Thursday, January 17, 13

What we’ve learned about applying Nitrogen in No-Till

Bob & Monte Bottens
Bottens Family Farm
January 12, 2013
We need to examine what the plant needs for nutrients to thrive in order to better understand what it needs to excel and realize plant health.

We are trying to maximize a thriving environment for the plant to get maximum corn yields.
Soil types
Field drainage
Yield goals
Field history
Soil cover from previous crops
Application equipment
Timing
Rates
1. Our History of N application
   a. Anhydrous applicator
   b. Low rate planter w/anhydrous
   c. All planter
   d. Planter and side-dress
Planter setup in transport
300 gal Thio, 1000 gal 4 10 10, 400 gal starter, 2600 gal N
60 acres per fill, 20 min refill time all products

Thursday, January 17, 13
500 gallon sidequest tanks
Sidequest side mount tank valves
Electric and manual shut offs
Check your seed depth
Small cob size, large kernel size
2. N rate determination
   a. Drainage
   b. Previous crop
   c. Previous Yield Zones
Little wet here, not now with the tile
Tile Installation
How to tile the hills
560 acres pattern tiling
2012 tiling project
55,000 feet
“For years I always ran 10-15 year old equipment but put in a million feet of tile in that same time period. My favorite saying was "the corn plant doesn't know if I have a new combine or old combine. It does know if I have tile."

“Posted by Barker on Newagtalk.com”
3. 2012 N trial
   a. Baseline planter N by yield zone
   b. Side dress strips
   c. Yield Results

Thursday, January 17, 13
Nitrogen Study 2012

• Goal:
  – Try to determine effectiveness of sidedress application of N and Thio-sul

Method:
  Apply $\frac{1}{2}$ estimated yield goal N with planter in a 3 by 2 setting, balance later
Nitrogen Rate study 2012

- Apply different rates with High Clearance Miller Nitro sidedress bar with coulters and knives to determine what rate is most cost effective per yield
- Two passes is some places
USDA photo N test field
Yield 2010
Base for variable rate 2012
Planned N at planting 25 22 18
Application Rate varied according to Yield 2010
Corn on corn no till
Thursday, January 17, 13
Thursday, January 17, 2013
Applied rate
Knife slot from sidedressing 32% N

Tillage for the year
Thursday, January 17, 13
Blue=25 Hi-rate  22 yellow  18 lo-rate = red
High Clearance - great coverage

with our hills, airplanes cannot maintain even height above canopy,
50 foot of rise in 1200 ft with trees and airplanes don’t mix
Foliar Fertilization + Fungicide

Thursday, January 17, 13
Thursday, January 17, 13
Nice color

nice color
Drought 2012

No till conserved moisture more
Thursday, January 17, 13
Sidedressing corn
12 row applicator @ 10 MPH
Harvesting with sidedress rate map in back
Could easily see what rate was used where
Yield by Sidedress Rates

Hi Rate: +.4
Std Rate: Std
Lo Rate: -2.3

Thursday, January 17, 2013
<table>
<thead>
<tr>
<th>19</th>
<th>24</th>
<th>29</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>225</td>
<td>206</td>
<td>199</td>
<td>206</td>
</tr>
<tr>
<td>227</td>
<td>204</td>
<td>231</td>
<td>205</td>
</tr>
<tr>
<td>214</td>
<td>220</td>
<td>236</td>
<td>240</td>
</tr>
<tr>
<td>204</td>
<td>223</td>
<td>216</td>
<td>215</td>
</tr>
<tr>
<td>196</td>
<td>220</td>
<td>247</td>
<td>208</td>
</tr>
<tr>
<td>228</td>
<td>216</td>
<td>217</td>
<td>210</td>
</tr>
<tr>
<td>216</td>
<td>209</td>
<td>197</td>
<td>205</td>
</tr>
<tr>
<td>209</td>
<td>198</td>
<td>196</td>
<td>200</td>
</tr>
</tbody>
</table>

**Thursday, January 17, 13**
All points Over 180 Bu / Acre
All points
Over 200 Bu / acre
All points
Over 220
Bu / acre
4. Cornell model

   a. Predictive vs actual result
Efficiency of N
<table>
<thead>
<tr>
<th>Field</th>
<th>Busel</th>
<th>Plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>158</td>
<td>0.87</td>
</tr>
<tr>
<td>P</td>
<td>16</td>
<td>0.09</td>
</tr>
<tr>
<td>K</td>
<td>16</td>
<td>0.09</td>
</tr>
<tr>
<td>S</td>
<td>29</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Foliar = 8 units N Plus Micros
### Field Summary

#### Bush 80
- Year: 2012
- Crop: C.O.B.

#### Inputs

<table>
<thead>
<tr>
<th>Supply</th>
<th>ACRES</th>
<th>rate</th>
<th>UNIT</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>per acre</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-10-10</td>
<td>74</td>
<td>15.00gallons</td>
<td>1110.00gallons</td>
<td>$2.01</td>
<td>$30.16</td>
<td>$2,231.97</td>
<td></td>
</tr>
<tr>
<td>32% Nitrogen</td>
<td>74</td>
<td>38.00gallons</td>
<td>2812.00gallons</td>
<td>$2.07</td>
<td>$78.66</td>
<td>$5,820.82</td>
<td></td>
</tr>
<tr>
<td>Thio-Sul</td>
<td>74</td>
<td>10.00gallons</td>
<td>740.00gallons</td>
<td>$2.21</td>
<td>$22.08</td>
<td>$1,633.91</td>
<td></td>
</tr>
<tr>
<td>Ignition</td>
<td>74</td>
<td>5.00gallons</td>
<td>370.00gallons</td>
<td>$5.23</td>
<td>$26.15</td>
<td>$1,935.10</td>
<td></td>
</tr>
<tr>
<td>Accelerate</td>
<td>74</td>
<td>0.50gallons</td>
<td>37.00quarts</td>
<td>$2.21</td>
<td>$1.10</td>
<td>$81.68</td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td>74</td>
<td>34000seeds</td>
<td>31.45bag</td>
<td>$222.00</td>
<td></td>
<td>$6,981.90</td>
<td></td>
</tr>
<tr>
<td>Roundup power max</td>
<td>74</td>
<td>48.00oz</td>
<td>27.75gallons</td>
<td>$16.00</td>
<td>$6.00</td>
<td>$444.00</td>
<td></td>
</tr>
<tr>
<td>Turbo</td>
<td>74</td>
<td>15.00gallons</td>
<td>1920.00oz</td>
<td>$0.39</td>
<td>$10.24</td>
<td>$757.65</td>
<td></td>
</tr>
<tr>
<td>BB 5</td>
<td>74</td>
<td>3.46oz</td>
<td>2.00gallons</td>
<td>$31.85</td>
<td>$0.86</td>
<td>$63.70</td>
<td></td>
</tr>
<tr>
<td>Harness Extra 5.6</td>
<td>74</td>
<td>1.50qt</td>
<td>27.75gallons</td>
<td>$26.19</td>
<td>$9.82</td>
<td>$726.77</td>
<td></td>
</tr>
<tr>
<td>Headline AMP</td>
<td>74</td>
<td>10.00oz</td>
<td>5.78gallons</td>
<td>$219.68</td>
<td>$17.16</td>
<td>$1,270.03</td>
<td></td>
</tr>
<tr>
<td>Pit-stop</td>
<td>74</td>
<td>16oz</td>
<td>9.25gallons</td>
<td>$9.01</td>
<td>$1.13</td>
<td>$83.34</td>
<td></td>
</tr>
<tr>
<td>Traction</td>
<td>74</td>
<td>4gallons</td>
<td>296.00gallons</td>
<td>$2.07</td>
<td>$8.28</td>
<td>$612.72</td>
<td></td>
</tr>
<tr>
<td>Top-End</td>
<td>74</td>
<td>4quarts</td>
<td>296.00quarts</td>
<td>$2.08</td>
<td>$8.33</td>
<td>$616.42</td>
<td></td>
</tr>
<tr>
<td>All Applications</td>
<td>74</td>
<td>1 all trips</td>
<td>all</td>
<td>$60.00</td>
<td>$60.00</td>
<td>$4,440.00</td>
<td></td>
</tr>
<tr>
<td>capture LFR</td>
<td>74</td>
<td>2.6oz</td>
<td>1.50gallons</td>
<td>$218.18</td>
<td>$4.42</td>
<td>$327.27</td>
<td></td>
</tr>
<tr>
<td><strong>Total Supplies</strong></td>
<td>74</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$394.47</td>
<td>$29,190.93</td>
</tr>
</tbody>
</table>

---

**Thursday, January 17, 13**
All Fert Inputs $115.57

All Applications $60.00

Total Inputs $394.47

Thursday, January 17, 2013
<table>
<thead>
<tr>
<th></th>
<th>YLD</th>
<th>Per Bu w/rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD AVG</td>
<td>183</td>
<td>$2.16</td>
</tr>
<tr>
<td>PLOT AVG</td>
<td>214</td>
<td>$1.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$3.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$3.25</td>
</tr>
<tr>
<td></td>
<td>200</td>
<td>300</td>
</tr>
</tbody>
</table>
5. Future plans
   
a. Additional planter/side-dress split trials
   
b. Cornell study versus actual results
   
c. Foliar trials
      i. Standard, long-chain, encapsulated urea
      ii. Draft, fungicide, both
   
d. Imagery
Too full
Cab top does not hold corn well
Too much yield to hold it in the bin
Really just a problem at local elevator not ours, thank goodness
8010  431 sep hrs three yrs use 1900 A/yr
Trying to minimize compaction
No-till plus wide area of coverage
Relative to the comment "in their minds notill is the answer for everything", I know that a number of us in the "no-till community" can sound that way. For those of us who have moved away from major tillage our enthusiasm can be a bit much for guys who have had a negative "no-till" experience to swallow. I get that.
So, I would suggest this mindset... we notillers don't believe that "no-till" is the answer for everything so much as we have come to the conclusion that annual, major, disruptive tillage is NOT the answer for everything. They are different ways to approach different challenges in farming. Long term very low or no-till farming systems are incredibly different than simply removing tillage from a tillage based production system.

By notilltom on newagtalk.com
Goal at start of year
Got er done