

95 % of all chemical reactions in soil occur due to a biological function...

- Why is there little attention to Soil biology?
 - Taken for granted
 - Pathogens
 - Soil sterilization
 - Moving target





The Need for Microbes



For Every Action....

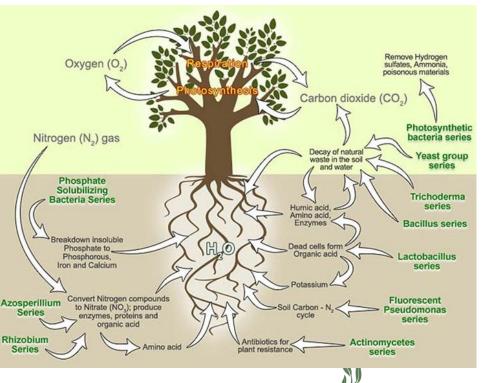
- Farming
- Leveling
- Plowing
- Fertilizing

- Chemicals
- Compaction
- Sterilization
- New Technologies



You Need Microbes to Mitigate Your Actions

- Bacterial activity is responsible for almost 90% of all biological and chemical actions in the soil.
- Scientific research corroborates that the Nitrogen conversion and other plant growth and health mechanisms are reliant on microbes.



Soil Chemistry in the Soil is....

- Either Oxidized or Reduced by bacteria or fungi to make nutrients available....
- Unless you provide the plant with the form the plant needs only, we have to rely on soil biology to make the conversion



Why You Need to Add Microbes?

- Soil samples consistently show soil lacks <u>proper</u> microbes at effective levels. (active and % active)
- Soil lacking in the proper microbe population is like a vehicle all fueled and tuned up but missing spark plugs. It is still going to run but will not get maximum performance.





More of the Good is Better

Good Offsets Bad

On the insect level we add more "good bugs" to offset bad pests – same thing works on the microscopic level.

Strongest Element Occupies the Space

In nature there are no free spaces so the strongest element occupies the space. If good bacterial life occupies a space it vigorously repels pathogens on the bacterial battleground, as it is far higher in the competition hierarchy. Where there is good bacteria, there is less for pathogens.

 Create an environment where other pathogens have a difficult time competing (Verticillium Wilt/Phytophera)





Better Microbes = Better Results

Microbes are essential to the physiology of plants - more of the right microbes will help plants produce better.

- Speed up nutrient conversion.
- Increase the efficiency of fertilizers and other inputs such as herbicides and fungicides.
- Improve water penetration and holding capacity.



Better Microbes = Better Results

- Produce amino acids that help:
 - chelate minerals for better uptake into tissues
 - prevent insoluble metal complexes
 - eliminate mineral and salt toxicities
- Microbes transform plant material into humus



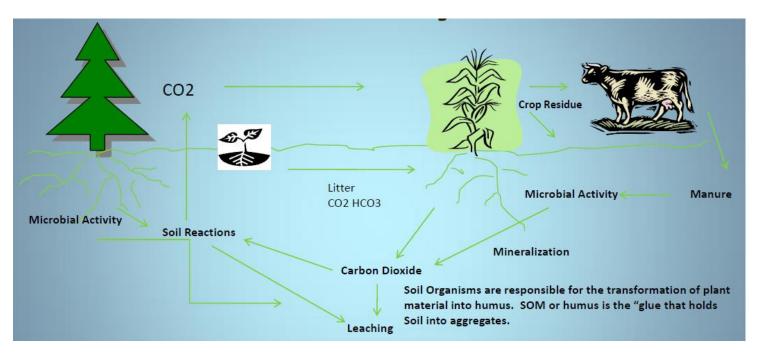


Better Microbes = Better Results

- Aerate the soil
 - Reduces compaction (lower diesel costs to till)
 - Reduces run-off
- Help adjust pH
- Microbes are the key "processors" of waste. More of the right ones will facilitate a better functioning waste system.
- Degrade materials chemical, oil, plant residue, waste
- Reduce odors



Microbes do the Work



Photosynthesis.

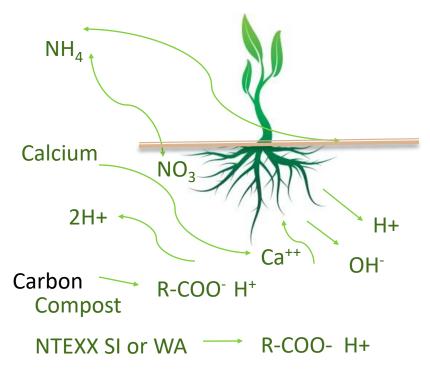
Through the process of photosynthesis, plants absorb CO2 from the atmosphere, transform it into plant carbon, sequester it in either above - or below-ground biomass and/or soil carbon.

