InocuPro

Root Fertilizer Production

2.009 Blue B

Woodie Flowers  Steve Haberek  Zach Eisenstat
Daniel Guarda  Phil Hum  Justin Holland
Levi Lalla  Wey-Jiun Lin  Tiffany Yang

10/20/05
Background

Mycorrhizal Fungi
5 grow bags/hour
Market

Small Farms
• Vegetable farmers, transplanted plants
• 84,000 farms 1-49 acres in US

Developing Countries:
• Consume over 63% of world’s fertilizer
• Manual labor

Competition:
• Phosphate fertilizers
• $1,500 on 9 acres
• Variable vs. Fixed
Design Challenges

Tumbler:

- Occasionally Jammed
- Excess Particles
Grinder/Cutter:
- Power/Speed

Grass? Seeds? Rocks?

Circulation of root:
Vblade $\gg$ Vroot
Design Challenges

Grinder/Cutter: (cont.)

- Circulation of root: Vblade >> Vroot
- Blade spin from bottom
- No spinning axle revealed
- Speed ≈ 3000rpm
- Flail blade
Design Challenges

Integration: