Pathogen, Insect and Weed Pests of Soybean: Integrated Pest Management of Multiple Pests in a Single Crop

Soybean IPM:
A New York IPM Coordinator's Perspective:
Issues, Information, Integration

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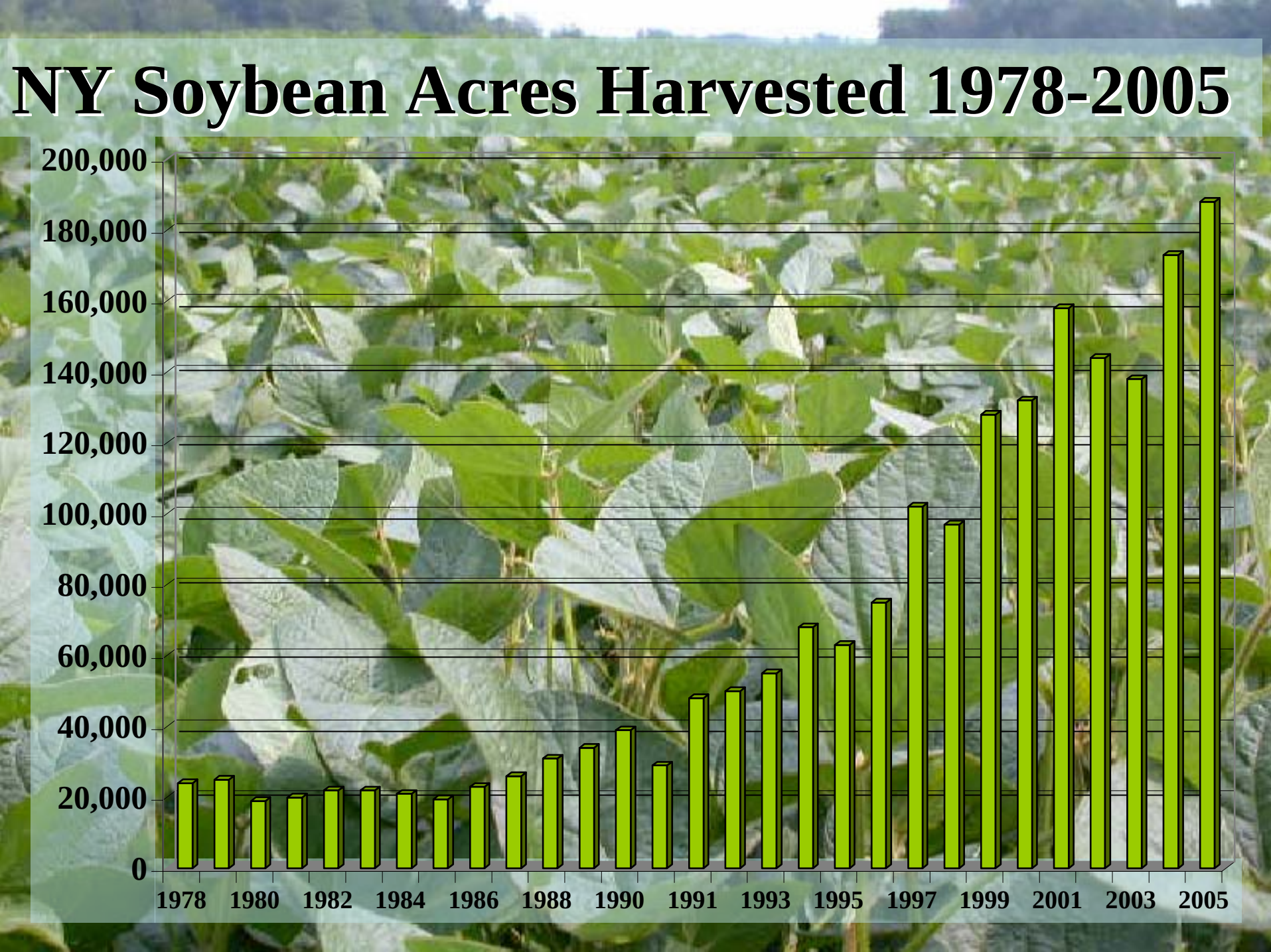
Cornell Cooperative Extension