There are two kinds of Soil Organic Matter:

- Short-term SOM is residue that is readily decomposed. Short-term SOM is a source of Nitrogen, Phosphorus, and Sulfur for plants.
- Long-term SOM (humus) is the carbon that resists decomposition and lasts a long time



Microbes Condition the Soil



Influence colloidal processes

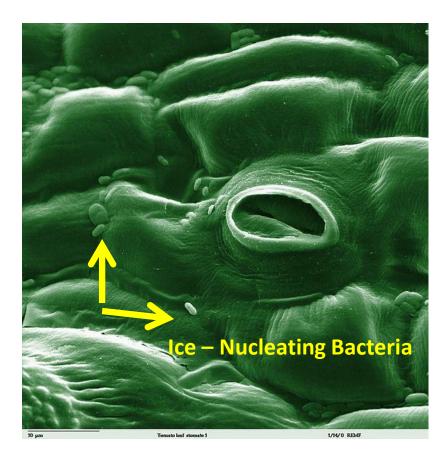
Influence Soil pH

- If ammonia is present and available to plant roots the plant in exchange for the ammonia will release from it's roots H+ ions into the soil resulting in a decrease in soil pH.
- If Nitrate is present and available to plant roots the plant in exchange for the Nitrate will release from it's root OH anions or bicarbonate into the soil resulting in an increase in soil pH.

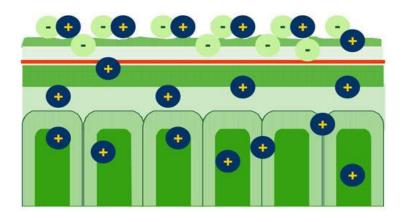
- The microbes break down complex carbon sources into smaller units of carbon called organic acids which drives the soil pH down.
- This increase in the supply of H+ ions from the production of organic acids influences cation absorption



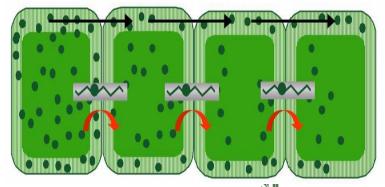
Foliar Feeding with NTEXX to Transport Nutrients



Adsorption occurs in cuticle – gradient



Translocation in plant



Prime-

Biofertility Improves Soil Tilth, Aeration and Water Availability

-PGPR

+ PGPR



Bacteria build Micro aggregates

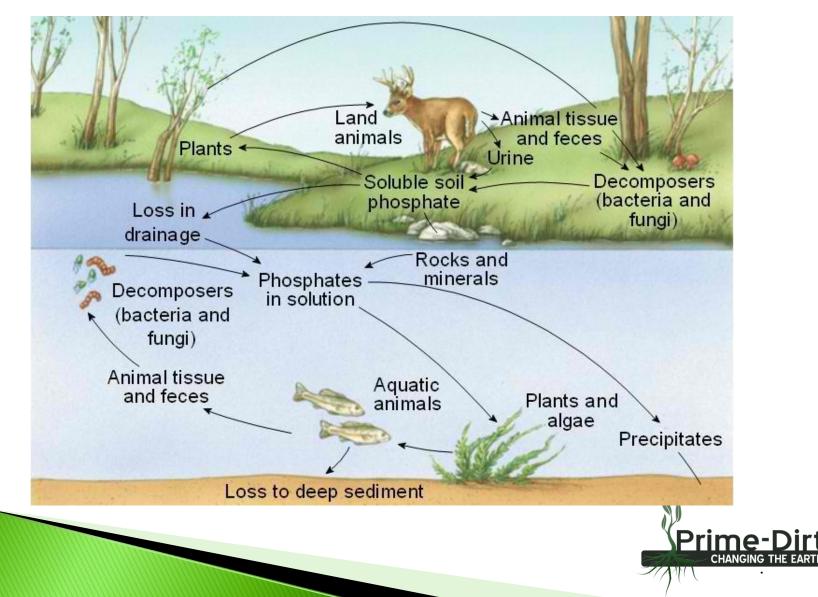


Fungi and fine roots build Water Stable Macro aggregates

= Water penetration and root development



Phosphorus Cycle



N-TEXX Products Make Nutrients Available to Plant Roots, Tissues, and Fruit.

N-TEXX microbial products contain specialized microbes that produce specialized enzymes that:

- Break down carbon
- Convert ammonia to nitrate
- Solublize phosphorus found in complex carbon sources
- Produce precursors to plant growth hormones that trigger root growth, lateral branching, and fruit development or clustering
- Help to move (translocate) nutrients through leaves, stems and roots.



