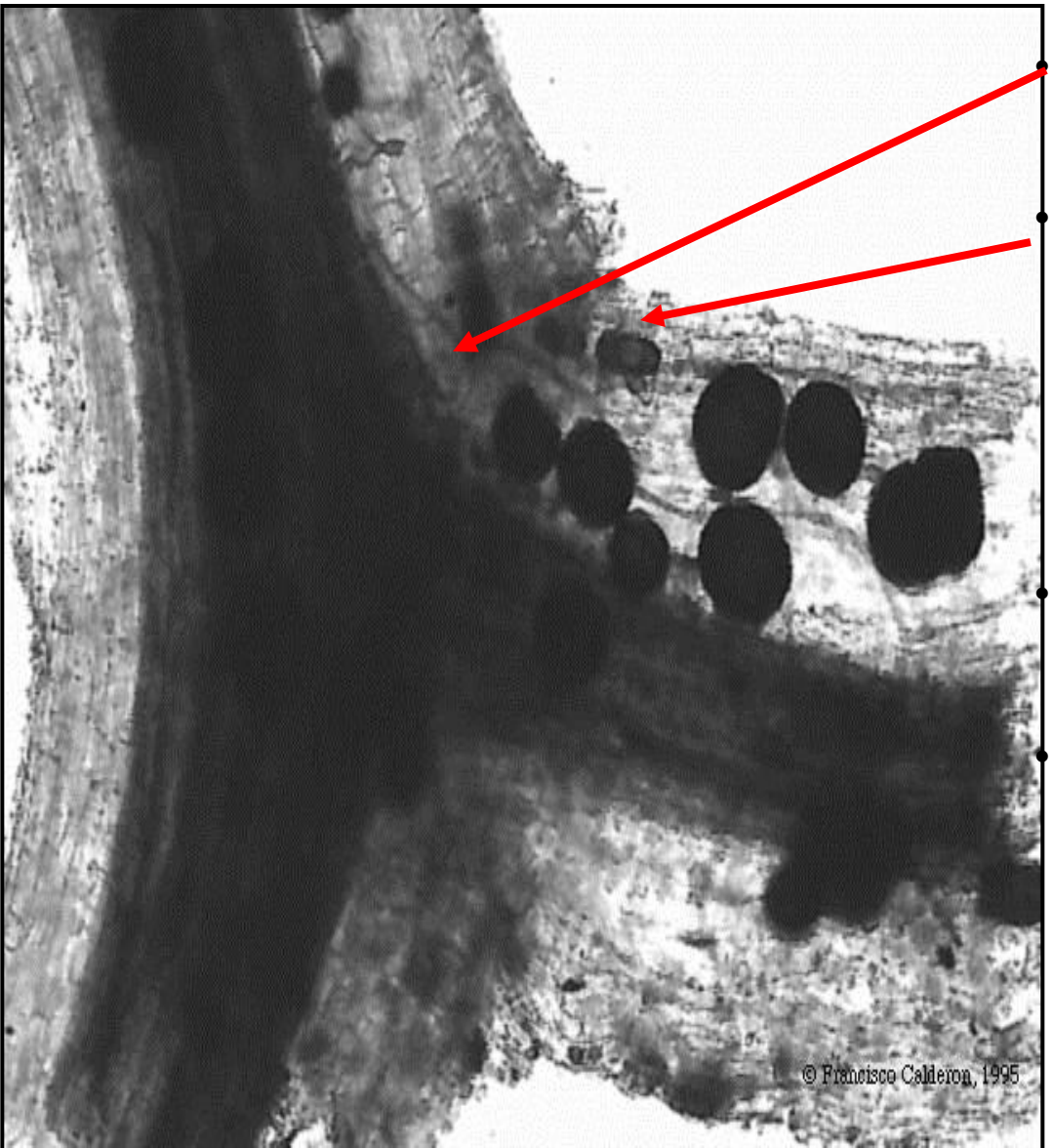
MYCO SEED TREAT

INCLUDES MYCORRHIZAL FUNGI



- **Live in symbiosis with most plants**
  - **Plants provide sugar for the fungi**
- **Hyphae**
  - **Become an extension of and supply nutrients to the plant roots**
  - **Hold moisture**
  - **Provide a protective zone around the roots**
  - **Aggregate soil**
- **Apply**
  - **Close to where roots will grow**

Endomycorrhizal(VAM) species:

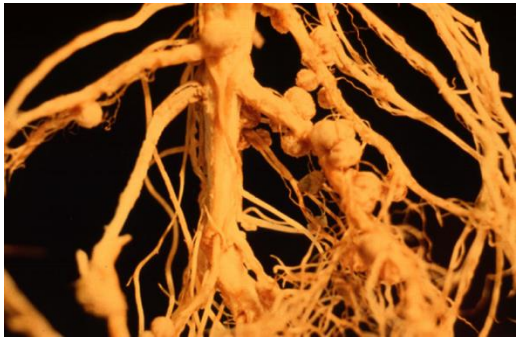
- ***Glomus mosseae, Glomus intraradices, Glomus fasciculatum, Glomus dussii, Glomus clarum, Glomus deserticola, Glomus microaggregatum***

Rhizosphere

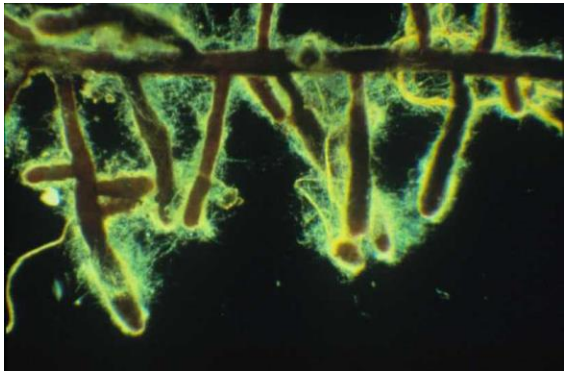
- Zone surrounding the roots of plants
- Influenced by root secretions (rhizodeposition) and soil microbes (bacteria & fungi)
- Plant roots exude many compounds into soil:
  - Sugars/carbohydrates, amino acids, organic acids, polysaccharides, and enzymes
- Complex relationship between:
  - plant roots
  - Soil microbes
  - Soil

Benefits of Rhizosphere Microbes

- Make nutrients available to plants
  - N, P, Fe
- Produce growth-stimulating phytohormones
  - Indole acetic acid (IAA)
- Enhance the positive effects of symbionts
  - Increased nodulation and N content of plants
- Reduce the negative effects of pathogens
  - Produce antibiotics and enzymes that interfere with pathogens
  - Competition for resources



Microbes in AER products



- Mycorrhizae
  - Fungus
  - Symbiotic association with plant roots
  - Benefits to plant
    - Increases availability of nutrients
    - Increases water uptake
  - In return for making nutrients and water available to plant roots, mycorrhizae obtain food (sugar) from plant
  - Helps grow and sustain healthy crops

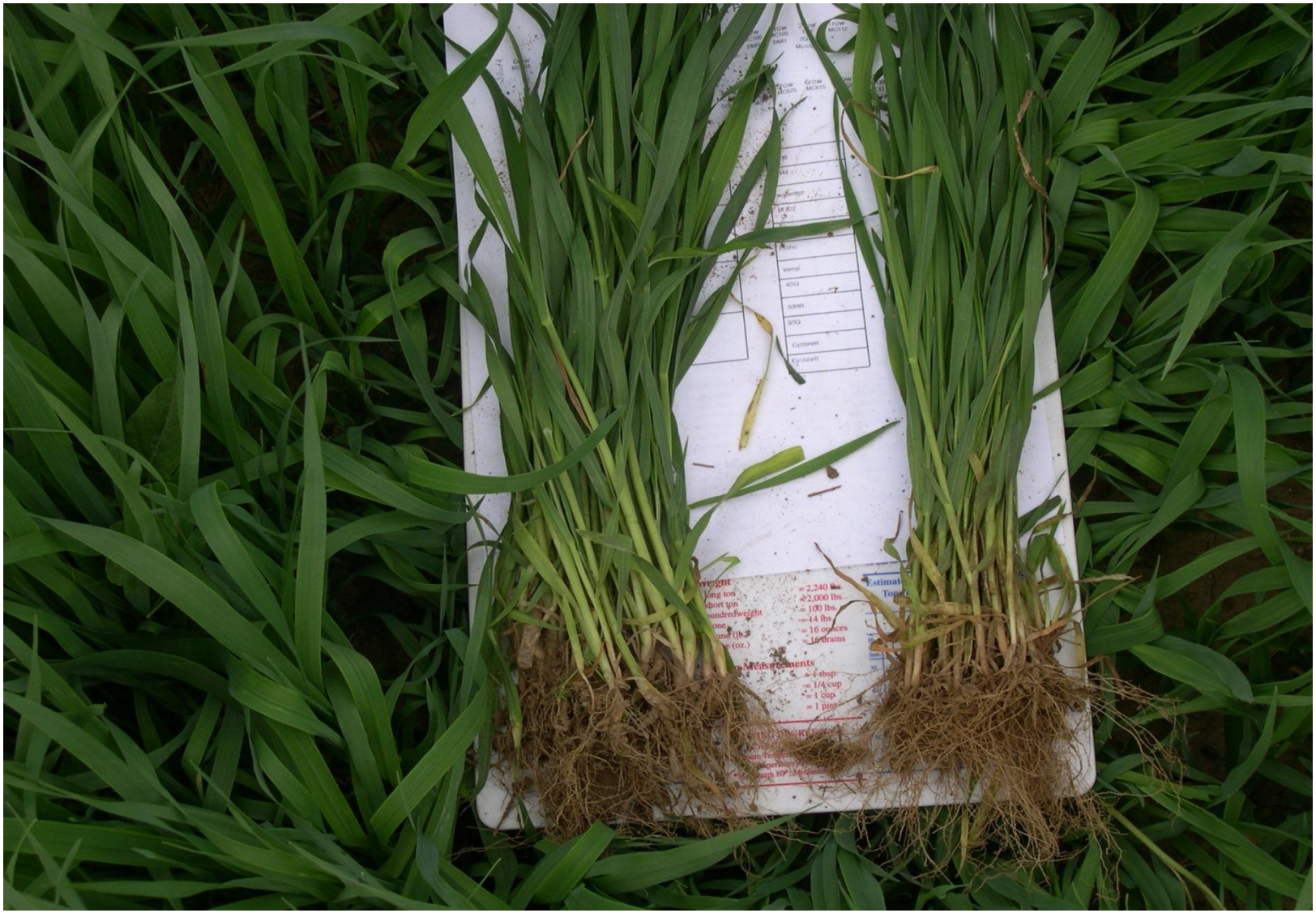
Microbial Seed Inoculation
3 weeks after planting

