



United States Department of Agriculture



Natural
Resources
Conservation
Service

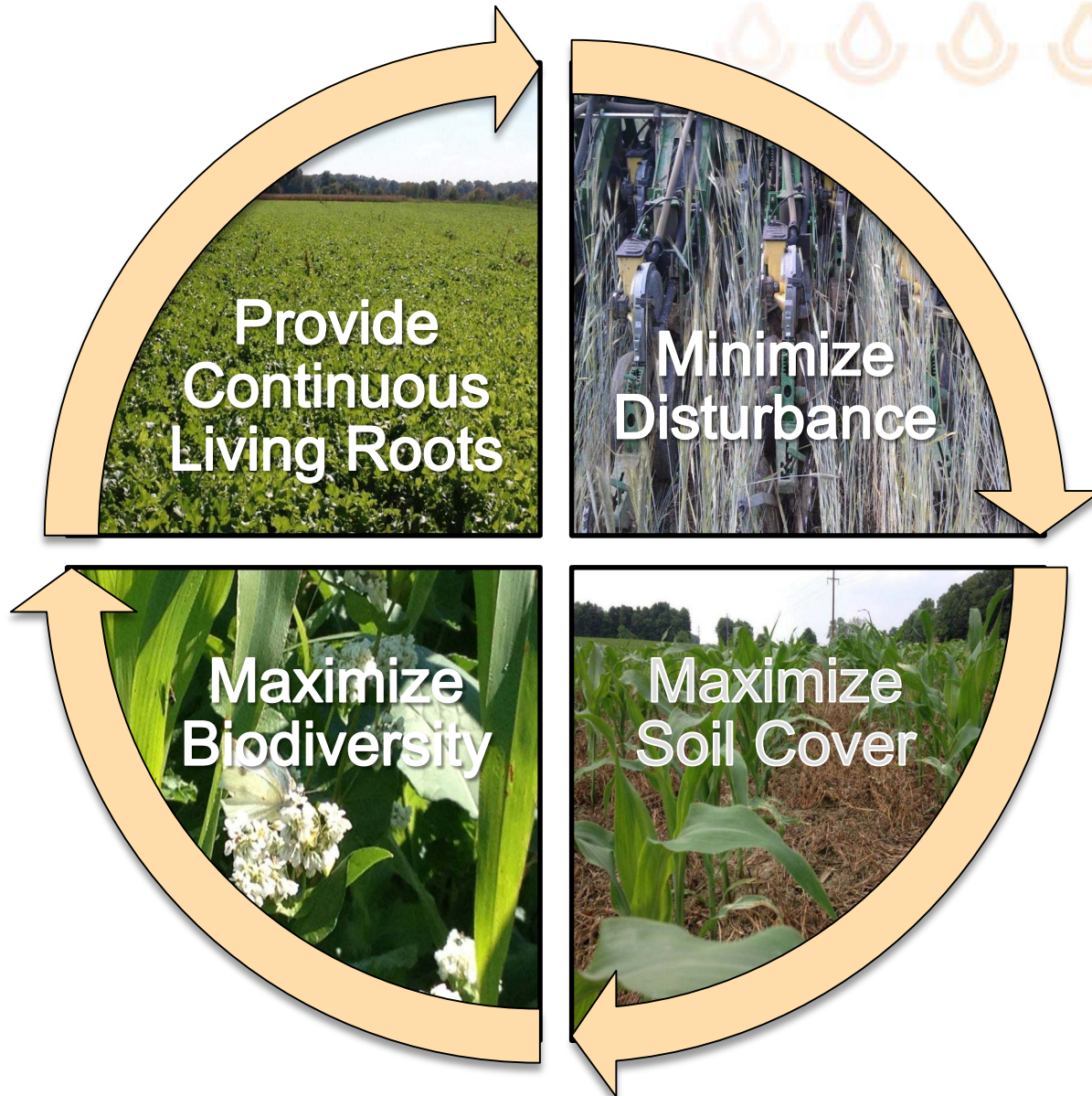


No Tilling Through High Residue Barry Fisher Regional Team Leader-SHD

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Soil Health Principles



Adapted Nutrient Management

Quality No-Till/Strip-till



Prescribed Cover Crops



New Technology
and
Integrated Weed &
Pest Management



Diverse Crop Rotation



Every seed at the exact same depth...



