The Farmer Is In: Diagnosing and Solving Problems on Your Farm

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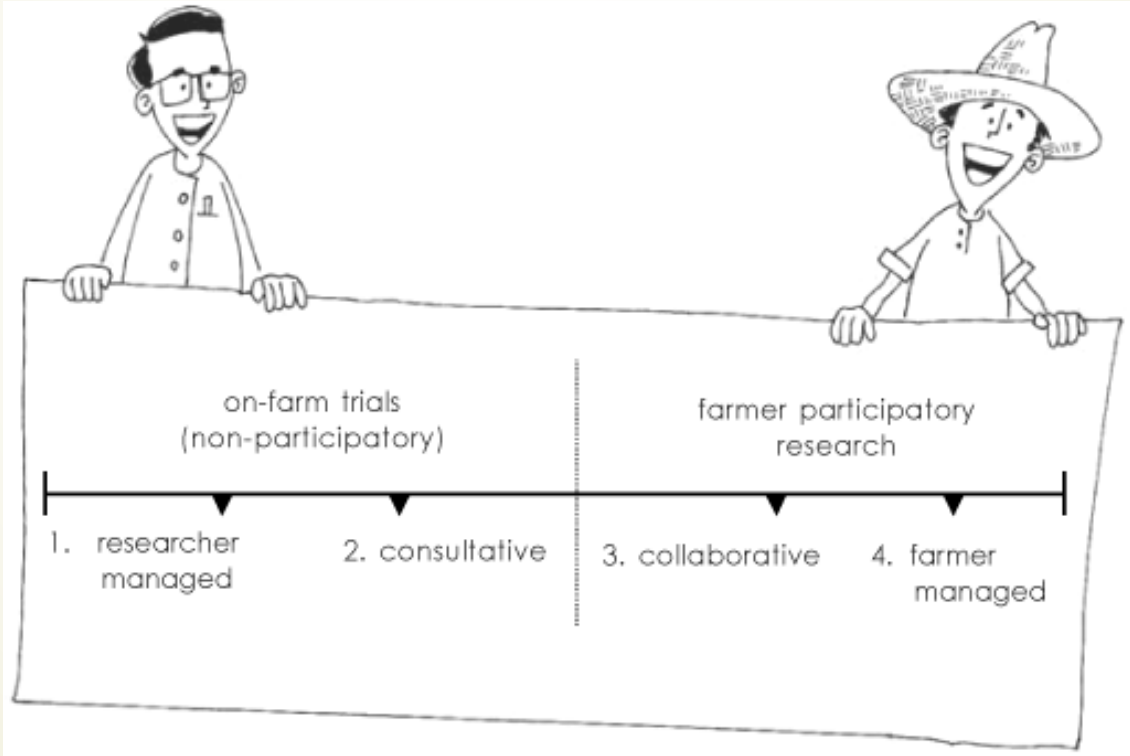
On-farm research

- Observation
- Experience
- Experimentation
- Systematic
- Scientific method
- Statistical analysis



- Observation
- Experience
- Experimentation
- Systematic?

Introduction and inspiration

- History of farmer-driven research
  - Pre-1950s: Small, independent farmers
  - 1950-1980s: Land grant universities, agricultural extension, "Get big or get out"
  - 1980s-present: Organic and local food movements

Introduction and inspiration

- How many of you are actively engaged in farmer managed experimentation/on-farm research?
- What are some pros and cons of solving problems for yourself as opposed to relying on extension?

Strengths	Shortcomings
• Consider only relevant issues • Detailed knowledge of local conditions • Relatively quick and adaptive • Context-specific • Holistic • Empowering and exciting • Strengthens relationships	• Limited knowledge of current cutting-edge science • Issues with precision, robust experimental designs, control, replicability, etc. • Limited communication

Introduction and inspiration

- Why is on-farm problem-solving and innovation important to you?
  - Changing weather patterns
  - Trialing new crops
  - Finding new markets
  - Fixing broken equipment
  - Managing pests and weeds
  - Enhancing soil health
  - Meeting customer demands
  - Coping with price volatility
  - Minimizing waste and environmental impacts
  - Reducing inputs while increasing yields

On-farm Problem Solving Process

- Identify farm vision
- Define farm system
- **Observe and evaluate the farm system**
- **Identify problems and opportunities**
- **Design actions**
- **Implement actions**
- **Evaluate actions**

