



# Agronomy Guide

## Exactrix Award Winning Tool Bar TAPPS Formulator



Terms:

**TAPPS:** Tri-Ammonium Poly Phosphate Sulfate....the most available form of placed P...stabilized with ATS....The Crystalline, high temperature, reaction provides extended use of placed nutrients. You can not buy TAPPS...TAPPS must be built on the go. TAPPS drives N efficiency to the highest levels.

Materials required, NH<sub>3</sub>, APP or 10-34-0, ATS or 12-0-0-26S, and Zn is normally included. APP/ATS is injected first and liquid NH<sub>3</sub> is driven into the APP/ATS crystallizing and forming TAPPS. This is a critical process with critical control over the reaction.

**Band Stabilization:** Crystalline TAPPS stabilizes the nutrient band. ATS provides an additional 6 to 8 weeks of band stabilization as tested by UNLCE and TKI.

**Uniformity:** ASABE standards at 5% CV is considered the Superior rating...Exactrix port to port accuracy of 1% CV is common when the system is set up. CV is explained another way.... at the 100 pound N per acre rate there is 101 pounds N in one band and 99 pounds N in the adjoining band... across the width of the bar or 34 ports are within 1% target rate.

Low CV application values allow much lower rates...this means the the applied N rates can be reduced since every planted row feeds from the band exactly the same. The nutrient algorithm is changed with Exactrix and thus the new Exactrix algorithm is .6 of the old soil lab recommendation. Old applicators have application CV's of 25% to 50%. This means that every second NH<sub>3</sub> tank is wasted to the environment.

**Lineal Band Uniformity:** The Exactrix band looks like the fog line on the highway...the dotted center line of the highway indicates an old fashioned system applying a steady by jerks application in the band length. The lieneal band is over concentrated in certain areas using old application techniques.

The applied band may be accurate port to port but not in the lineal band. There are no over concentrated areas in the Exactrix band. The plant root system can use the nutrients more efficiently. This is one reason why liquid Aqua Ammonia will always outperform Anhydrous Ammonia by 30%... NH3 must be applied as a liquid to deliver a uniform lineal band concentration.

**Single Disc Openers:** Allows No-tillage application at high ground speeds. The residue stays on top of the soil providing season long residue breakdown and natural nutrients from the previous crop. Single Disc openers and residue are critical to provide a time release of natural nutrients from residue.

Rain and center pivot moisture infiltrates timely and uniformly and the residue holds moisture to the surface for the fine feeder roots....Remember 70% or the plant root mass is in the top 18 inches. Single disc openers also allow side dressing with out destroying roots. The openers are normally set at 3 inches and the Exactrix drives the nutrients into the soil another 2 inches in depth.

**Timing:** Timing is critical to nutrient efficiency. Side dress application is the ultimate form of nutrient efficiency. ATS extends the timing window allowing pre-plant application and a stabilized nutrient band.

**Root Pattern Geometry:** Cereal roots can access nutrient bands rapidly for a great start. In corn production the band is located on both sides of the planted row and spaced 5 to 7 inches away from the planted row. The seminal root access is accomplished with the fine hair roots. The old fashioned 30 inch band is askew to the crop and quite difficult for the roots to intersect.

Dustin Weber has put together a pre-plant and side dressing single disc tool bar that receives Exactrix's Top Award for 2007.

Dustin's operation includes irrigated corn on corn and corn on soybean.

200 to 220 bushel per acre corn is produced on average in this area of Nebraska.

The general farm location is south of York, NE about 20 miles and east about 10 miles.

Dustin is surrounded by new ethanol plants....he has a choice of six plants within a 50 mile radius. In fact his closest plant is the new Geneva plant.

With the strong demand for ethanol and a good price for corn you would think that Dustin would pour the nutrients on....Not True.

Dustin is intense about increasing his margin and followed the Exactrix Guidelines at .6 times the lab recommendation.

Although Dustin understands that **Less is More**, His dad was not sure at 100 pounds N and 12 gallons APP/ATS (70/30) to stabilize the nutrient band. General recommendations for irrigated corn are 180 to 200 pounds of N per acre for the area.

Not only are the rates reduced, Dustin is able to use 25 cent N as NH3 rather than the expensive 50 cent N Solution 28 or 32.

N cost savings are close to 25 dollars per acre...and yield potential is increased between 5% and 10% with TAPPS as compared to nutrient pivot application or nutrient top dressing techniques.

Risk goes down and yield potential is increased with TAPPS application from Exactrix.

Following application with the Exactrix Tool Bar, an agronomist was called in to soil sample all applied fields.

The soil stored nitrate went from 3 ppm before application to 35 ppm with TAPPS formulation of stabilized nitrogen.

Enough nutrient is soil stored in the top 12 inches to raise 250 bushel per acre corn.

**Exactrix Timing, Uniformity, TAPPS and No-till** techniques are making N P and S plus Zn.. more efficient.

Crystalline TAPPS is applied with **Lineal Band Uniformity**. The crop feeds on a full length band with no hot spots that can burn roots using Exactrix Liquid NH3 at injection pressures to 300 psi.

Dustin has 15 inch bands located perfectly between the 30 inch corn rows. Auto Guidance helps to maintain **Root Pattern Geometry**....and Geometry or cereal root pattern access is the 5 th major factor in nutrient uptake and good yields.

Application speeds are between 7 to 8 mph with Bourgault single disc MRB-25 openers specifically set up to apply TAPPS.

Bourgault has greatly improved their patented single disc opener. The MRB-25 is proven to be the best opener choice for most conditions. Dutch and Yetter openers are also used by other producers.

The Orthman 40 foot tool bar was spaced at 30 inches to allow for two ranks and residue flow.

The 2KC Weigh Master is 32 port outlet. The TAPPS Formulator is the 2KP 32 port with timed shutdown.

The tractor is not shown but is a front wheel assist Case Magnum tractor at 300 horsepower.

The tractor carries the liquid APP and ATS with saddle tanks.

The three point design allows quick turning and ideal position of the bands using auto steer in side dress.

The NH3 trailer tank not shown is a top outlet 1,450 gallon tank.

Dustin did side dress about 40 acres to build his experience with the Exactrix Award Winning Tool Bar.