Soybean IPM in NY

Research and Extension Challenge:

- Identify, develop, evaluate and provide information to improve current pest management strategies and address needs, gaps, new and emerging concerns address
- Help growers identify, learn and integrate practical management approaches for key pests into crop management systems

NY Soybean Acres Harvested 1978-2005



Soybean Pests in NY

Insects: seedcorn maggot, *soybean aphid*
two spotted spider mites
Mexican bean & Japanese beetles

Diseases: pod and stem blight complex (Phomopsis, et al), brown spot, downy mildew, Sclerotinia stem rot, Phytophthora root and stem rot, *soybean rust*

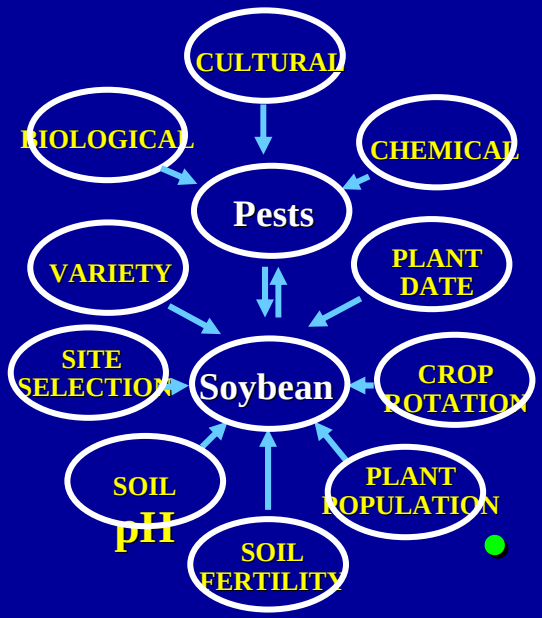
Weeds: annual & perennial grasses and broadleaf spp

Vertebrates: Deer, groundhogs, geese

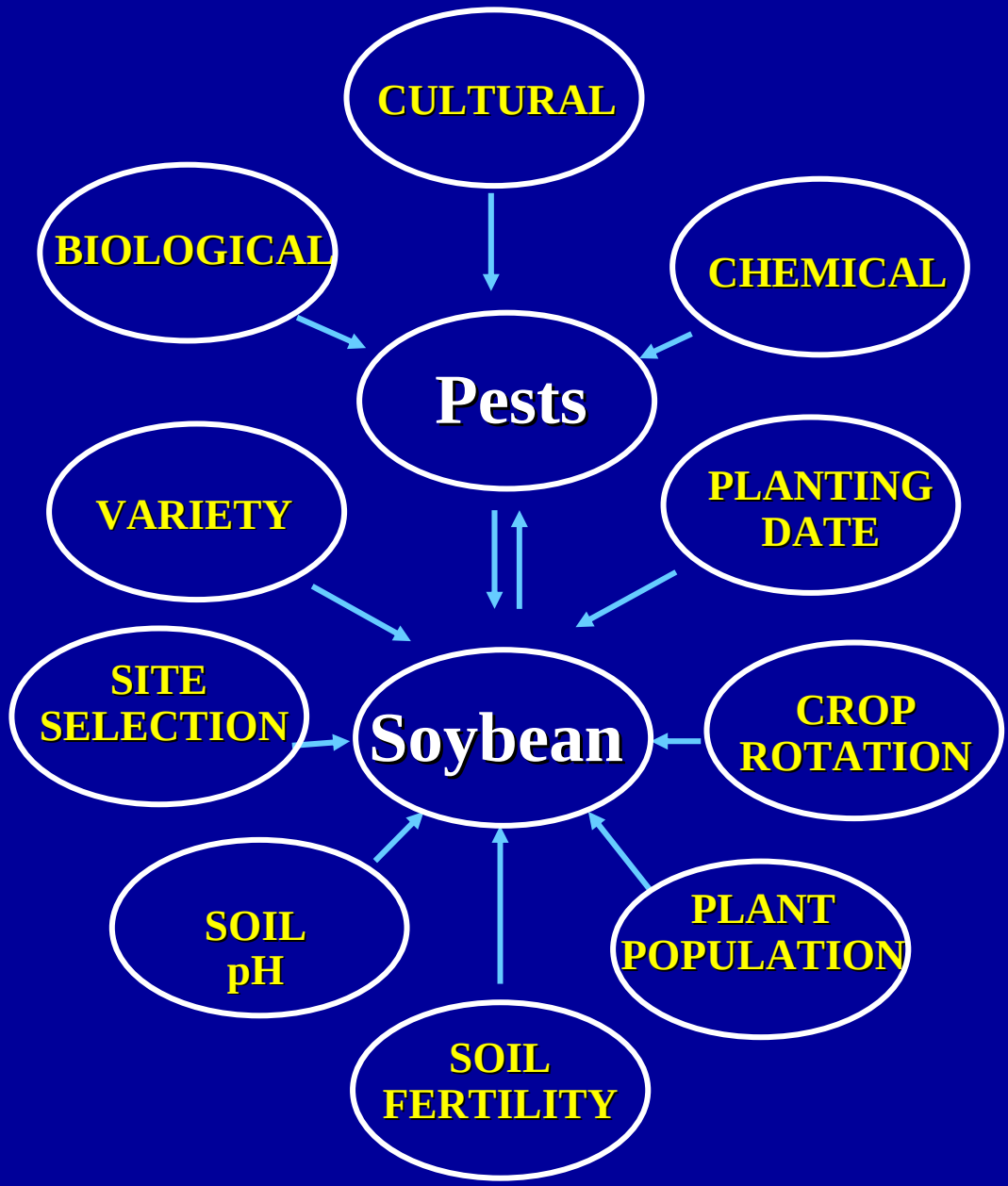
Soybean Pest Management - Nuances and Gaps