Introduction: Jody Bolluyt: Roxbury Farm, Kinderhook, NY

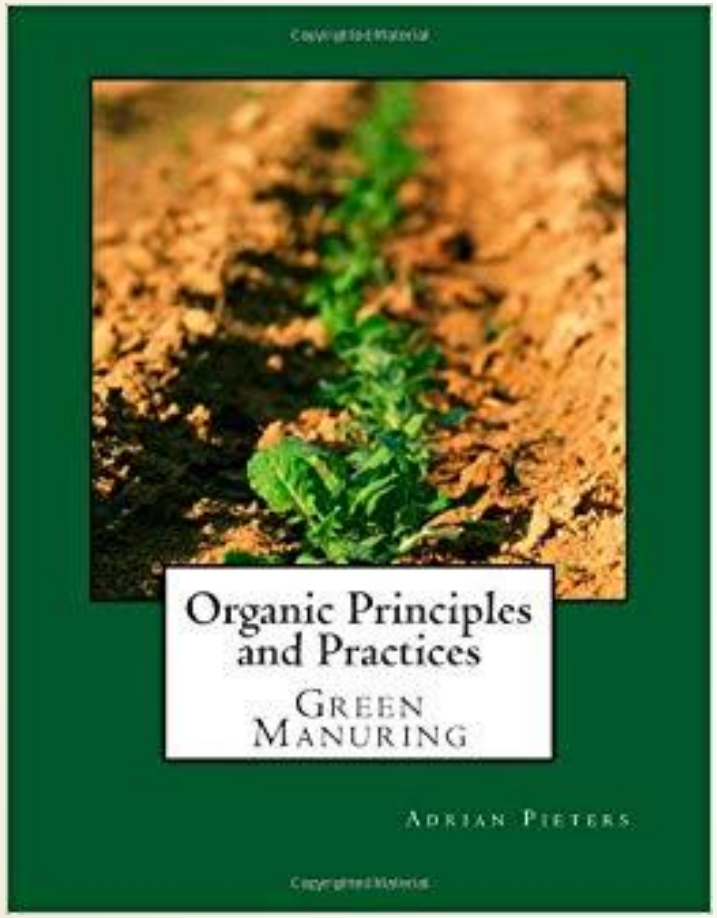
Observe the Farm System

- **Walk the farm**
- **Record observations**
- **Routine testing**
- Collect outside observations
- Taste your own food
- **Invite feedback from labor, customers**
- Assess equipment

Evaluate the Farm System

- Review farm calendar
- Analyze financials
- **Analyze records**
- **Establish benchmarks**
- Review past successes and failures
- Review means of production
- **Consult experts**
- **Prioritize problems/opportunities**

Design Actions



- **Investigate subject**
- **Research solutions/options**
- Assess risk/rewards
- Choose course of action
- Design trial
- Identify success criteria

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Design Actions

Bell Beans	Control	Fava Beans

Fall 1: Control	Summer 1: Broccoli	Fall 2: Fava Beans	Summer 2: Broccoli	Fall 3: Bell Beans	Summer 3: Broccoli

Bell Beans	Control	Fava Beans
Control	Bell Beans	Fava Beans
Bell Beans	Fava Beans	Control

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Design Actions

- *Guidelines for SMART indicator selection*
  - **S**pecific
  - **M**easureable
  - **A**chievable
  - **R**elevant
  - **T**ime-bound

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Implementation

- Collect resources
- Allocate time
- Assign duties
- **Execute plan**
- Collect data
- Monitor results
- Fine-tune actions
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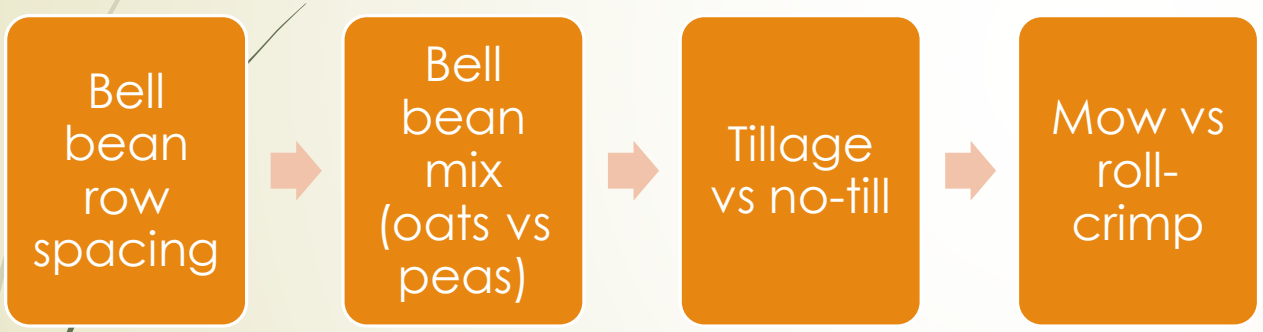

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Implementation

Field Peas			Oats			Field Peas + Oats			Control		
Till		Roll / crimp	Till		Roll / crimp	Till		Roll / crimp	Till		Roll / crimp	
Favabeans	Control	Bellbeans	Favabeans	Control	Bellbeans	Favabeans	Control	Bellbeans	Favabeans	Control	Bellbeans	Favabeans	Control	Bellbeans	Favabeans	Control	Bellbeans

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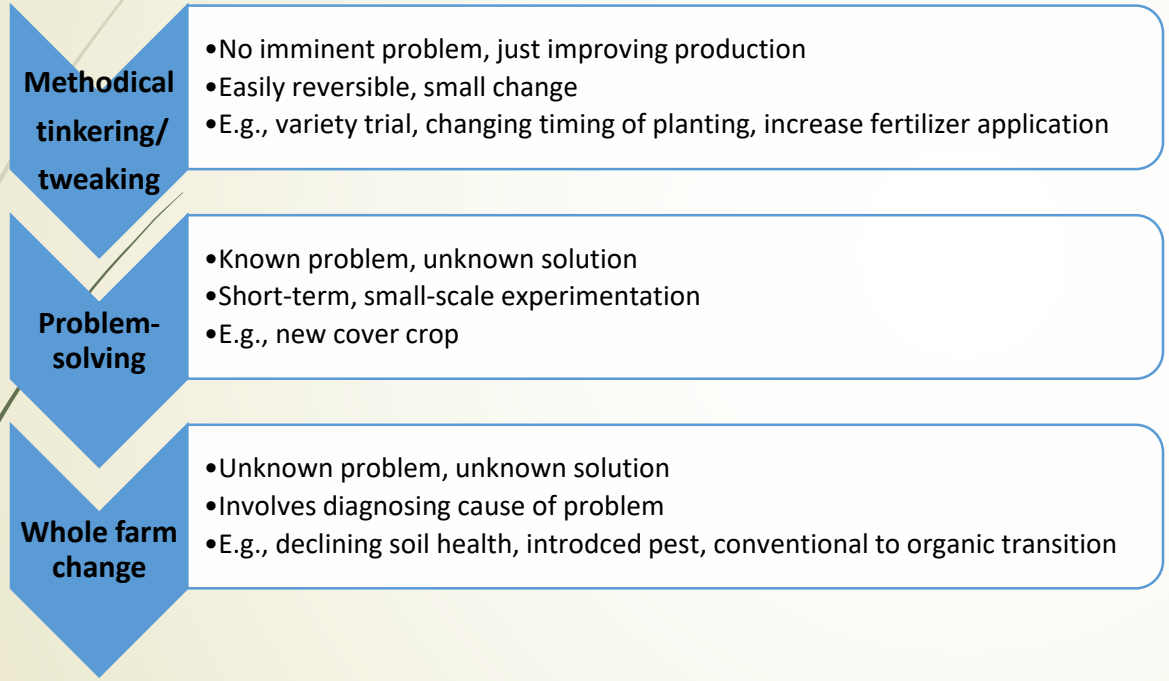
Evaluation



- **Observe end result**
- **Analyze data**
- **Reassess risks and rewards**
- Invite feedback
- Determine next steps
- Share results

Evaluation

- Observe end result
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- **Invite feedback**
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- **Share results**

Conclusions

- Luck and observation
- Know what you have and what you want
- Listen to your customers
- The experts aren't always right
- Adaptive management as a repetitive process
- Evaluate multiple combinations of treatments
- Ensure your experiment is realistic (a part, not apart)

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Thank you for your consideration

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