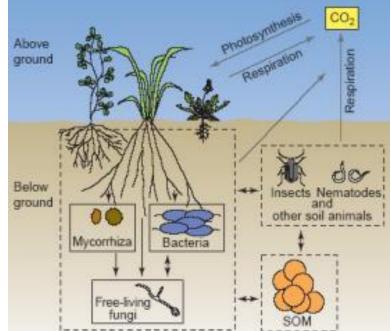


SOIL INOCULANT WITH HUMUS



N-TEXX[®] Soil Inoculant with Humus

- CXI proprietary microbial culture with 3% liquid humus.
- Inoculates soil with naturally occurring soil microorganisms to enhance:
 - nutrient cycling,
 - soil structure,
 - root production, and
 - moisture retention.
- Improves soil environment for plant growth by building the aerobic zone of the soil.







OMRI Restrictions: May only be (i) applied to land used for a crop not intended for human consumption; (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles. Use as a pesticide is Restricted to use as a pest lure, repellent, or as part of a trap, or as a disease control. May only be used for other pesticidal purposes if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices.



N-TEXX[®] Soil Inoculant with Humus Features

- Enhances fertilizer program by increasing plant nutrient uptake.
- Reduces crusting of topsoil.
- Increases root mass growth.
- Increases seed germination emergence.
- Improves water infiltration.



N-TEXX[®] Soil Inoculant with Humus Features

 Easily applied using various irrigation systems (spray, trickle, overhead, drip, surge, and L.E.P.A.)



- May be soil and/or foliar applied
- Affordable cost.
- Animals may graze immediately after application.



For Best Results

- Ensure application or transfer tank is free of residue. If using chlorinated water, let tank sit for 24 hrs. (with lid removed) before mixing.
- Do not apply when a crop is severely stressed.
- May be mixed with 2-4-D herbicides.

- Do not mix with fungicides or insecticides and do not apply within 2 weeks of applying fungicides.
- Clean sprayer and nozzles thoroughly with water or soap mixture (do not use anti-bacterial soap).
- Stable for up to 1 year when stored as directed.
- Product is best stored under 90°F. Keep container closed tightly.
- Optimal temperature range for microorganisms is 50º-100ºF.



Alfalfa



Alfalfa







Alfalfa



	TDN	ADF	Protein	Ton/Acre
Avg All Cuts	56.22%	23.83%	21.43%	1.37
4th Cutting	56.33%	23.70%	21.63%	1.16



ALFALFA_"

Alfalfa-Data-from-54-samples-taken-April-Sept-2013¶

- - 2qt/acre-Soil-Inoculant-with-Humus-at-herbicide¶
- - 1qt/acre-15-5-5-Bio-Soil-Enhancer-after-every-cutting.¤

и	As-Received¤	90%Dry·Basis·(%)	100%·Dry·Basis·(%
1·Dry·Matter¤	91.43%¤	¤	¤
2·Acid·Detergent·Fiber¤	23.94%¤	23.57%¤	26.18%¤
3·Crude·Protein·(N·X·6.26)¤	21.36%¤	21.03%¤	23.37%¤
4·Total··Digestible·Nutrients¤	57.50%¤	56.63%¤	62.70%¤
5-Net-Energy-for-Lactation¤	.589- _{Мса//в} ¤	.578• _{Мса//в} ¤	.642 ⁻ мса//в¤
6-Potassium¤	1.68%¤	1.65%¤	1.84%¤





Wheat

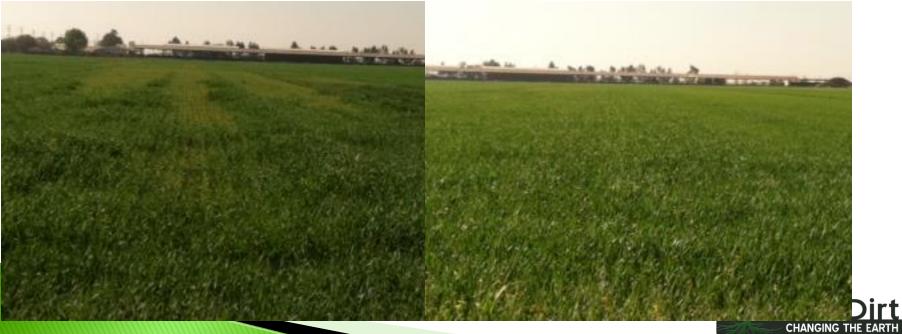












MA.