- Individual / Multiple pest species
- Sequential vs concurrent pests, pest types
- Interactions? (+/-/0), synergy/antagonism/no effect
- Pest thresholds: adjustments for multi-pests and other factors
- New pests, new concerns, new technologies, new information
- Research Opportunities abound…
- Producers need tools to manage

Soybean Pest Management



- Current Information & Tools:
  - Resources
  - Monitoring
  - Thresholds / Guidelines
  - Long / Short Term Management Options
- Extension Outreach: producers/multipliers
- Encourage IPM adoption
  - a dynamic process


CULTURAL
BIOLOGICAL
CHEMICAL
Pests
VARIETY
PLANTING DATE
SITE SELECTION
Soybean
CROP ROTATION
SOIL pH
PLANT POPULATION
SOIL FERTILITY

Soybean Tactical Agricultural Teams: An On-Farm IPM Education Program

Julie Stavisky, Ken Wise, & Keith Waldron

NYS IPM Program, Cornell University

Poster P 155: "The Evolution of TAg -
The Tactical Agriculture Program in New York State: Innovations in Season-Long On-Farm IPM Training"
(Tuesday 5:30-7:30 pm)

Soybean TAg: Objectives

- Conduct on-farm season-long IPM education programs to increase IPM awareness, knowledge, and management skills by soybean producers
- Enhance integration and adoption of IPM practices into New York soybean production

"If you want to help adults grow and develop engage them in an active process of inquiry rather than a passive process of receiving transmitted information"

M. Knowles 1980

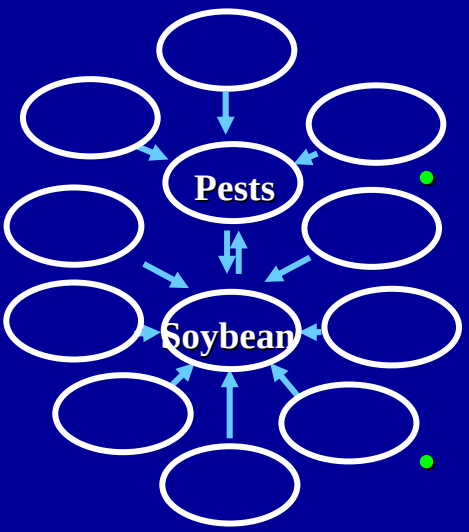
Highlights of TAg

- Informal training course, sessions held throughout season, location rotated among participant farms
- IPM principles introduced in context of crop production fundamentals encourages integration into whole-farm decision-making
- Small, neighborhood, group setting encourages information exchange and reinforcement of pest management concepts
- Hands-on activities, including direct observation and assessment of pests in field, personalizes learning process

