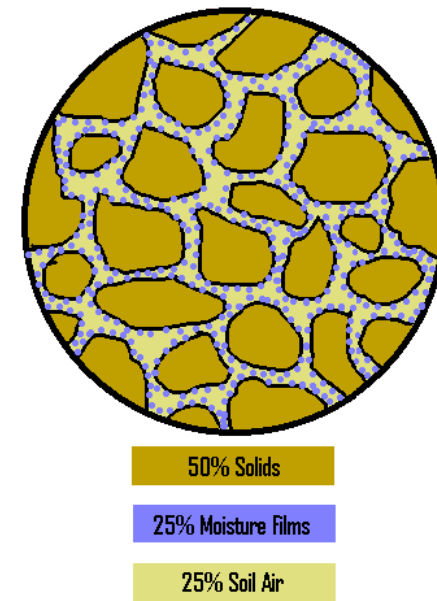
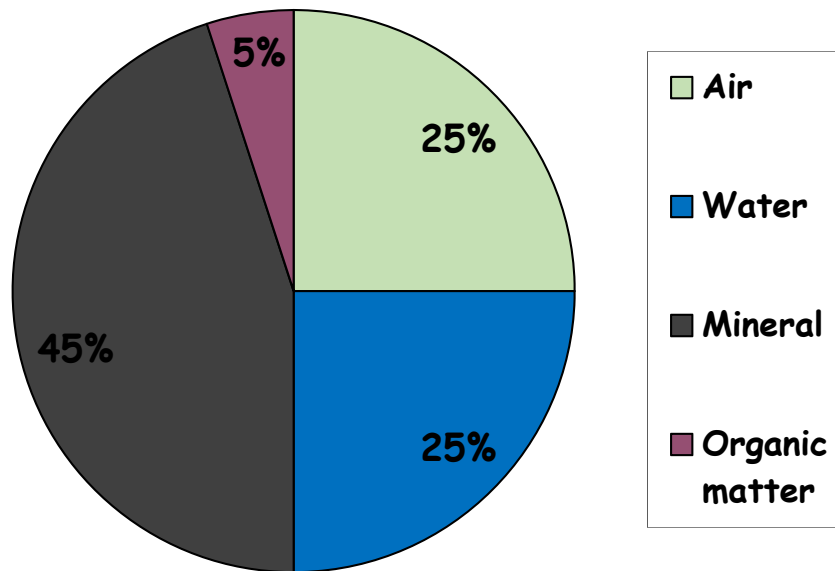


What is soil?

