

AGRICULTURAL TECHNOLOGY AT WORK



Grow the Farm...by growing good crops first....Exactrix Track Carriers Drive Crop Production Economics with outstanding chemistry and timing, formulating TAF, TAPPS, TAPPKTS

Advanced Fertilizer Technique of TAPPS and TAPPKTS is vermiculated with Tri-Ammonium Fulvate.



TAPPS Crystals

For Producers

The Yelder® Track Carrier with Exactrix application and controlled traffic improves the net margin

The Margin is improved up to \$300 per acre under center pivot corn production.

The margin is improved in irrigated winter wheat up to \$300 per acre. .

The entire machine investment is often paid back in the first year.

Corn producers with irrigation systems can challenge the 300 plus bushel per acre mark.

Dryland corn production has reduced risk with low input cost due to high crop availability of precision placed nutrients.



Fertilizer Dealers Promoting Primary N and Primary P of the Highest Quality and Uniformity.

Fertilizer Dealers Developing Top Yielding No-tillage Corn, Wheat, Milo, Soybean and Cotton Producers With Outstanding Economics.

Fertilizer Dealers Seeking Long Term Producer Relationships Offering The Most Crop Available Nutrients.

Fertilizer Manufacturers such as Helena Chemical, Tessenderlo Kerley and Koch Nitrogen supplying the best high quality materials.

Biological Manufactures supplying oils enhanced or compounded with natural Glucosinolate.

TAPPS has 166% more crop effective N....and TAPPKTS 200% to 300% more crop available P and K.

Liquid NH₃ at 82.4% typical...and guaranteed in every case at 82% N. The only material than can be used for Triple Super Ammonization (Industrial Process) allowing for a pH shift.

Hydra Hume 0-0-1-12% Humic acid derived from a New Mexico deposit of outstanding reputation. A geographical positioned Leonardite known for outstanding results with Exactrix solubulization to Tri-ammonium Fulvate.

Ammonium Poly Phosphate. Developed from Black Acid 0-68-0 as Primary P by the TVA and Shell. Locally built it is high polymer content 70% poly and 30% ortho. Allowing micro nutrient metals to be applied.

Potassium Thio Sulfate. Developed by Tessenderlo Kerley from Potassium hydroxide and refinery sulfur. K and two types of S.

Ammonium Thio Sulfate. Developed by Tessenderlo Kerley from Ammonia and refinery sulfur. Two types of S.

Calcium Thio Sulfate. Developed by Tessenderlo Kerley. Lime and refinery sulfur is the source. Two types of S.

Ammonium Chloride. Should be applied as a third product in or out of the vertical column.

MagThio. Must be applied as the third product outside the vertical column.

Liquid Micro Nutrients. Ammoniated or Chelated. Several suppliers. Hydra Hume in the mix requires a Chelated material.

Oils of Mustard. Source for Glucosinolate for band fumigation, applied as a third product.

Oils of Essex. Source for Glucosinolate for band fumigation, applied as a third product.

Calcium Sulfate. Soil microbe solution based delivery, applied as a fourth product.



How do they get those top yields?... Mustangs/Exactrix

Uniformity. Geometry. Chemistry. Timing. with No-tillage at High Speed.

Liquid Streaming Flows--- with 1% CV of high quality primary nutrients.

Powerful--- **Root Pattern Geometry---** using a stable platform to hit the NPKS sweet spot, with highly repeatable steering using real time kinetic global positioning.

Moist soil to very wet soils application is made with Capital T--- **Timing----** using 24 inch diameter Mustang Openers.

Banding very deep with--- **No-Tillage---**much deeper bands using the machine that can band at 7 to 9 inch depth in moist soil conditions with low compaction.



Steve McCasland, Yuma, CO.



June 17, 2012

Market Makers of Primary N, NH₃ and Primary P, Liquid Poly Phosphate and Thio-Sulfates of K, Ca and N.

Also designed for large fertilizer dealers and Coops moving 250 tons per day covering up to 1,000 acres per day at 60 feet to 120 feet in width.



Custom Application In No-Till.

Get The Timing Right With No-till.

Leave A High Quality Seed Bed.

Get The No-Till Nutrient Job Done With Top Yields At Top Nutrient Efficiency.

Fill Fast And Move Back To the Mark.

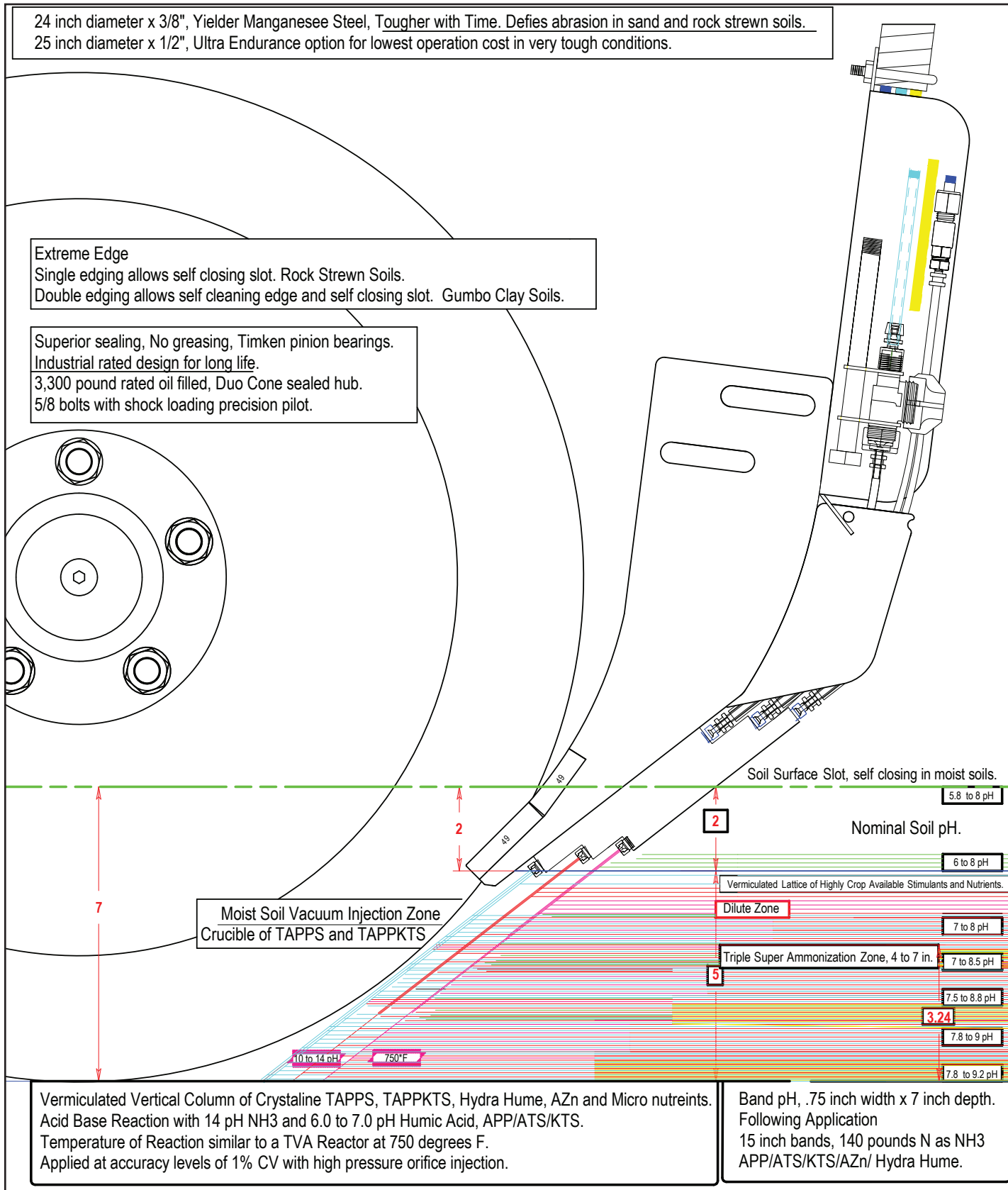
Get Exactrix Agronomy And TAPPS Formulation On Your Side Of The Fence.

More Is Done With Less...Move More Net Dollars To The Bottom Line.. Up To \$300/A Extra Net Income.

Economical Stabilization of Nitrogen with Thio-Sulfates

The Big N is crystallized at 750 degrees F in a very narrow diffusion zone. Nitrogen remains in place and the nitro-bacteria feedlot is hidden deep and made distasteful. Allows for fall banding in moist soil conditions.

The Cation Exchange Capacity or CEC of the band exponentially jumps with TAF or Tri-ammonium Fulvate (Hydra Hume is solubilized with Base Reaction NH_3)



Moist Soil Deep Banding In Dry Or Wet Weather Patterns

Allows 1,000 acres per day with the Mustang P-51C 60 foot, 80 foot and 90 foot Tool Bar.

Mustang Single Disc Openers.....highly durable with Yelder® manganese single or extreme double edged blades, low cost banding.

Stay in the tractor seat with 60,000 pounds of nutrient applying at 400 to 500 pounds per minute.

Delivery on site with large DOT transports.

Grow the farm...by growing good crops first.



Mustang P-51 C

For Large Coops and Independent Fertilizer Dealers.

Allows mobile blends on the go. Up to six products can be site specifically blended into the TAPPS and TAPPKTS banding column.

Stay in the tractor seat with outstanding monitoring and control of six products with data transmission to your office computer.

Yielder® Track Carriers and Exactrix are up to 10 times more functional than top dressing, two axle, floatation applicators.

Reduces application cost by timing the nutrients with a lot less invested.

Based on yield alone...Exactrix yields typical out-perform floater spinner application 20% to 30% across North America.

Yielder designs are well known and time proven...Get Additional Application Options with Yielder® Track Carriers.

Apply at 10 mph at 60, 80 and 90 feet

Apply at 1% CV in liquid streaming flows.

Apply deep without tillage at 7 to 9 inches and avoid the tie up of nutrients.

Go when the floaters can not apply.

Go in windy weather...

Go in Freezing weather.

Go in wet conditions with low soil compaction damage with 24 axles on the deck..



YIELDER® 60120

Vermiculated TAPPS and TAPPKTS banding at 7 inch depths produces record yields in 2012.

If you are going north of 300 bushels per acre you will find Exactrix TAPPS and TAPPKTS with Hydra Hume in your agronomy plan.

Mobile Chemistry of TAPPS and TAPPKTS can only be made on the go and formulated in low 1% CV bands

Break yield barriers in Corn and Wheat with TAPPS and TAPPKTS banded deeper and uniformly at speeds to 10 mph.



You leave the field with high confidence.

You leave an ideal seed bed with Mustang Openers banding deep at 7 inches.

You have the greatest potential with No-till when you leave the field confident every critical inch of moisture has been saved.

You have stopped the tillage....and you leave the field knowing stubble stands to snow trap the blizzard of snow.

You will be confident year after year....that you leave each and every field knowing that every nutrient placed band is uniform within 1% CV at a depth of 7 inches....every pound of NPKS is positionally located to meet the needs of the growing crop.

You may need to explain to a few other people that you leave the field knowing that Primary N is 166% more crop available, that Primary P is 200% to 300% more crop available and K is positioned to be 10 times effective than top dressed KCL.

Leave the field knowing that the machine is paid for in the first crop with average or better weather.

Leave the field knowing that if the weather does not cooperate your investment in a failed crop has been minimized.

It may take a couple of years or a lifetime to learn the value of No-tillage farming.

You have the mortgage lifting benefit of those that have lead the No-till Revolution with crop nutrients.

The Big Five.

1. **Uniformity**..... at 1% CV application using Mass Flow delivery 166% more crop effective N. P is 200% more crop effective and K is up to 1,000% more crop effective when crystallized in TAPPS and TAPPKTS.
2. **Geometry**..... is improved to meet the needs of the crop using powerful root colony banding techniques of the most advanced designs developed.

The Rotational Band Loading is improved by banding deeper for cereal root access over many years. The band geometry of 7 to 9 inch depth is recommended in moist soil conditions.
3. **Chemistry**....Super Ammonization of TAPPS and TAPPKTS (750 degrees F)...Vermiculated with Hydra Hume to assure high CEC in the band. Buffering of the band in liquid streaming flows allowing high crop availability.
4. **Timing**.....Go in tough conditions, cold and wet right down to 20 degrees F. Run on slippery slopes. Meet the needs of the crop in 95% of the cases. Band into growing crops timely.
5. **No-Tillage**....Finally a means to maintain soil life avoiding high cost tillage using deep banding openers such as the Mustang P-51C. Get the soil micro-flora on board with uniform bands hidden away from the micro-flora at much deeper depths and well below the oxygen level.



P-51 C Mustang Banding at 12.5 MPH, Lyons, KS

Exactrix producers moving to two pass in the Great Plains...better economics.



Three point mounting of the tool bar of various types and designs.

Several opener types are possible.

Single pass banding with tow behind planters and drills is common.



Colby, KS., 5 section, 3 point tool bar

Deere 1890, Set Up Ultra Endurance.

Large Diameter Yielder Blades/Hubs Change The Playing Field.

Deere 1890's Can Band Deeper and Run Faster With Exactrix Ultra Endurance Components.

A tool that can band....A tool than can seed.

The Deere 1890 can be used around the year in the Corn, Soybean, and Wheat Rotation.

Take Canola Yields To Level 10 With Highest NPKS Efficiency.

Highest Quality Seed Beds Result With TAPPS Single Disc Banding.

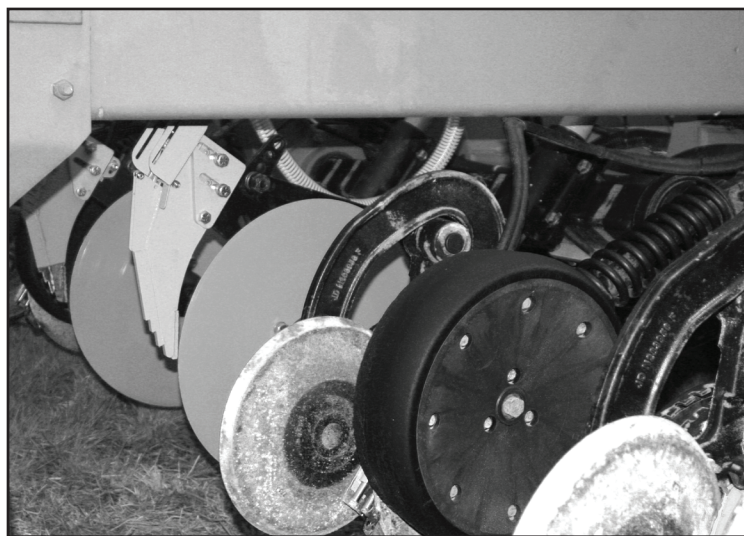
The Same Seeding Tool.....Allows fall banding of TAPPS and TAPPKS for Spring Canola production indexing canola seed rows on top of Exactrix TAPPS and TAPPKS.

Utilization of RTK guidance is required with optimized 10 inch spacing for maximized yield potential in Canola.

Typically 15 inch spacing used for Corn and Winter Wheat....and Spring Wheat with Fall Banding.



Snowing at Napoleon, ND



Genesee, ID

A Mustang Opener provides new life for the Deere 1895.... improved banding results...a trial...

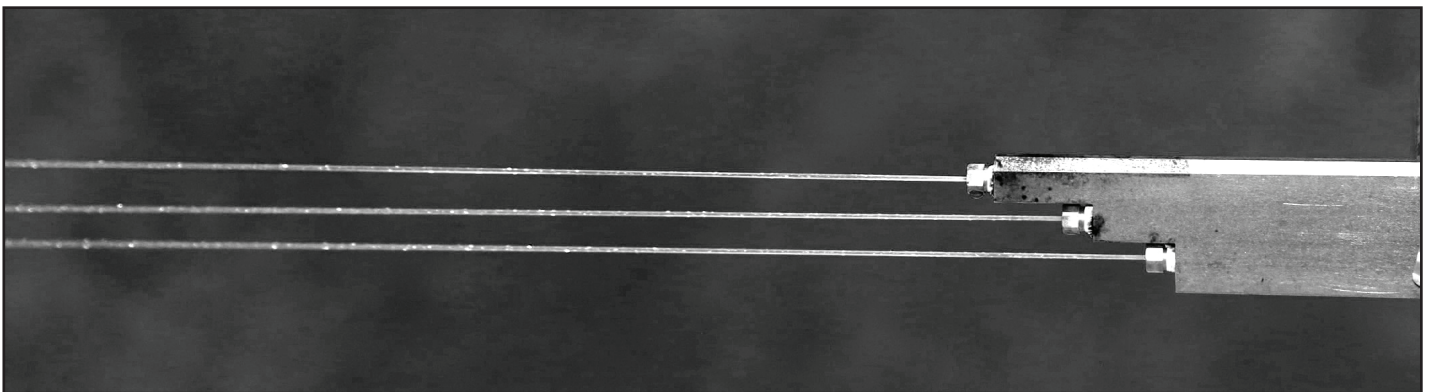
Swiveling Mustangs have low operating cost and can band deeper than Deere 1895 openers.

Mustang has very low operating cost and self sealing and allows the 1895 to operate as a bander only at deeper depths on narrower bands of 15, 14 or 12 inch.

Over time 1890 and 1860's can become banding tool bars since the higher operating cost Deere openers can be removed.



Deere 1890 at 60 feet...Front Gang Up. 15 inch band spacing. November Banding of TAPPS for Corn Production. North Dakota Producers Boost Yields With No-Tillage TAPPS Banding Of Soybean Rotation.



Liquid Streaming Flow. Advanced NH3 Sealing with Triplex Injection
Winner Of Two National Awards In No-Till Nutrient Management.



Manning, Alberta, the Brazil of the North. Fall banding for spring canola, spring wheat and spring barley.

The shining star of the Great Plains banding... The Case SDX

Case SDX....the Ultimate Banding Tool in Fixed Angle.

Holds the world record in Banding Nutrients at 14,000 acres in 20 days.

Durable....and available in Ultra Endurance.

10 inch band spacing is optimum with the Case SDX as banding tool bar.

Leaves the field in top condition for immediate planting or seeding.

The SDX has proven outstanding in banding TAPPS and TAPPKTS for corn production.

Compound disc angle bites in and keeps the Scraper Wing Injector in the Shadow of the Blade.

Also available in seeding and banding with air diffuser.





New Leipzig, ND. Spring banding for spring wheat and sunflower.

High Quality Fertilizers.

Bulk Density of six common materials used to build TAPPS and TAPPKTS.

ATS Ammonium Thio-Sulfate, 12-0-0-26S, at 11.10 pounds per gallon.

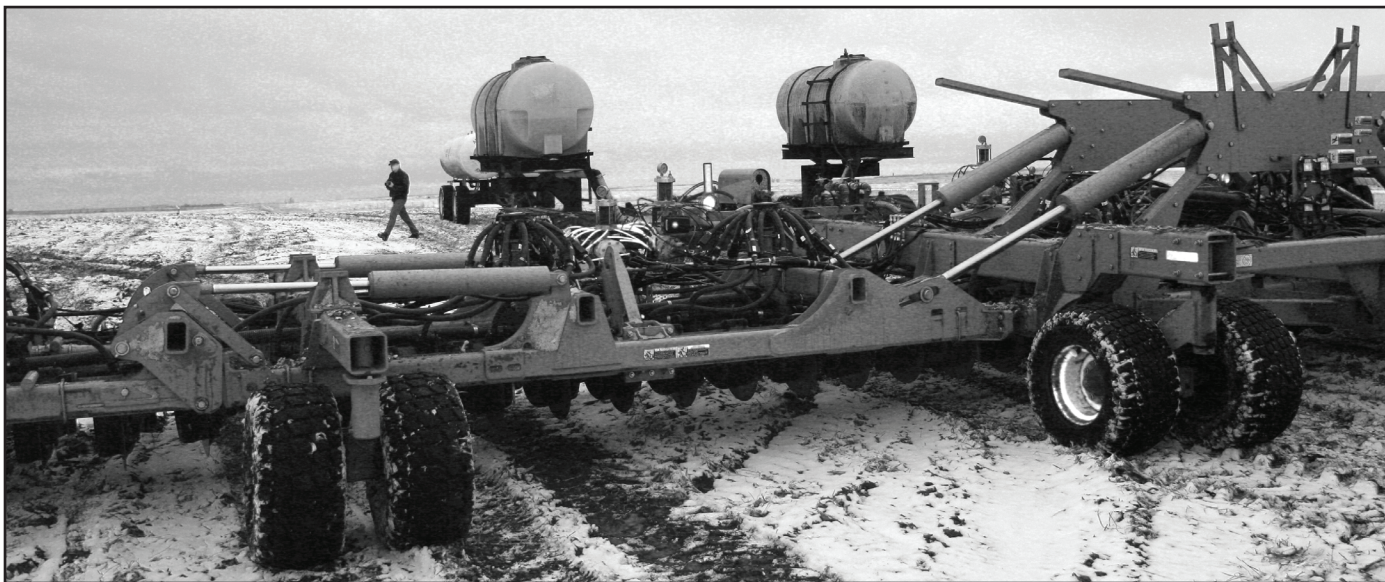
APP, Ammonium Poly Phosphate, 10-34-0, 11.65 pounds per gallon.