...every seed the exact same environment



Farmers may need to reinvest \$\$ in New Technology

Lime/ Cover Crops

Smarter Drainage
Systems



Precision Tech.



Precision Equip.





Strategies we'll discuss come from collaboration, education and working with top consultants, industry reps, researchers, top SH farmers and conferences and article hosted and shared by No-Till Farmer and NTOP and others.



General Crop Management Among the Soil Health Pros

- Most manage traffic and use floatation or tracks
- Most have specific residue management strategies
- GPS Guidance and Automated planter adjustment
- Most pay attention to C:N balance, timing and placement of amendments to increase efficiency
- Feed/enhance soil biology so the soil can feed the crop better
- Hybrid selection for more than just yield



Residue Processing at harvest



Residue Processing at harvest





residue spreading

residue handling

Stalk-Processing Corn Heads



Case-IH



Fantini



Harvestec



Claas

Stalk-chopping Corn Heads



Claas



Cressoni



Stalk-chopping Corn Heads



Front mount choppers chop stalks before the ear is removed.

Drago chops stalks after the ear is removed.

Good for strip-till,
fall till and VT



Stalk-crushing Corn Heads

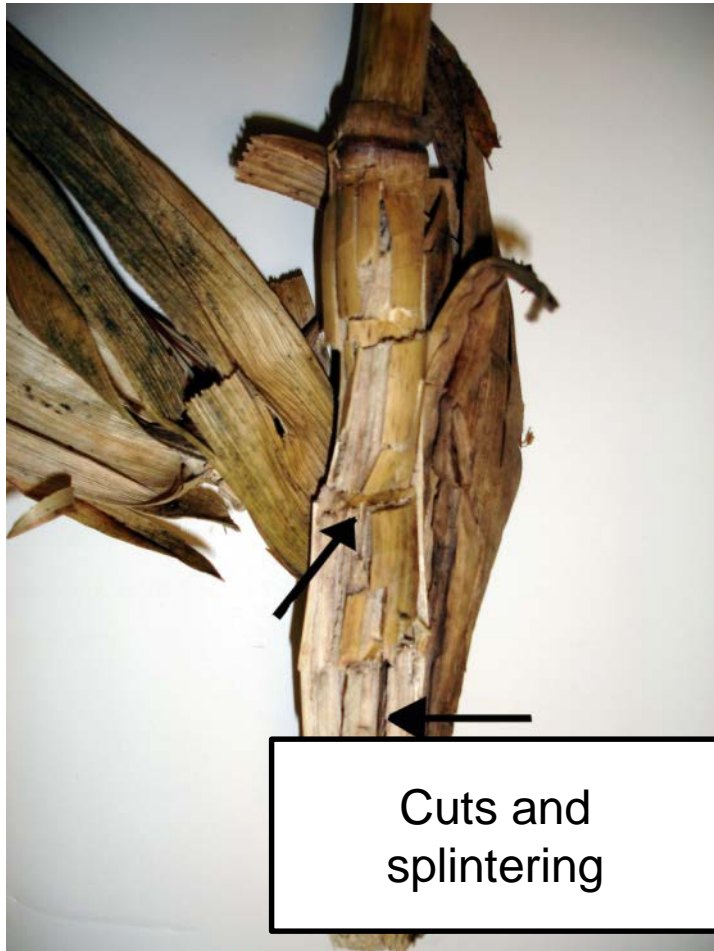


Good for No-till
and CCs



Crush, crimp, cut, lacerate the stalk

Enhance the decomposition process



Crush, crimp, cut, lacerate the stalk

Enhance the decomposition process



Allows Bacterial
and fungal
colonization







Pests like residue and grain
reduce habitat at harvest



Spread chaff out thin – full width
to reduce slug & vole habitat



Many options and aftermarket add-ons today that do a better job of spreading residue. **Harvest corn plants higher and keep corn stalk standing**-allows soil to dry out faster by keeping stalks upright.

