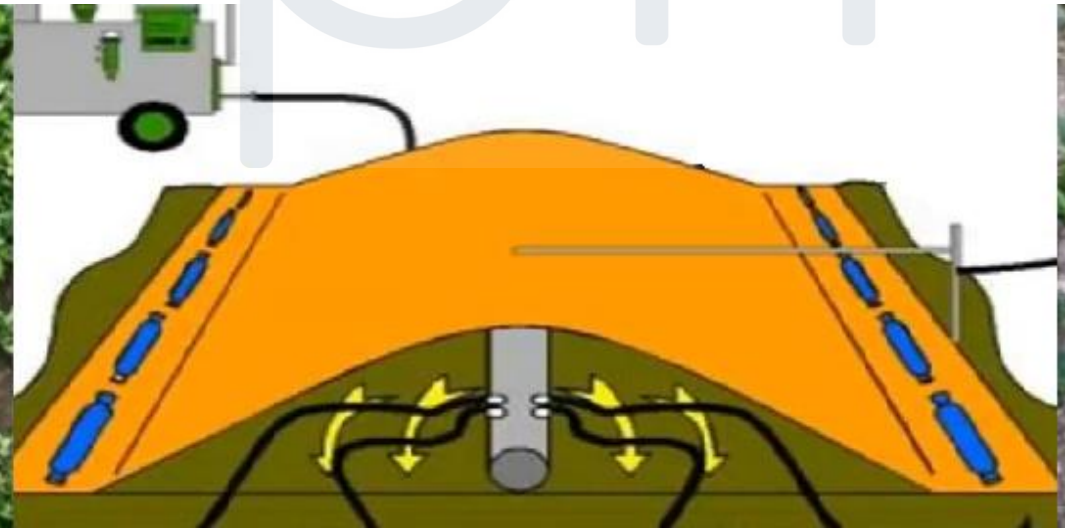
USING STEAM STERILIZATION IN THE SOIL

Practical Farmers of Iowa

January 11, 2025

Agenda

- Introduction
- How to steam sterilize soil
- Why sterilize soil – Cultivation
- Major impacts on your business
- Takeaways



Today's Speaker

- Tony Vannice, MBA, PMP
- Tangled Roots Farm
- 20 Years Controlled Environment Agriculture
- 30 Years HVAC & Building Automation

How to steam sterilize soil

- Determine depth of required sterilization
- Soil preparation – aeration & moisture Content
- Cover and seal process area with approved cover
- Inject superheated steam under the cover
- Regularly measure & monitor soil temperature
- Maintain optimal soil temperature
  - 30 Minutes
  - 170-180 degrees Fahrenheit

Cultivation outcomes from sterilization

Pros

- Disease & fungi prevention – Pythium
- Weed seed bank reduction – Chickweed, Mallow
- Removal of harmful organism - Phytophtora
- Enhanced seed germination
- Intentional microorganism placement

Cons

- Potential harm to non-target organisms
- Development of resistant weeds
- Loss of beneficial microorganism
- Inoculant and root shield application

Business outcomes from sterilization

Pros

- Reduced labor requirements – Weeding & IPM
- Increased yield – 4th & 5th cuts
- Increased revenue

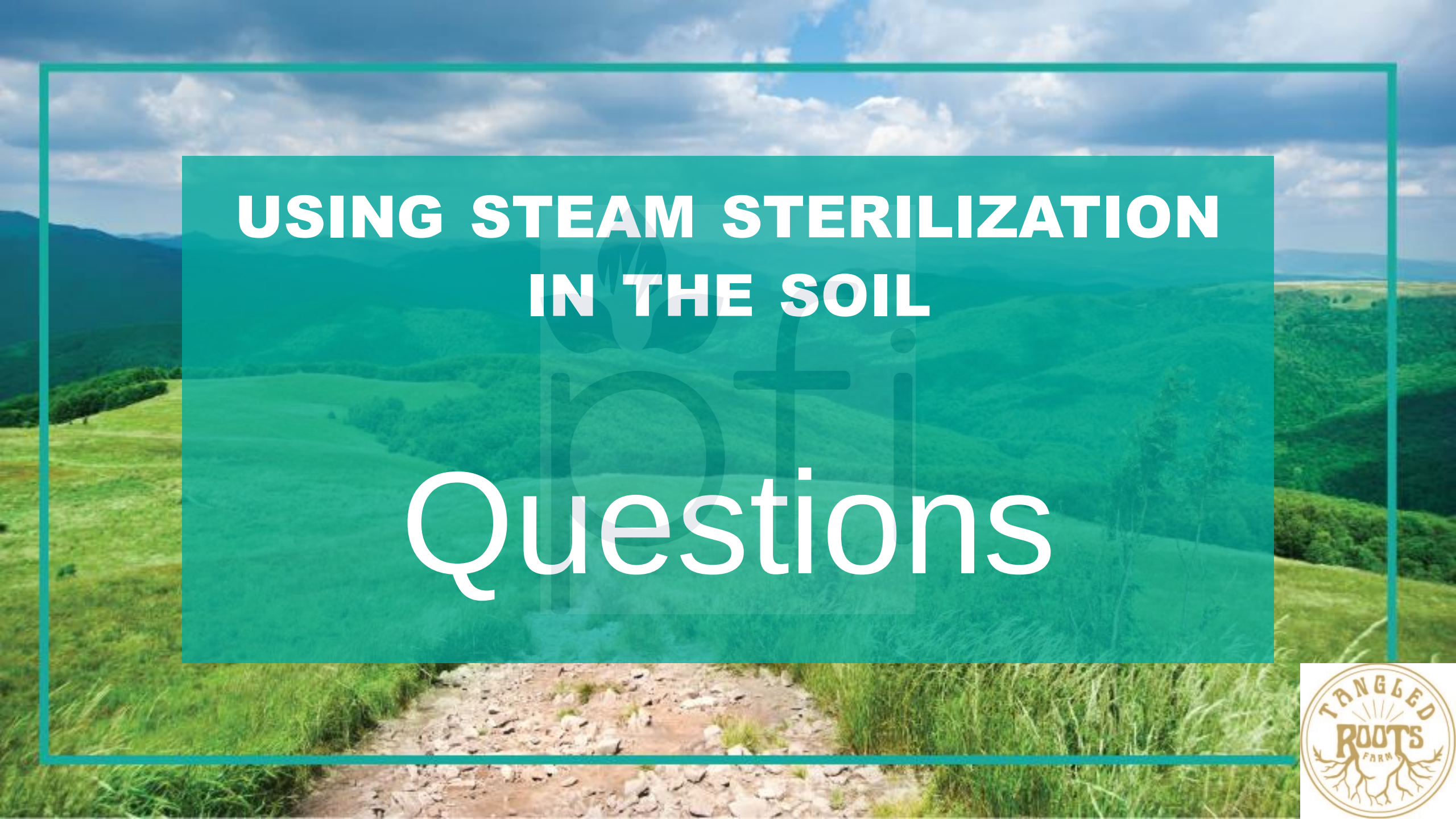
Cons

- Sterilization workshops & training
- Annualized learning curve
- Annual cost to perform sterilization
  - $0.17 - $0.21 per square foot

Key Takeaways

- Cost effective Integrated Pest Management system
- Opportunity for intentional microorganism deployment
- Year over year yield increases
- Continued reduction of labor requirements

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Questions
TANGLED
ROOTS
FARM