APP, Ammonium Poly Phosphate, 11-37-0, 12.00 pounds per gallon.

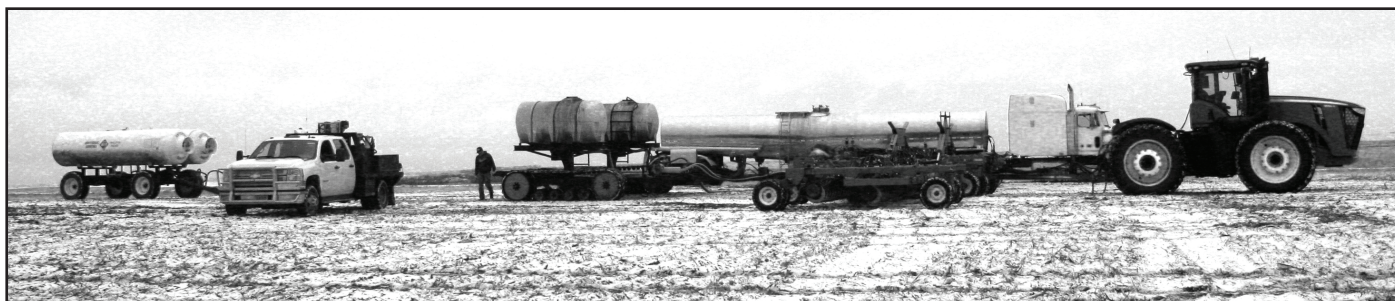
KTS, Potassium Thio-sulfate, 0-0-17-25S, 12.20 pounds per gallon.

NH₃, Anhydrous Ammonia, 82-0-0, 5.14 pounds per gallon at 60°F. (82.4% N nominal). All temperature ranges.

Hydra Hume, Leonardite, Humic Acid at 0-0-1 and 12% Humic Acid at 8.75 pounds per gallon.



Corn production fall banding of soy bean rotation at Hazelton, ND



The term Vermiculated with regards to Exactrix TAPPS and TAPPKTS...Tri-Ammonium Poly Phosphate Thio-Sulfate or Tri-Ammonium Poly Phosphate, Potassium Thio-Sulfate.

Hydra Hume application with TAPPS and TAPPKTS is to adorn TAPPS and TAPPKTS, embellished with improved Cation Exchange Capacity, forming Tri-ammonium Fulvate, formulated in uniform and decorated waves of crystals (waves of nutrient are vermiculated in a vertical soil column) using additional enhancement materials to improve crop nutrient uptake such as **Hydra Hume**.

Vermiculation of TAPPS indicates the addition of **Hydra Hume**, 0-0-1-12% Humic Acid to enhance performance in an Acid/Base reaction.

The Critical Reaction requiring NH_3 combining the pH shift of Tri-Ammonization with NH_3 driving the high temperature reaction of neutral to acid pH polymers of Ammonium Poly Phosphate, Ammonium Thio-sulfates, and Potassium Thio-sulfates.

The Critical Reaction of NH_3 converting Humates to Fulvates solubilizing carbon from the **Hydra Hume** forming root zone, crop available Tri-Ammonium Fulvate.

Utilizing Exactrix high pressure, orifice delivery of NH_3 , APP/APP/ATS/KTS/ micros plus **Hydra Hume** in a uniform streaming flow,

A reaction at an intersection of streaming flows allowed to deliver at high temperature reaction at a below soil surface depth.... Equals.... vermiculated TAPPKTS.

A field wide dynamic reaction generated in a forward motion of an injection machine applicator banding into the soil at 4 to 9 inch depths.

Made primarily on the go with mobile fertilizer process equipment using high quality soil opening tools that make surgical cuts into the soil.

Vermiculated TAPPS and TAPPKTS is not designed to be canned, bottled, labeled or shipped to a producer as a stand alone plant food material. Not a dry fertilizer. Not a liquid fertilizer.

Vermiculated TAPPS and TAPPKTS with **Hydra Hume** is a combination of Acid Base high temperature fertilizer manufacturing in a mobile dynamic field wide application.

Vermiculated means the Humic acid has been improved to be more crop available by utilizing NH_3 at high pressure to solubilize the Humic acid carbon source and forming Tri-Ammonium Fulvate.



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