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Slide by James Hoorman, NRCS Soil Health Specialist

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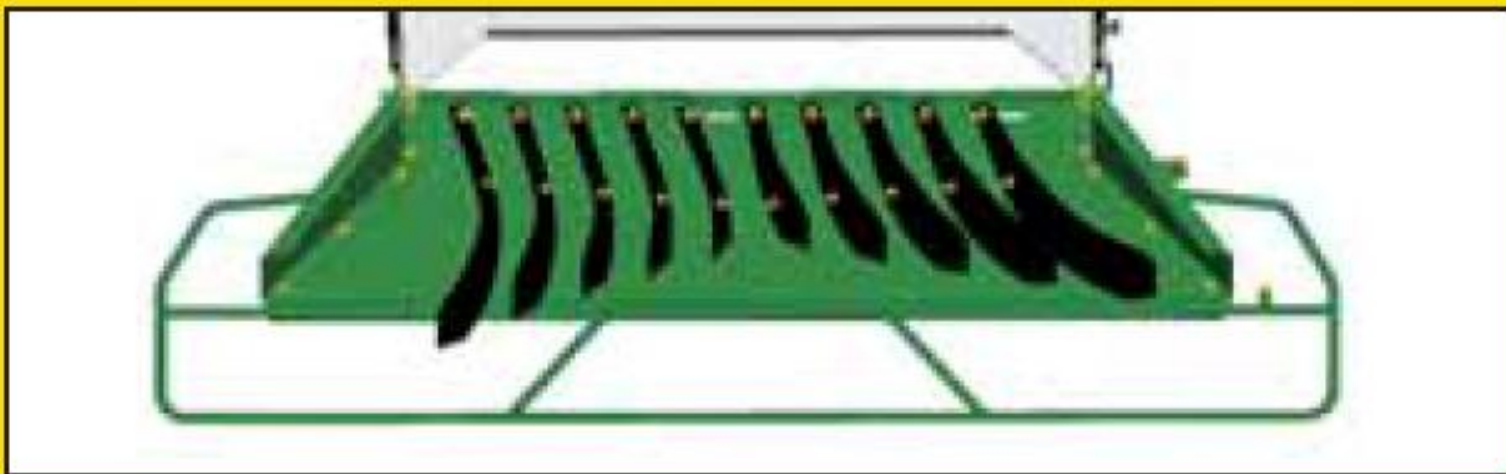
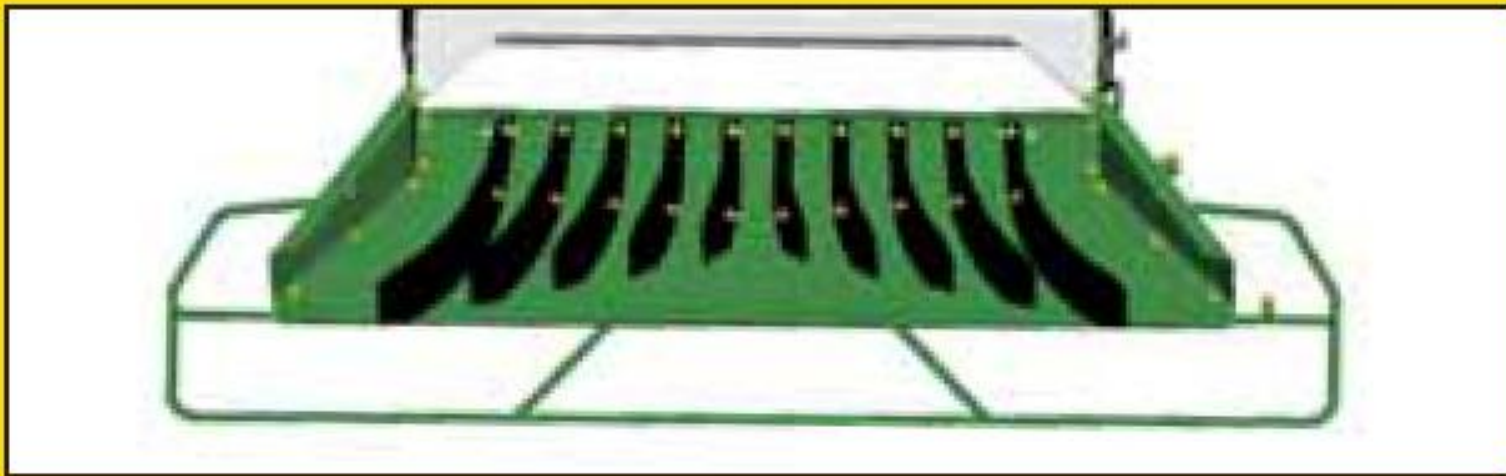


Combine Chopping/Spreading



Redekop





To keep an even spread patterns in cross winds and in hilly conditions, there are electrically adjustable vanes on the chopper. This allows the operator to direct the spread to the left or right of the machine.