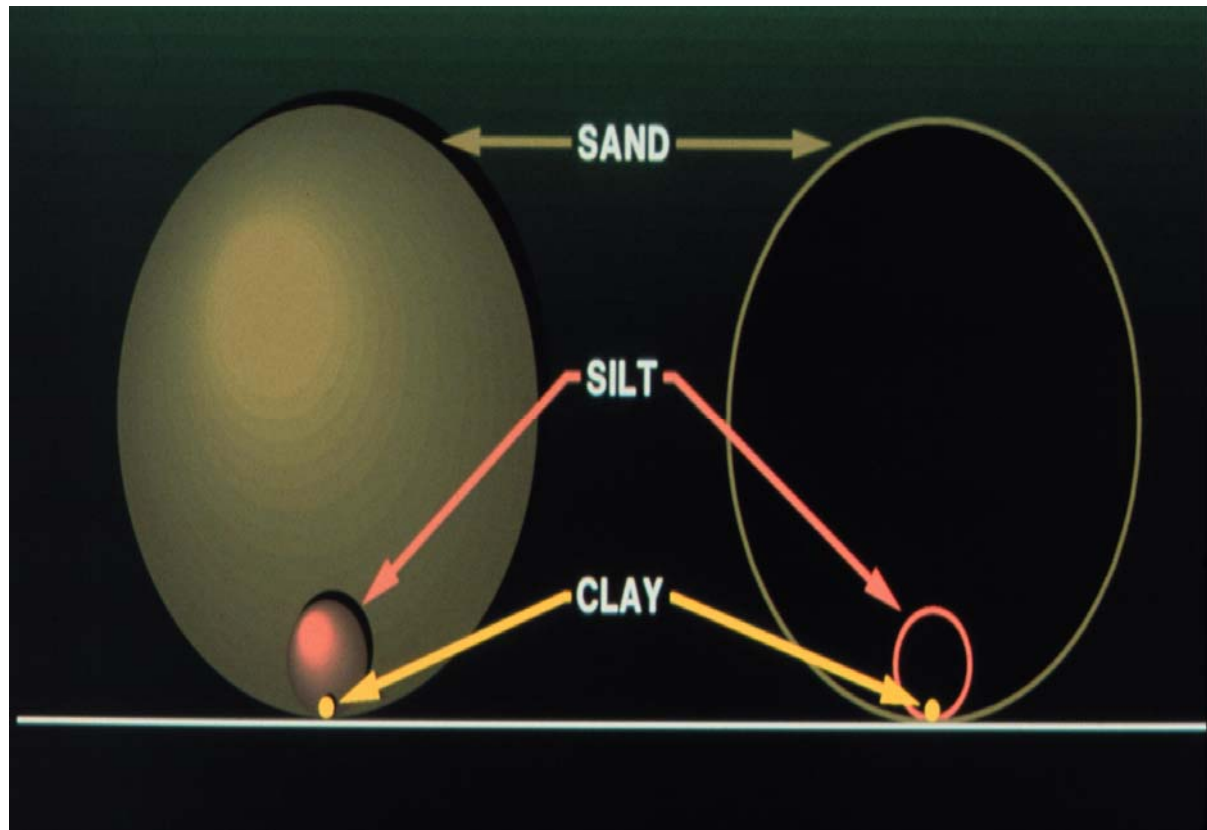


Source: NRCS Soils Resources

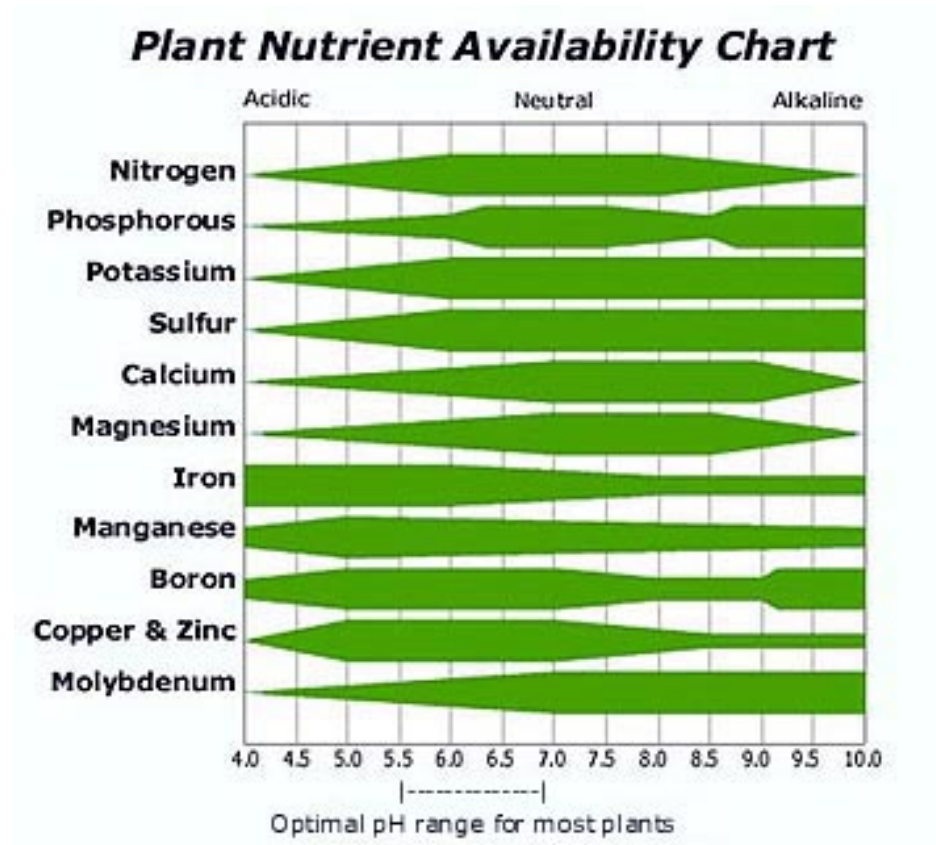
Soil Chemistry

- All soils contain some levels of basic nutrients
 - Macro-nutrients: N, P, K
 - Secondary nutrients: Calcium, Magnesium, Sulfur
 - Micronutrients: Boron, Copper, Iron, Chloride, Manganese, Molybdenum, and Zinc

Basic Units of Soil: Sand, Silt and Clay



Nutrient availability varies with pH







Soil Test is Essential

Element	lbs/acre*	Very Low	Low	Optimum	High	Very High
Phosphorus (P)	129					
Potassium (K)	114					
Calcium (Ca)	7,941					
Magnesium (Mg)	410					

Element	Value	Element	Value	Element	Value
Soil pH	7.4	Zinc (Zn), lbs/acre	7	% OM	3.6
Iron (Fe), lbs/acre	2	Aluminum (Al), lbs/acre	12		
Manganese (Mn), lbs/acre	28	Soluble Salts, mmhos/cm	1.1		

Organic fertility

- Pre-incorporate Nitrogen
 - Soy, alfalfa, feather or blood meal
- Sulfate of Potash
- Phosphorus
 - Rock phosphate
 - Bone meal
- Compost

AGMINO 14-0-0

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Available in 3 sizes: 1 lb. Bag, 5 lb.
Bag, 25 lb. Bag

DESCRIPTION

TOTAL NITROGEN (N) 14.0%
14.0% Water Soluble Nitrogen

GUARANTEED ANALYSIS

DOWNLOADS

APPLICATION RATES

Derived from:

Soy Protein Hydrolysate

Does not contain animal protein. Non-GMO.

LIQUID MICRONUTRIENT

Home / PRODUCTS / LIQUID & SOLUBLE FERTILIZER
/ LIQUID MICRONUTRIENT



Available in 3 sizes: 1 quart, 1
gallon, 2.5 gallon

DESCRIPTION

GUARANTEED ANALYSIS

APPLICATION RATES

DOWNLOADS

TOTAL NITROGEN (N) 2.0%

2.0% Nitrate Nitrogen

SOLUBLE POTASH (K₂O) 1.0%

BORON (B) 0.1%

0.1% Water Soluble Boron (B)

COPPER (Cu) 0.1%

0.1% Water Soluble Copper (Cu)

IRON (Fe) 2.0%

2.0% Water Soluble Iron (Fe)

MANGANESE (Mn) 2.0%

2.0% Water Soluble Manganese (Mn)

ZINC (Zn) 2.0%

2.0% Water Soluble Zinc (Zn)

Derived from:

Sodium Nitrate, Potassium Sulfate, Sodium Borate, Copper Sulfate, Ferrous Sulfate, Manganese Sulfate and Zinc Sulfate.

Listed by the Organic Materials Review Institute for use in organic production.

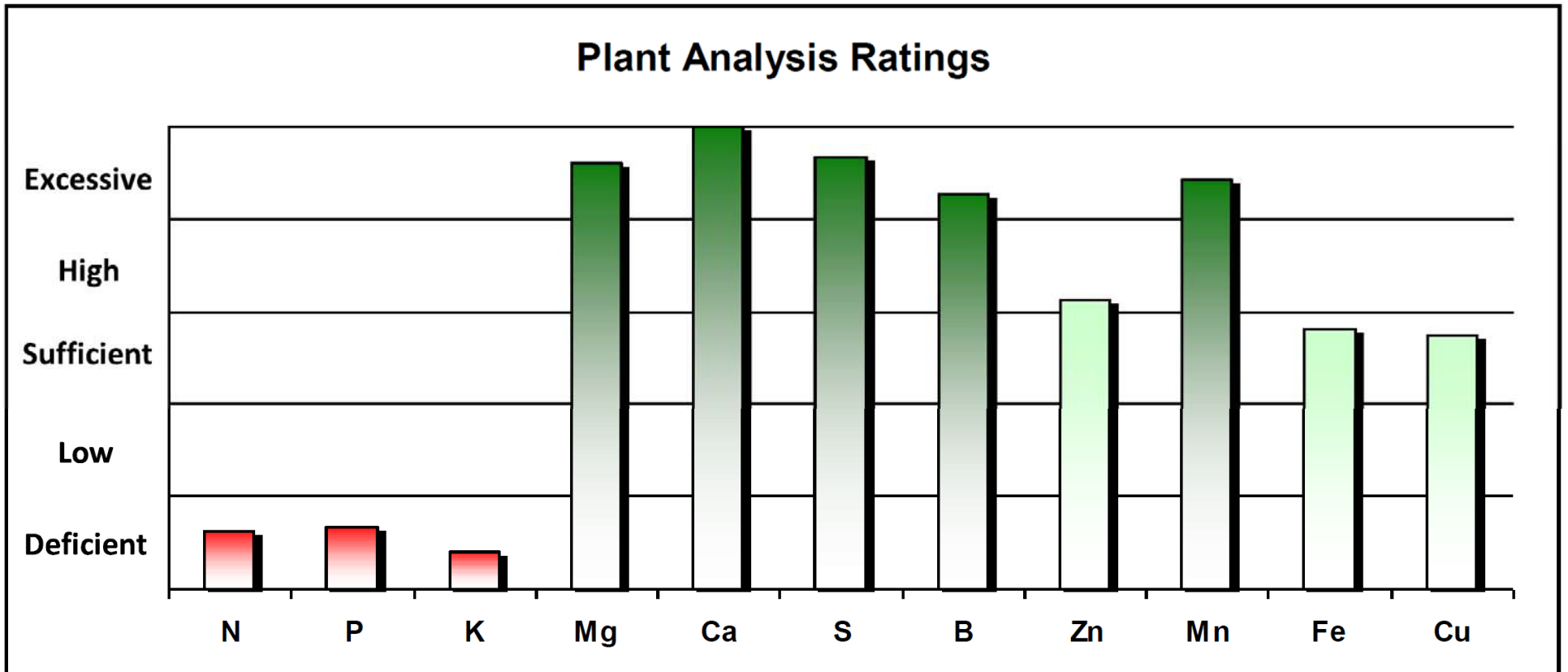
Conventional nitrogen sources with no additional phosphorus or magnesium