Components of TAg Programs

- Real World: Anticipate, introduce, observe and assess pest problems *as they occur* in field
- Real Tools: Provide resources and guidelines to aide crop monitoring, pest assessments, and management decisions
- Real Issues: Discuss, evaluate and employ practical *integrated* pest management solutions
- Real Impact: Conduct pre- and post-evaluations to assess program effectiveness and impacts

Soybean TAg: Multiple Pests - Single Crop
An Example of a Meeting in June:



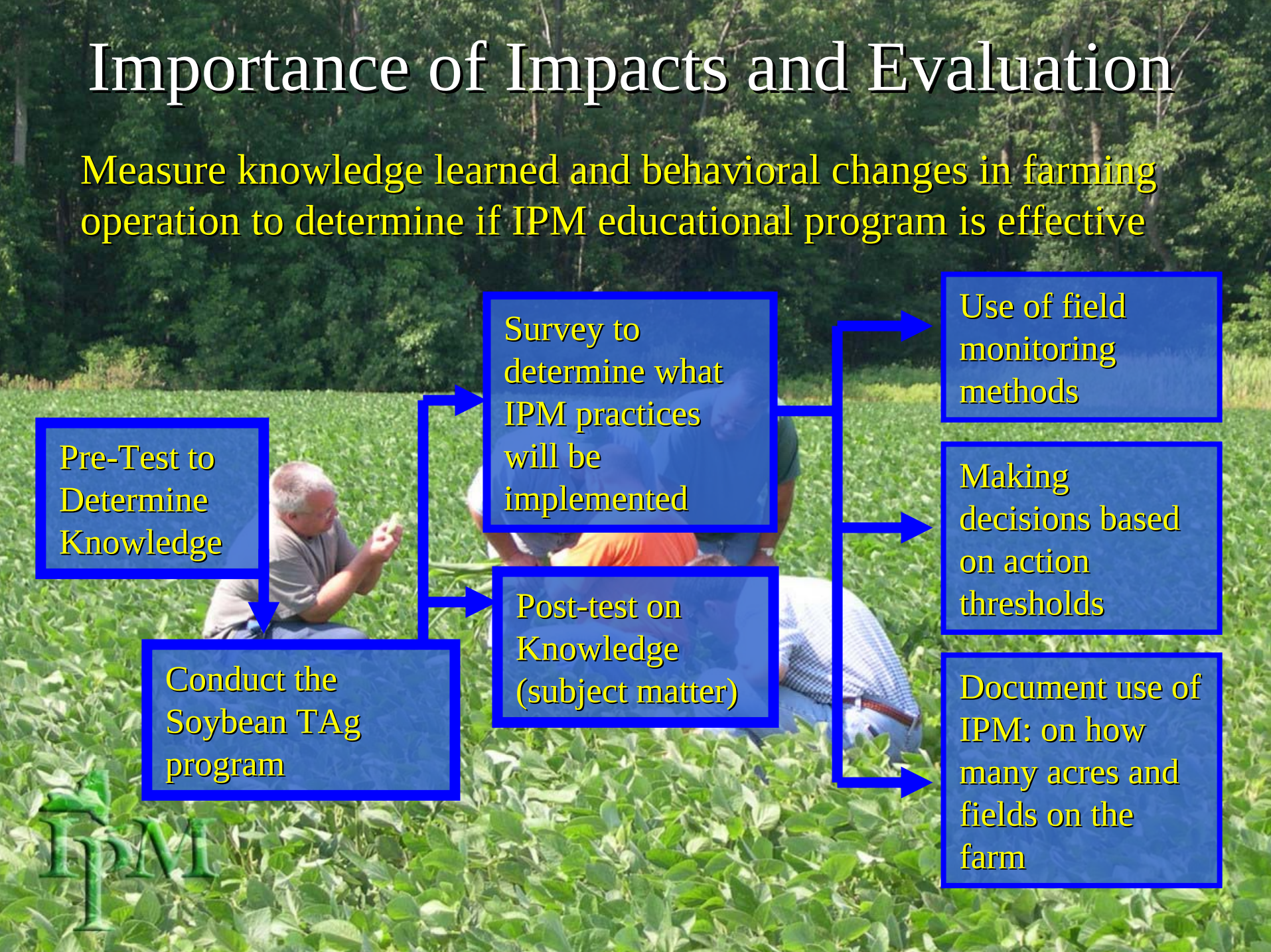
- Plant Population and Plant Growth Stage:
  - pest impacts - root rots, seedcorn maggot
  - assessing yield potential
- Insect Identification:
  - identification and impact of defoliators
  - scouting for soybean aphid and natural enemies
- Foliar Disease Identification:
  - distinguishing common diseases from soybean rust
- Weed Identification and Management:
  - mapping problem areas
  - discussing weed management - (herbicide)