...every seed the exact same environment?



Tillage cannot fix this!





**250 bu/ac make a lot so
...Spread the Due!**



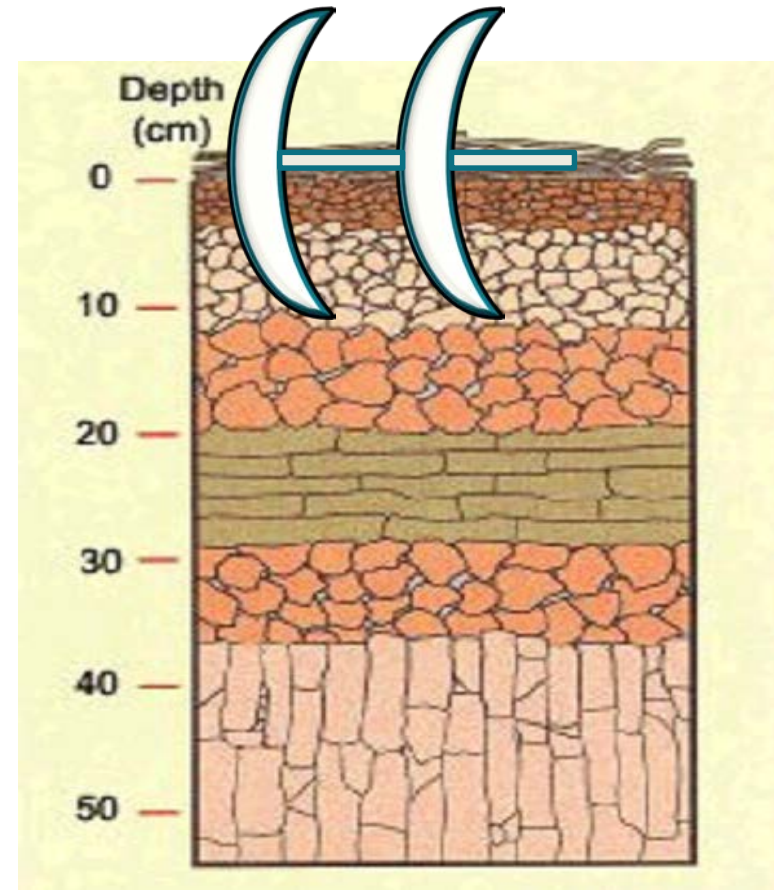


Vertical tillage?

er
e
ion

What Vertical Should Not Do:

- Create horizontal density layers in the soil
- Side to side soil movement
- Bury surface residue



What Vertical Should Not Do:

- Reduce aggregate stability and pore space



What Vertical Should Not Do:

- Reduce aggregate stability and pore space
- Cause excessive carbon loss (active carbon)
- Biological disruption.



What Should You Expect ...if things go right?

- reduced surface compaction
- good surface residue cover/distribution
- vertical soil structure and pores
- minimized carbon loss
- minimized biological disruption.



This should lead to:

- better water and air movement through the soil profile
- Improved nutrient cycling
- Improved productivity and soil function and **yield!**





Improve Your Odds- Integrate as a Cover Crop Seeder!



No-Till Planter Set-up Choices

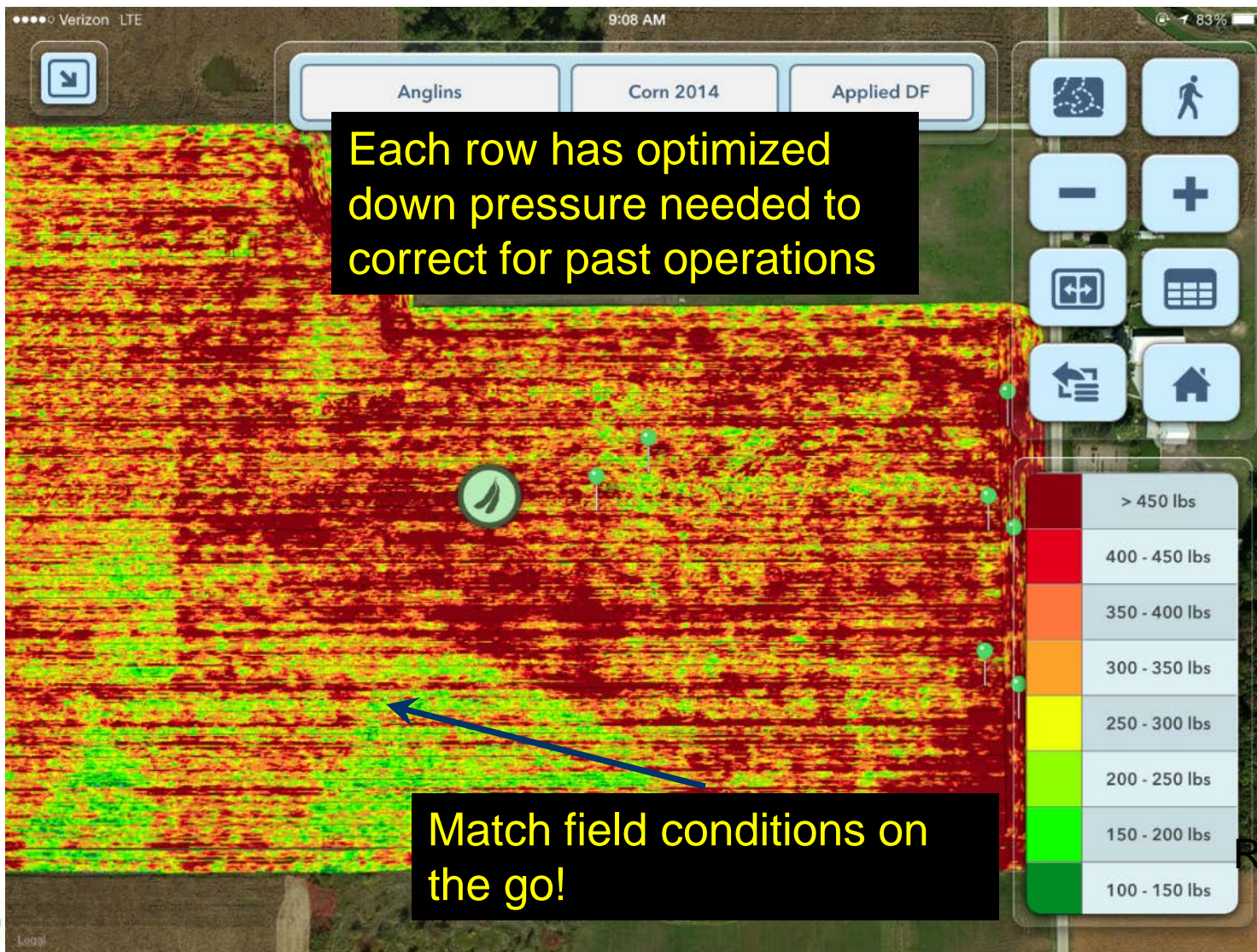


No-Till planter attachments

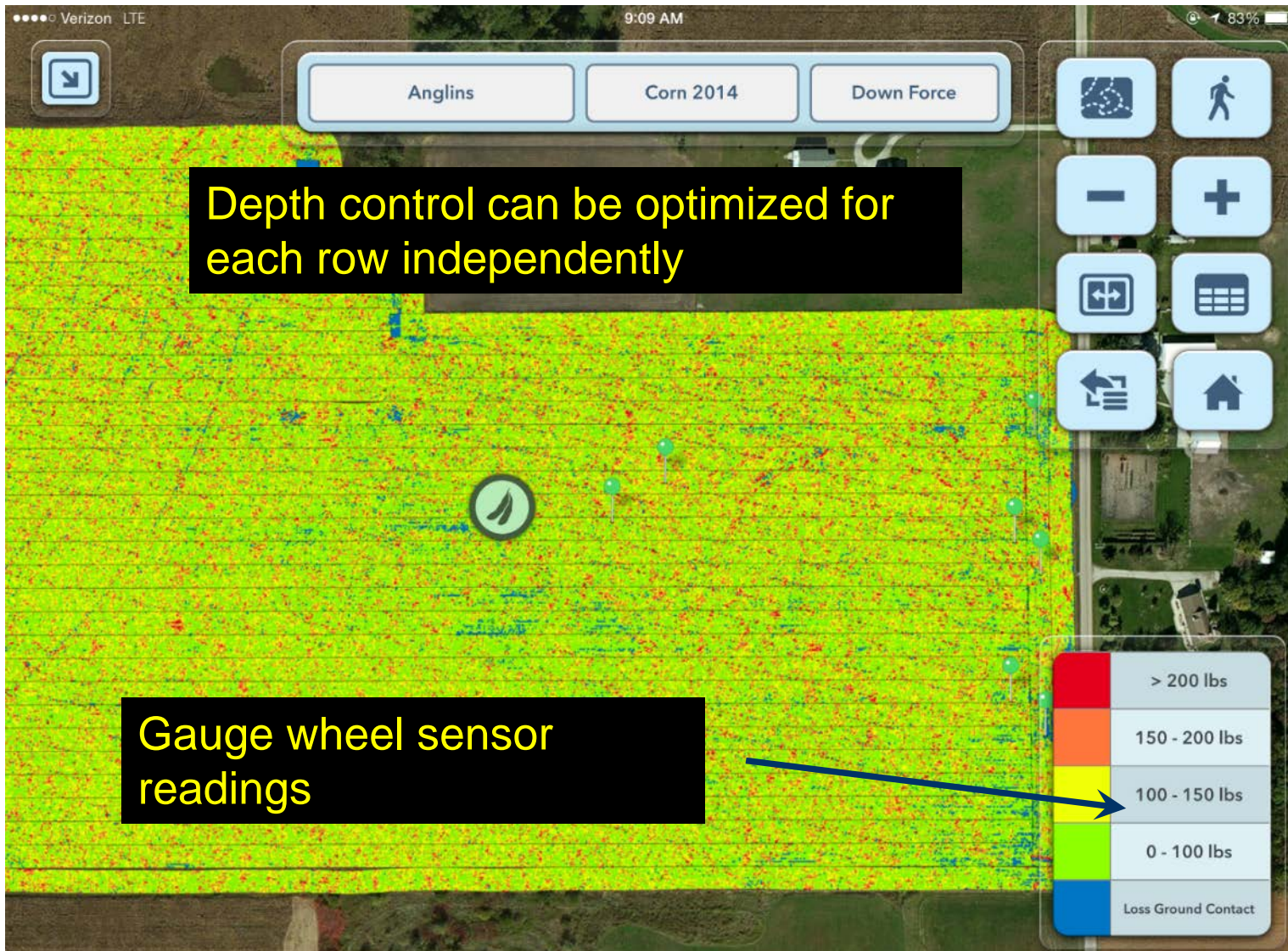


Lots of option

Turbo Charged Technology



Turbo Charged Technology



No-Till planter attachments



Monitoring and adjusting to field conditions is optimal.





To Coulters or Not?

...That is the Question



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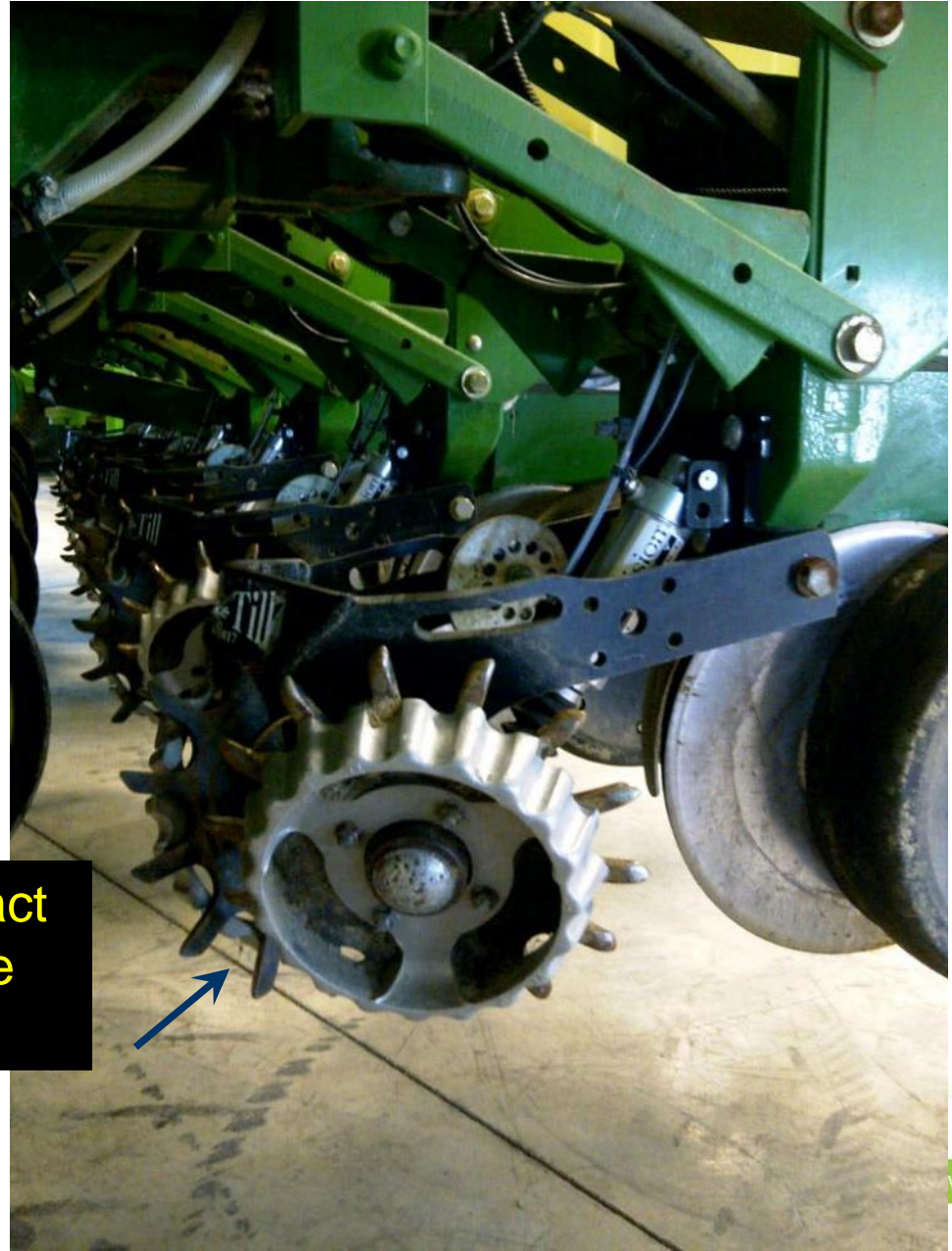
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No-Till planter attachments for thick cover

Pneumatic or Hydraulic control

The amount of down pressure/contact needed changes foot by foot, minute by minute rather than daily



No-Till planter attachments for thick cover



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No-Till planter attachments- Closing Wheels

Lots of options in closing wheels







Made in Malaysia

223651

Dynaflo®

Multipurpose 316" (9.5mm)

250 PSI



**It's best to use a
systematic
approach**

“Picket Fence Stands”



What about adding amendments?

IOWA STATE UNIVERSITY
Extension and Outreach

Integrated Crop Management

Content by Category > ICM News ICM Blog People Crops Pests Soils Resources Events Physiology

Myths and Facts about Residue Breakdown

April 4, 2014

By Mahdi Al-Kaisi, Department of Agronomy

Crop residue serves an important role in physically protecting soil by preventing soil erosion during rain events or high winds. Also, crop residue plays a significant role in enhancing the soil biological community by providing sources of organic carbon and nitrogen for its energy or food source. To understand how residue decomposes or breaks down, we need to understand the processes and mechanisms that include both biological and chemical activities influenced by environmental and soil conditions, namely air and soil temperatures, soil moisture availability, soil pH, oxygen, and type of microbial community. The composition of crop residue includes lignin, cellulose, hemicellulose and macro and micro nutrients. To release or breakdown and decompose most of these organic forms, certain biological and enzymatic processes controlled by a wide range of microorganisms influenced by other factors have to occur to these materials at various rates as influenced by the environment and soil conditions.