- Urea (46-0-0)
- Calcium nitrate (15-0-0) **calcium concern**
- Sodium nitrate (16-0-0) **salt concern**
- Potassium nitrate (13-0-44)



Foliar Test also Essential

Element	N %	P %	K %	Mg %	Ca %	S %	B (ppm)	Zn (ppm)	Mn (ppm)	Fe (ppm)	Cu (ppm)
Result	2.27	0.17	1.08	1.36	7.48	2.42	95	34	282	111	16







1/10/2020, 11 weeks old

Legumes & N Fixation

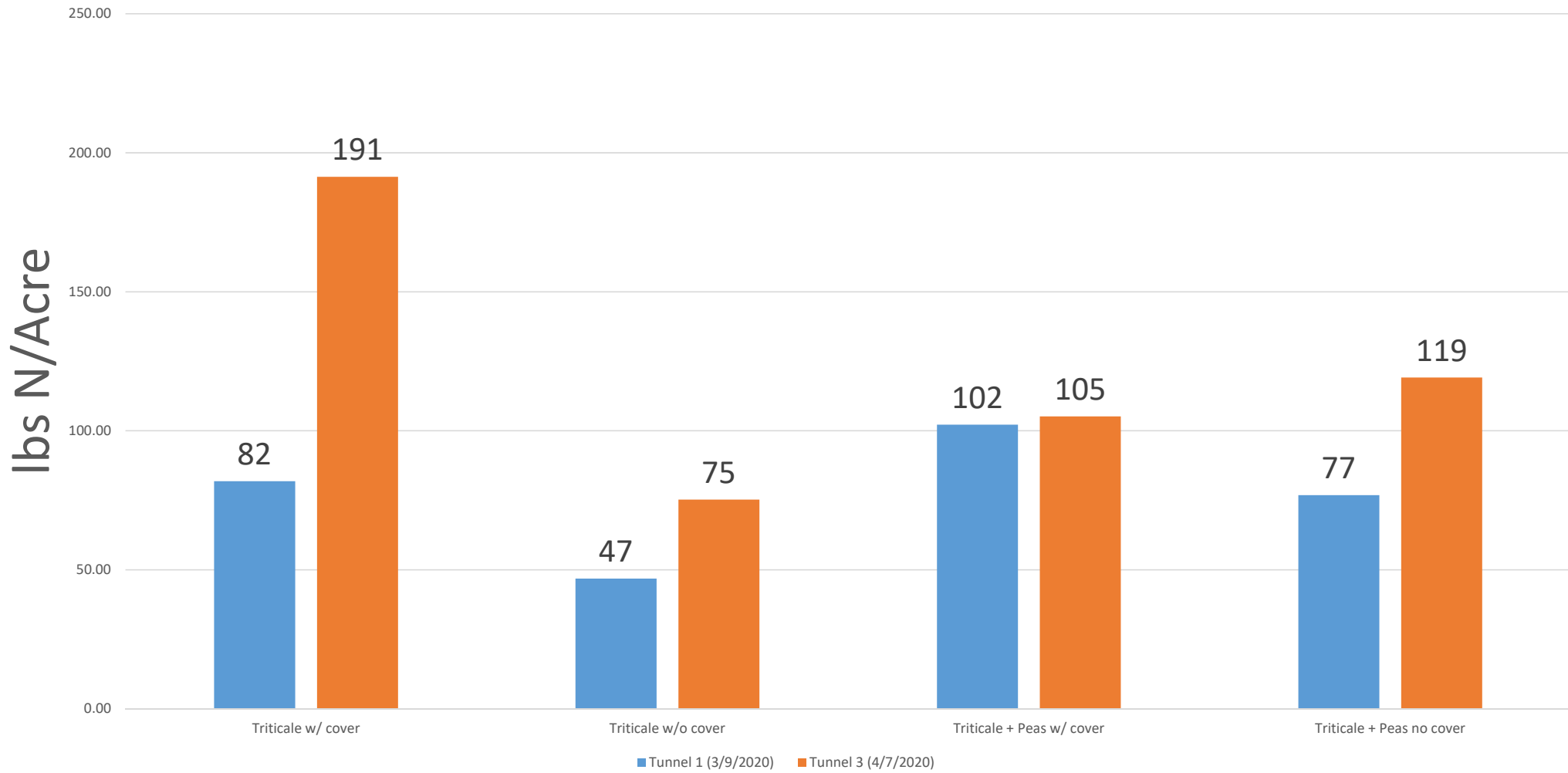
- Symbiotic relationship between plants and Rhizobia bacteria
- Plant provides shelter, food \leftrightarrow bacteria fix atmospheric N_2 gas into NH_3
- Naturally occur in soil
- Species-specific!
- Bacteria invade the roots and produce small nodules
- Pink hue inside nodules = leghemoglobin (carries oxygen to the bacteria)
 - Is a sign that nitrogen fixation is occurring!



1/10/2020, 11 week old plant

credit: C. Tucker

2020 End of Season N Contribution



Irrigation Water

pH

Alkalinity

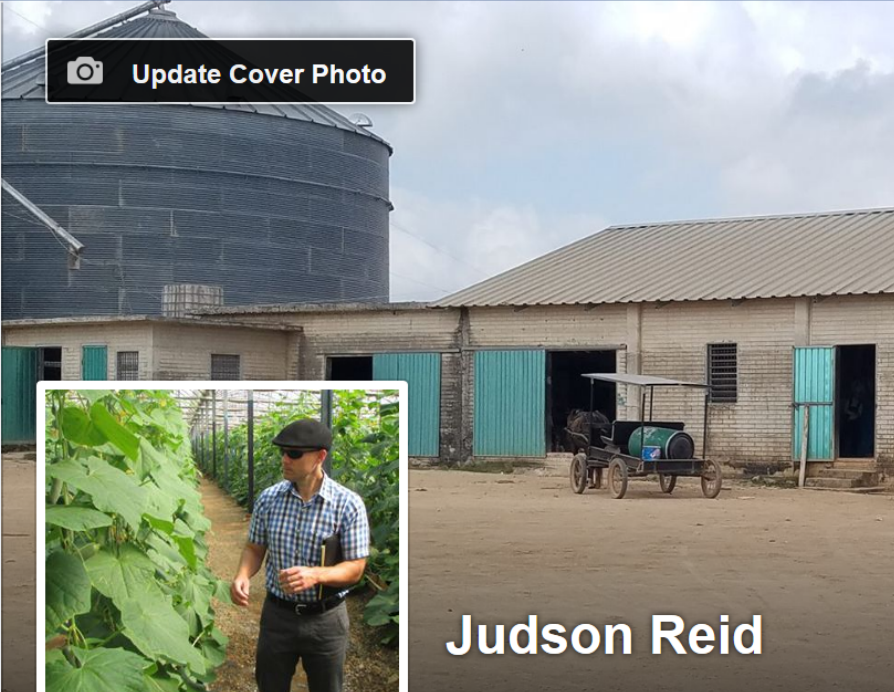
Injectors





Judson Reid

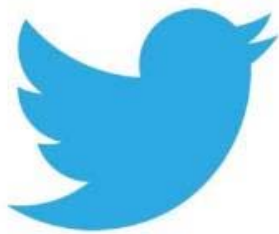
Update Cover Photo



Judson Reid

Timeline ▾

About



@Jud_Reid