- Soil inoculant
- No Soil inoculant
- Increased development of fine root hairs

Inoculation of seeds

- **Increased microbial activity**
- **Pushed nutrient cycling**
- **Increased nutrient availability**
- **Enhanced shoot & root growth**

- **Long Term Overall Effect**
  - **Greater impact on all soil life activity**



MST TREATED

UNTREATED

Alfalfa

MST TREATED

UNTREATED

AgriEnergy Resources®

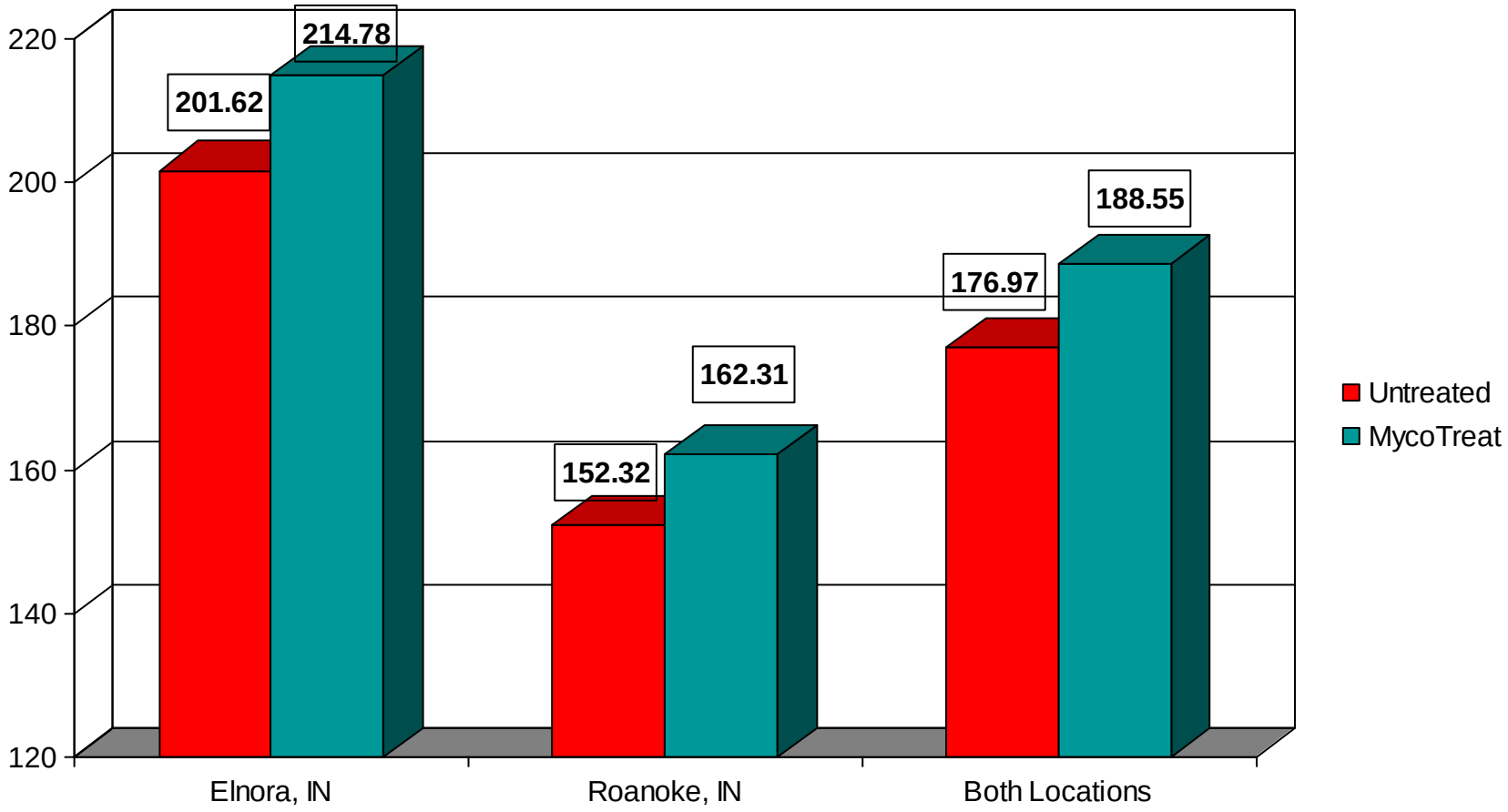
2005 W. Illinois U. Research

- Non-GMO Corn
  - Untreated 99.9 bu/a
  - Treated w/ MST 112.6 bu/a **+12.7**
- Organic Blue Corn
  - Untreated 97.9 bu/a
  - Treated w/ MST 108.5 bu/a **+10.6**

Allison Organic Research Farm 2005 Corn Production Trial Results

McDonough Co., IL

Effects of Myco Seed Treatment on Hybrid Corn Seed Yield (Bu/A)



Trial 07LF4C

Variety – 108 RM RoundUP

2007

Research conducted by the Tryon Group, Madison WI

MST in 2009
Corn in Bucyrus, OH

With Myco Seed Treat	163.88 Bu/A	+6.88 Bu/A
Without	157.00 Bu/A	

109 day maturity hybrid
Trial harvested as part of a hybrid plot by third party participant

Grower observed weak emergence except where he used the MST

Grower observed visible improvement throughout the growing season

2006 W. Illinois U. Research
Myco Seed Treat

- Organic Soybeans – 2 varieties
  - Untreated 40.9 bu/a
  - Treated w/ MST 44.1 bu/a **+3.2**

4 replications of each variety

LSD: 2.6

Allison Organic Research Farm 2006 Soybean Seed Treatment Trial Results, Dr. Gerald Vigue and Andrew Clayton

McDonough Co., IL

AgriEnergy Resources®

3 Year Average Beck's MST Plots- Soybeans

BECK'S Soybean Seed Treatment Study - 3 Year Averages

Treatment	2004	2005	2006	Average	Diff from Untreated	Diff from Sure Gro
Sure Gro + MST	**69.4**	**59.6**	**67.9**	**65.6**	**4.8**	**3.6**
Sure Gro + Apex Pro	65.0	59.2	67.6	**63.9**	**3.1**	**1.9**
Sure Gro + Myconate	65.6	58.1	65.8	**63.2**	**2.3**	**1.1**
Sure Gro + Cruiser	61.8	57.4	68.7	**62.6**	**1.8**	**0.6**
Sure Gro + America's Best	59.7	60.2	66.8	**62.2**	**1.4**	**0.2**
Sure Gro	63.3	56.3	66.5	**62.0**	**1.2**	
Trilex AL	57.3	57.1	65.4	**59.9**	**-0.9**	**-2.1**
Untreated	62.5	54.7	65.3	**60.8**		**-1.2**

Comparison includes only the treatments that were studied in all 3 years of trials

MST Trial
Lena, IL 2013

	Moisture %	Yield (bu/a)	
• Control – no MST	12.4	62.30 bu/a	
• With MST	12.4	66.85 bu/a	**+4.55**

- Soybeans: 30” rows, no till
- Myco Seed Treat (MST) applied on seed in planter box

HELP BOOST YIELD POTENTIAL

USE MST AND SP1 TO GET SEEDS OFF TO A GREAT START
AND AID IN CONTINUAL NUTRIENT CYCLING