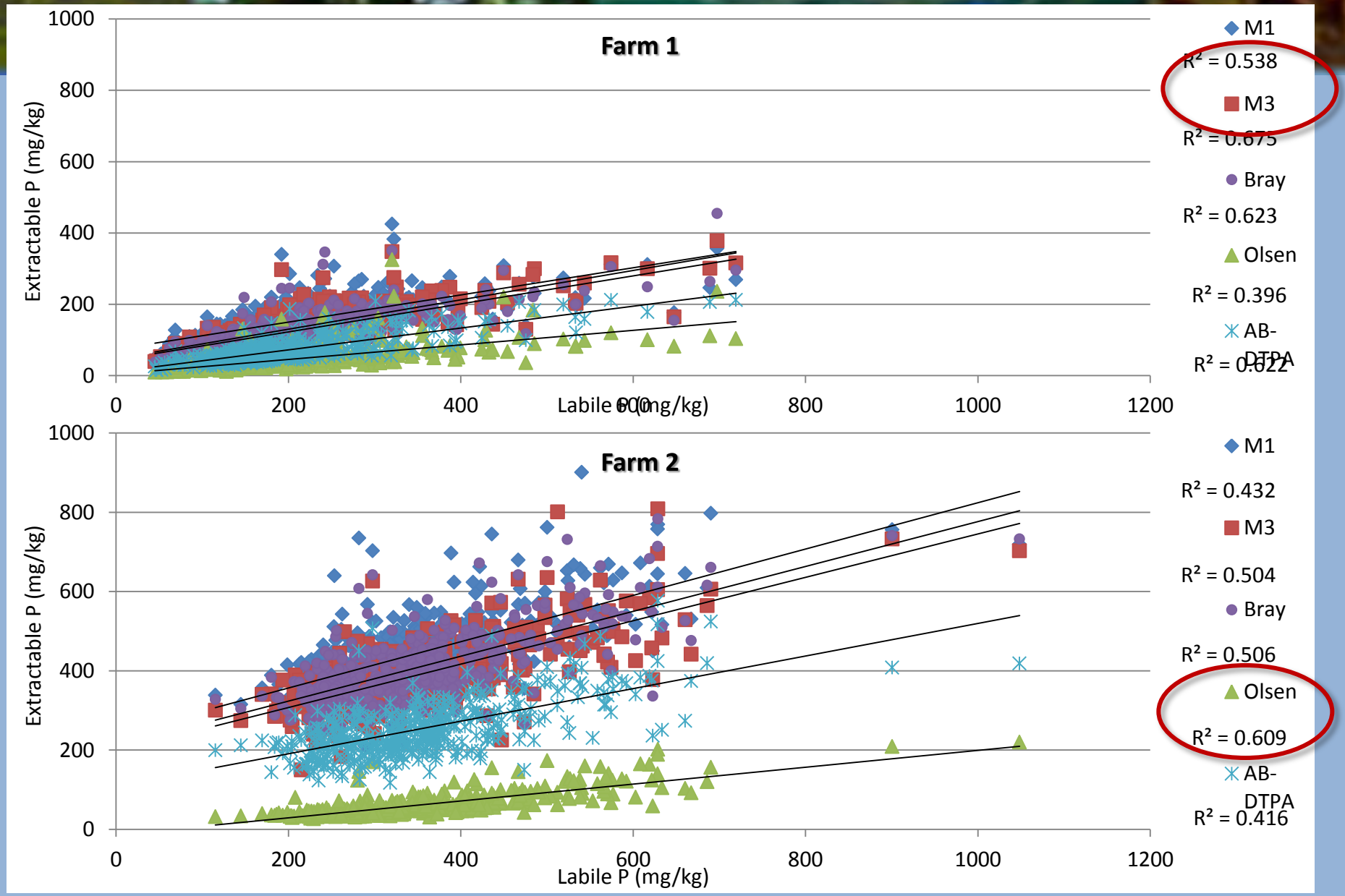
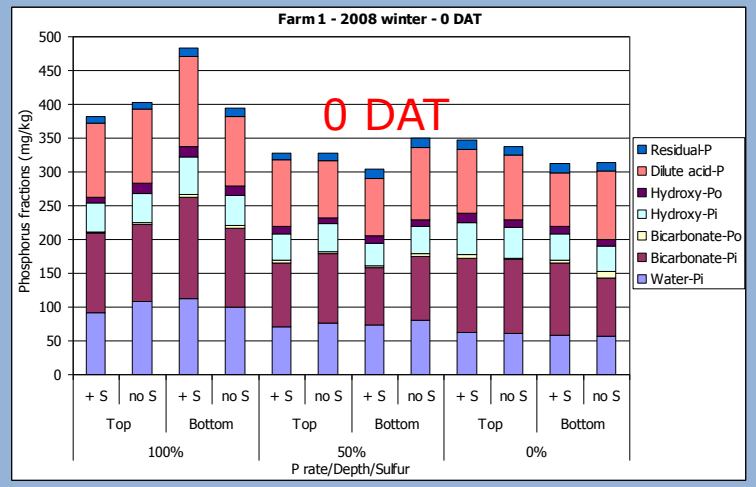
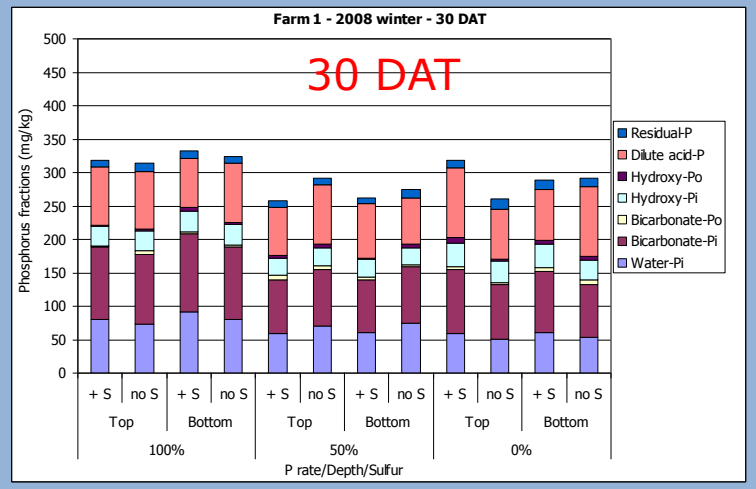
# Labile P vs. Extractable P



# Sequential Soil P Analysis




- Approximately 25 and 50 mg/kg applied at the 100 and 50% P rates
- Nearly all added P in water soluble fraction at planting (0DAT)
- Reduction water soluble P and increase in Carbonate extractable P at 30 DAT
- Little change in other soil (nonavailable) P fractions

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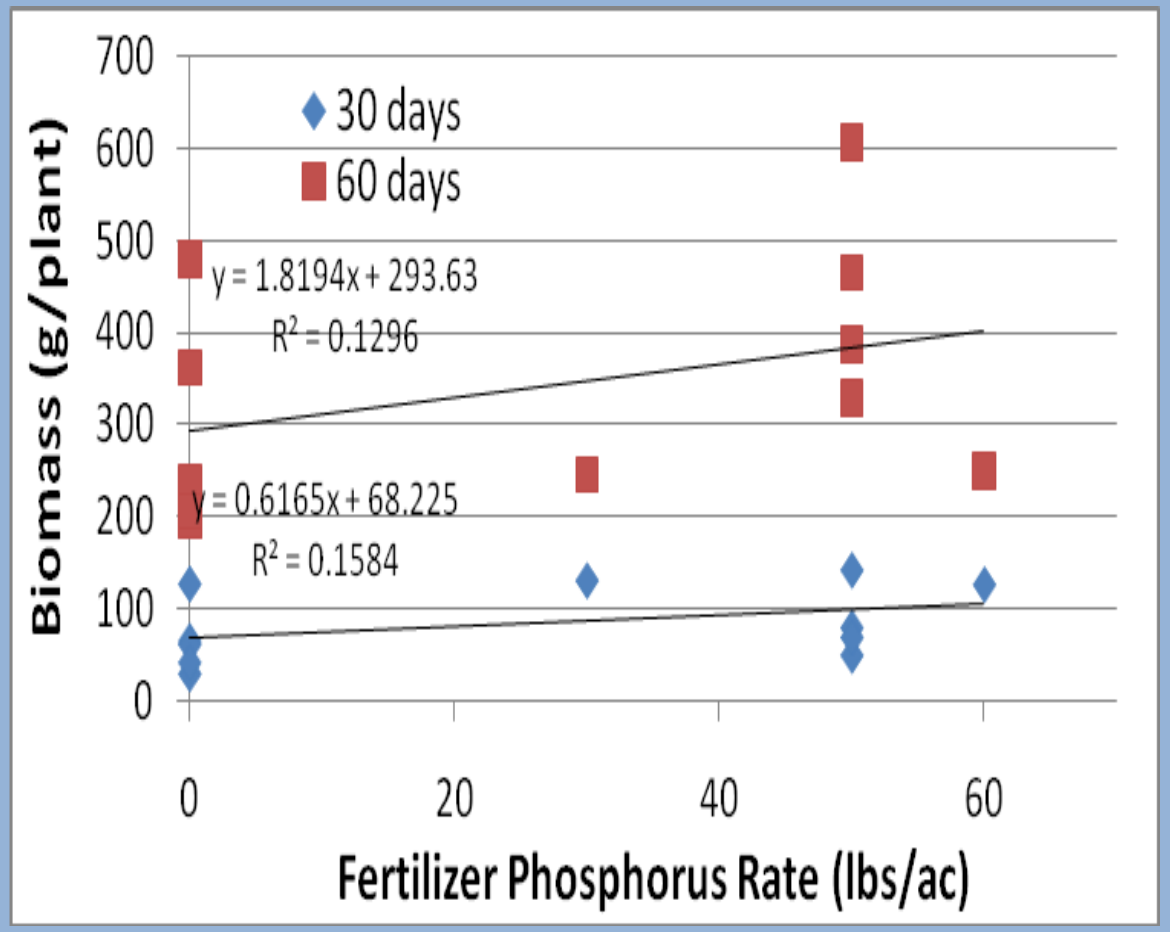
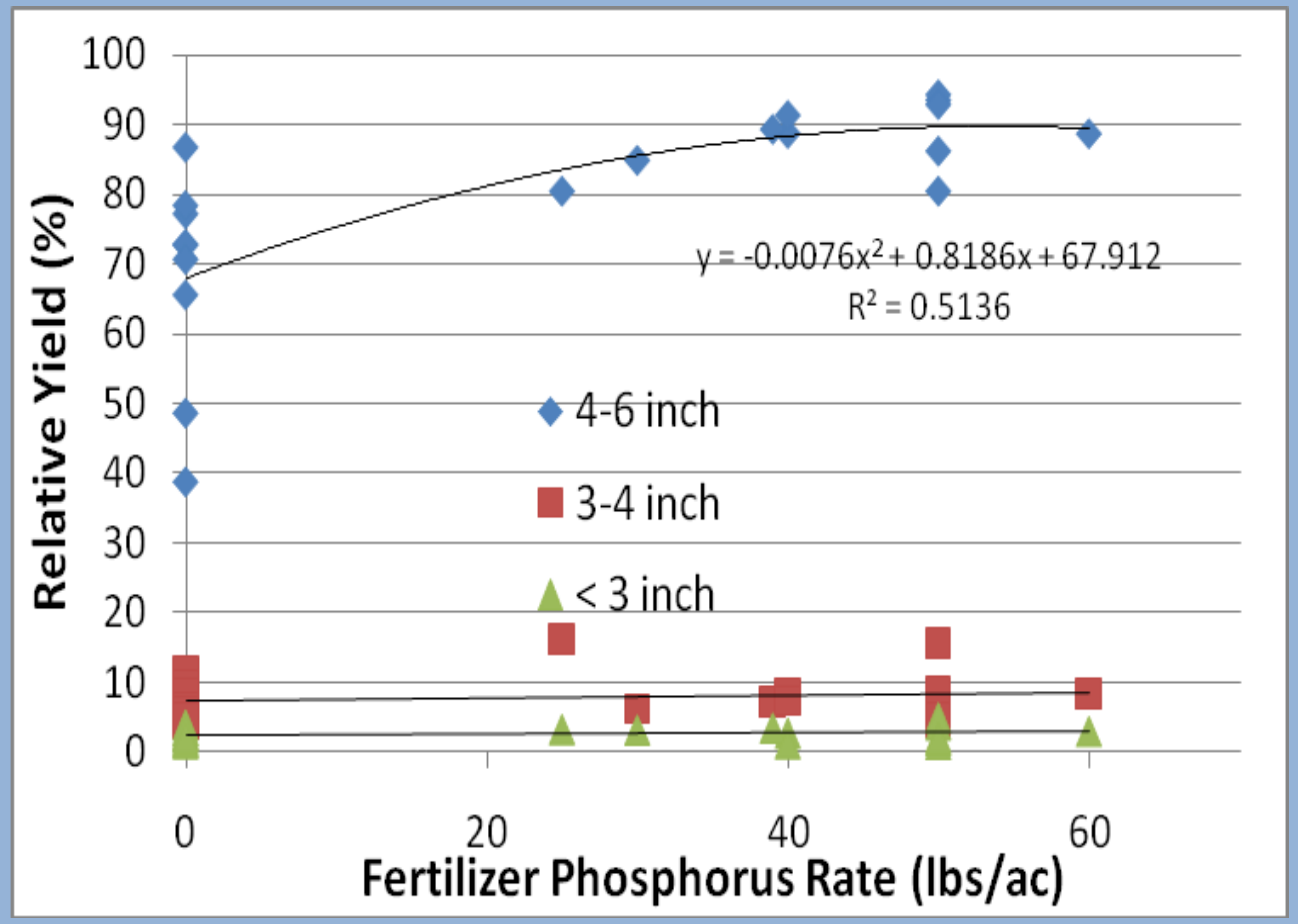
# Green Bean – Growth Response to Added P




- Leaf P was in optimum range at all sample dates
- 28% leaf P significantly greater in full P rate compared with zero rate
- 44% of sample had significantly greater biomass at 30 and 60 days after planting with increased fertilizer P

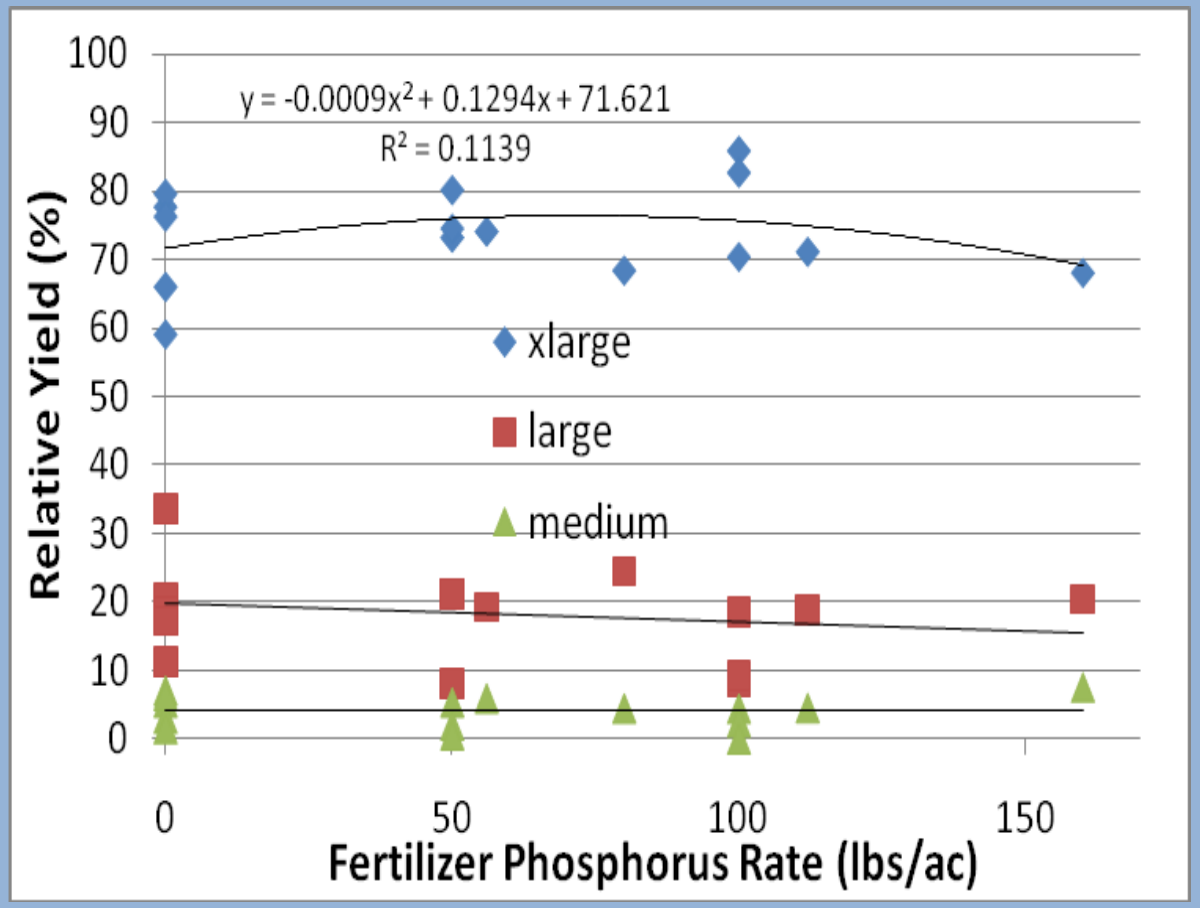
# Green Bean – Yield Results




28% of crops significant increase in pods < 3 inches long with increased fertilizer P

78% of crops significant increase in pods > 4 inches long with increased P rate

# Tomatoes – Yield Results




- Little significant difference in total yields with added P
- Xlarge fruit significantly increased at first harvest <20% of time

# QUESTIONS ????

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