TAg participant advantage

- Increased knowledge of pest identification, scouting methods, and thresholds, exploration of management alternatives
- Practice gained in IPM decision making (single and multiple key pests), integration of IPM into whole farm planning
- Neighborhood team building and enhanced IPM network

Importance of Impacts and Evaluation

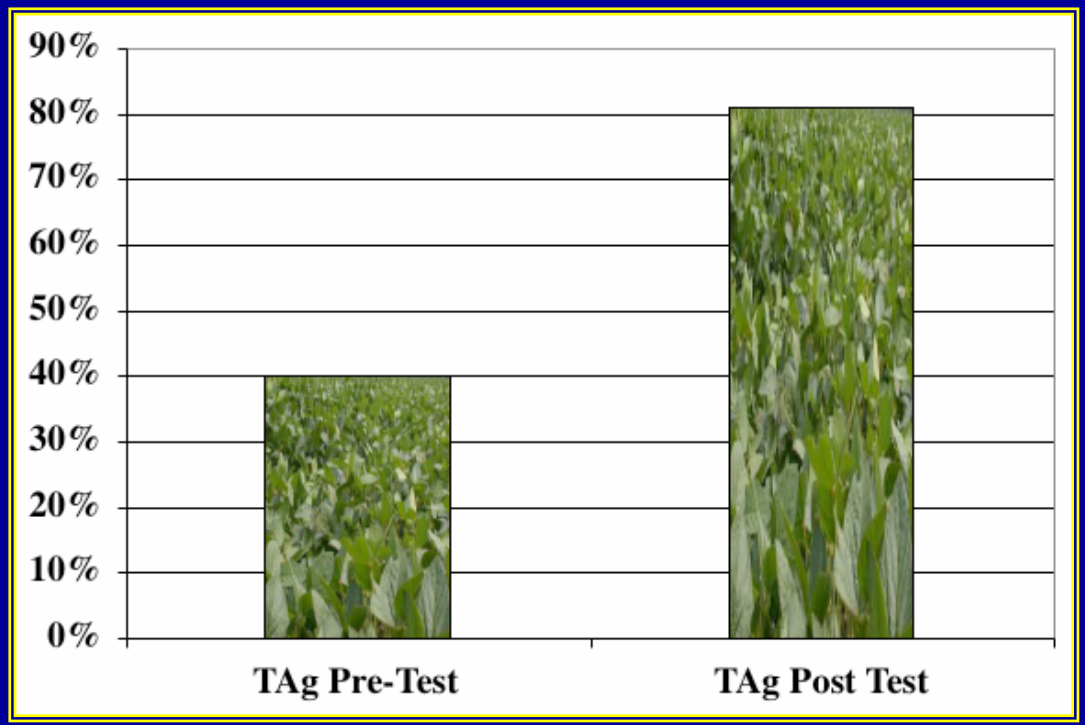
Measure knowledge learned and behavioral changes in farming operation to determine if IPM educational program is effective



Soybean TAg - Impacts

Pre/post test comparisons indicate changes in participant IPM and ICM knowledge

- Many questions concerning basic agronomic concepts were answered correctly, *however*…
- Few participants were able to answer questions about soybean pest identification and management



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Soybean TAg

For more information:

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