Welcome to **AgTalk**

AgTalk Home

Search

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best spray option to break down stalks

Jump to page: 1

Now viewing page 1 (50 messages per page)

View previous thread: > View next thread

Message format (text | ...)

Forum List -> Crop Talk

wade garrett
L: Posted 3/11/2015 08:39 (4672297)
Subject: Best spray option to break down stalks

General

What's your favorite/best but yet cost effective concoctions to spray on corn stalks in the fall to help them break down a little better. Long term no till strip till and my no till beans have really had it rough two years in a row. Thanks

cbell farms
L: Posted 3/11/2015 08:51 (4672301) - In reply to #4672297
Subject: RE: Best spray option to break down stalks

Not the answer you are looking for but if you want to spend money, take the \$ from the products somebody after me is going to recommend, and spend it on drying expense. Best thing for stalk breakdown is warm temps, adequate moisture, and time.

AGRICEN
A Loveland Products Company

COMPANY PRODUCTS RESOURCES WEBINARS BLOG

Effective Residue Decomposition - Is More Nitrogen the Answer?

January 9, 2014

Posted by Elise Orrell

By Stephen Sexton, Director of Technical Sales (@AgricenJen), Agricen

Yellow seedlings are a familiar sight for many corn growers. On continuous corn acres, the carbon to nitrogen ratio can be more than double the optimal ratio* for crop residue decomposition due to the buildup of organic matter from multiple years of corn on corn rotations. Even if a grower has applied nitrogen during the previous fall or around spring planting, soil microbes can out-compete seedling corn plants for nitrogen when excess carbon is present. The microbes use the nitrogen as a food source, immobilizing it as they work to degrade crop residues; the seedling corn plants, meanwhile, turn yellow due to a lack of available nitrogen.

One effective way to solve the problem of yellow corn seedlings in corn-on-corn rotations is to lower soil C:N ratios by baling corn stalks for winter cow feed. Unfortunately, this is really only practical if one has cows—and most row crop farmers do not. In addition, complete removal of corn residue also takes away a significant amount of the N, P and K that comprises corn cover (Table 1).

Table 1. Nutrient Removal Chart for 200 Bushel Corn Residue

Must Access "Round" Nutrients to Increase

NO-TILL FARMER

Shelbourne Reynolds Stripper Headers

NEWS & NOTES RESOURCES NATIONAL NO-TILLAGE CONFERENCE NO-TILL 101 ORN AND NO-TILLER STOR

A Winning Formula To Break Down Tough Residue

By Carol Waggrink posted on December 1, 2011 | Posted in Residue Management, Nutrient Management

Agronomist says a mixture of 20% Thio-Sul, humates, sugar and water can help digest today's tough corn stalks for better corn yields the following year.

Corn residue has its good and bad points. It's not so good if it interferes with no-till seed placement or crop emergence, but it's a great source of food for soil biological activity and contains valuable nutrients for the next year's crop.

Taking the time to properly manage corn residue in the fall can lead to better yields and more revenue, an agronomist says.

"The University of Minnesota has done a 2-year study and found that when you remove residue from your acre of corn, you get a net gain of 27 bushels more corn," says Dr. Don Steen, founder of International Ag Labs in Fairbairn, Minn.

Nutrient Source

While some farmers simply choose to bury residue with moldboard plows or heavy tillage, or even remove it with a roller, studies show that leaving the best source of available nutrients in the soil is the best option.

TOP

- N
- P
- Ag
- So
- Ea
- M
- th

Natural Resources Conservation Service

Always Practice Integrated Pest Management

REMEMBER-

- Scout for beneficials as well as pests
- Preventative pesticide applications will have unintended consequences
- Treat insects and fungi only when an economic threshold is reached
- Macro invertebrates (bugs) and fungi are important residue shredders and digesters
- Healthy biology will do more than steel to cycle crop residues.



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Strategically... Plan Your System Using a Step by Step Approach

Enjoy The Rewards of
Soil Health!



Mastering the Details is Key to Optimum Production

“We can take production and conservation further with Soil Health Management Systems”

Capture the potential!





EEO

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