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Wheat 2012







80 Acre Field 20 Untreated Acres & 60 Treated Acres

1 Qt/Acre at planting of Soil Inoculant with Humus

Planted Early November 2010 Harvested May 5, 2011

Results	Tr	eated	Untr	reated
Tons/Acre		24.44		20.38
Total \$/Acre	\$	1,099.74	\$	917.08
% Dry Matter		33.9%		27.6%
Protein		13.1%		13.5%
TDN		58.1%		51.6%
NEL (Mcal/lb)		0.54		0.46
NET PROFIT/Acre		\$172.66		







Kansas Wheat Field Trials

Reno County--Dryland

FOLIAR TRIAL	Plot #1	Plot #2
Control	30.57	30.57
Treated-2 quarts 15-5-5 Bio-Soil Enhancer	45.26	51.57
DifferenceYield	14.69	21.00
Difference-Test Weight	+1.56 lbs	+1.44lbs
Net Economic Impact	+\$52.12Acre	\$85.25/acre

FOLIAR TRIAL	Plot #3
Control	17.96
Treated-2 quarts NTEXX Soil Inoculant	25.33
DifferenceYield	7.37
Net Economic Impact	\$22.69/Acre







Kansas Wheat Field Trials-2018

Reno County Dry land

FOLIAR TRIAL	Plot #1	Plot #2	Plot #3
Control	35.93	44.47	44.47
Treated-1 quart NTEXX Soil Inoculant	40.15	53.73	49.11
DifferenceYield	4.2	9.26	4.64
Difference-Test Weight	+3 lbs (63.20)	+.4 lbs (63.10)	+.4 lbs (63.10)
Net Economic Impact	+14.05/Acre	+\$40.6/Acre	\$16.36/Acre





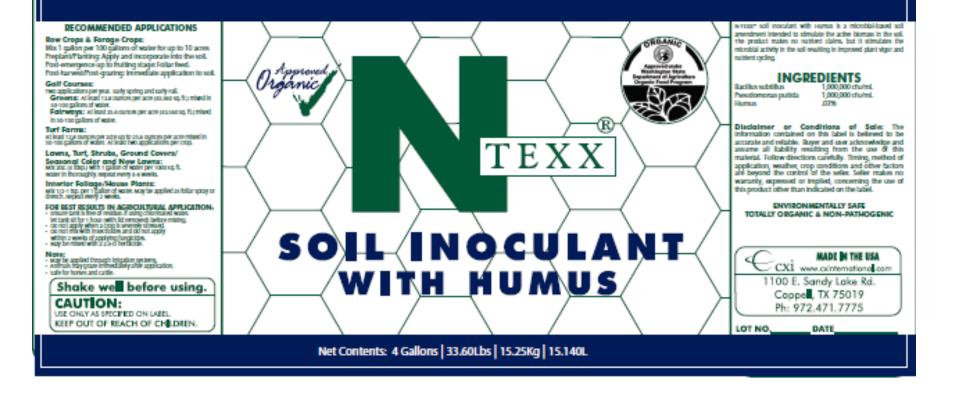


Wheat 2011



Results	ι	Intreated		Treated
Acres Treated		20		60
Tons/Acre		20.38		24.44
Total \$/Acre @\$45/ton	\$	917.08	\$	1,099.74
% Dry Matter		27.6%		33.9%
Protein		13.5%		13.1%
TDN		51.6%		58.1%
NEL (Mcal/lb)		0.46		0.54
Cost of Product			1q	t. @ \$10qt.
NET Increase \$/Acre				172.66









MATERIAL SAFETY DATA SHEET

HAZARD RATING

0-None 1- Slight 2- Moderate 3- High 4- Extreme

Hazard Rating

Fire 0 Toxicity 1 Reactivity 0

Product Name: N-TEXX® Soil Inoculant with Humus: Ingredients: Mixture of naturally occurring microorganisms in water and liquid humic acid.

Physical Data:

Boiling Point	Solubility in water100%
Vapor Press17 mm Hg.	Sp. Gravity1.050%
Appearance and Odor: Dark brown with slight odor (earthy).	

Fire and Explosion Hazard Data:

Flash Point	Nonflammable	Extinguishing Media
Special Fire Fighting Procedure	N/A	Fire and Explosion Hazard

...N/A

..N/A

Reactive Data:

Stability	Stable
Incompatibility	Pesticides, Fungicides, some Herbicides

Health Hazard Data:

Ingestion.....Slight Irritation Eye Contact....Slight Eye Irritation Skin Contact....Slight Irritation

First Aid:

Internal	Rinse mouth consult physician.
Eyes	Irrigate with water, consult physician.
Skin	Wash in flowing water.

Special Handling:

Avoid eye contact and wear eye protection and wear protective goggles and rubber gloves. Optimum Storage: Store indoors in a shaded area at 50-90°F. May be stored outside temporarily. Precautions to be taken in handling and storage--DO NOT FREEZE.

Spill or Leak Procedures:

Actions to take for Spills: Contain Spill -- mop or vacuum. Disposal Method: Disposal may be subject to federal, state and local regulations. Users of this product should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material.

No warranty expressed or implied

