



SPECTRUM™

Making Your Non-GMO Acres
Your Most Profitable Acres

Scott Odle

- Home: Linden, Indiana
- Corn & Soy Farmer
2,500 acres
- Farming since 1987
- Strip-till and No-till
- Founder Spectrum
Non-GMO Seed Company



What Do I Need to Know About No-Tilling non-GMO Corn?”

- Economics behind raising non-GMO corn
- Managing herbicide and insecticide challenges without Roundup Ready, LibertyLink or *Bt* traits
- Using cover crops within a non-GMO system
- Other agronomic management and IP considerations

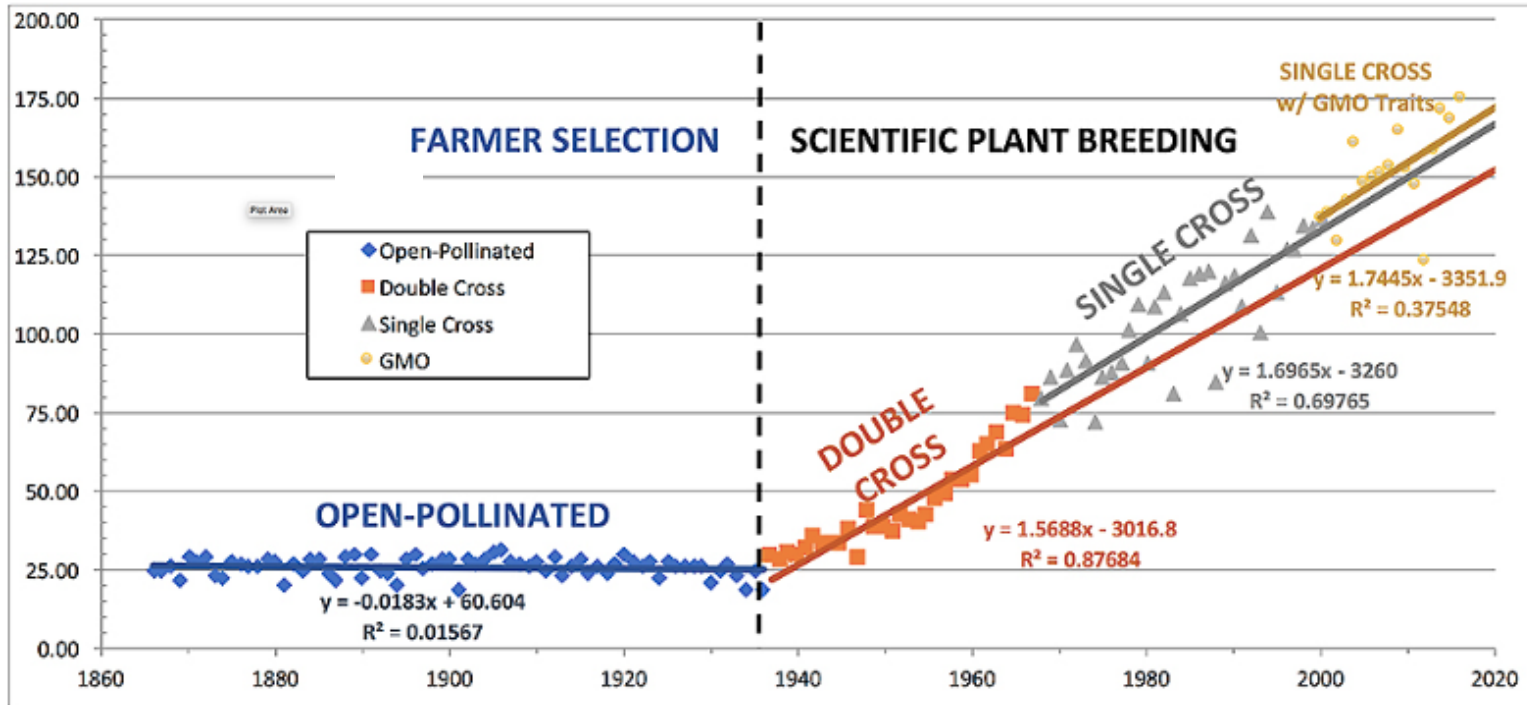


Drivers for Non-GMO Production:



- Lowering Input Costs
- Contracts and Premiums paid (\$.20 - \$.40/bu)
- More sustainable production
- Food marketers are driving increased demand
- Non-GMO verification provides testing and traceability standards

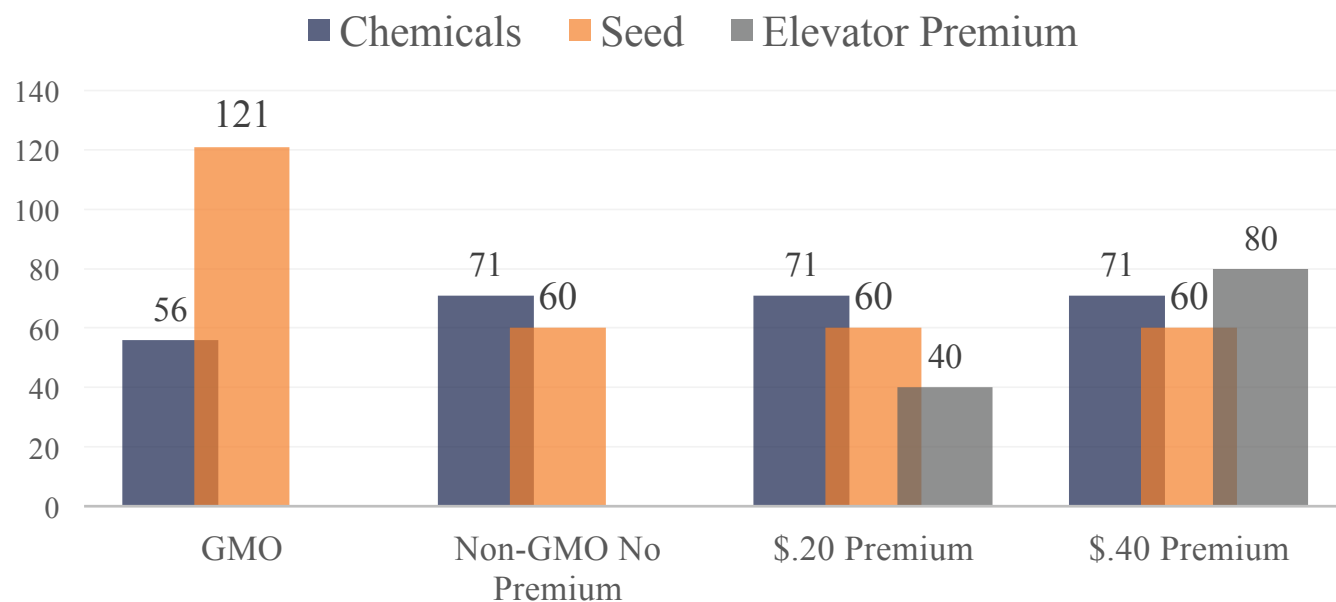
Genetic Yield Improvement



Difference in yield improvement between Single Cross era and Single Cross w/ Traits is just 0.05 Bu/Ac/Yr. Corn genetics determine yield potential!

Source: USDA Data

Non-GMO Net Benefit Comparison



Assume:
\$3.75 corn
200 bu/ac

Total Revenue:
\$750/Ac

Unaffected Costs/Ac	\$259	\$259	\$259	\$259
Seed & Chemical Costs/Ac	\$177	\$131	\$131	\$131
Rev. – Var. Costs/Ac	\$314	\$360	\$394	\$428
Net Benefit/Ac	N/A	\$46	\$86	\$126

Non-GMO Buyer Contract Process

- Bushel agreement
- Agreement on production protocols to insure %purity
- Specified delivery location/time



Keeping purity in your Identity Preserved Non-GMO

- Starts with the seed
- Manage pollen drift
- Be aware of previous Crops (Corn-on-corn)
- Communicate importance of IP to your farm team
- Clean bins and machinery completely

Managing herbicide and insecticide
challenges without Roundup
Ready, LibertyLink or *Bt* traits

Non-GMO Agronomic Management - Weed Control

- Managing Broadleaves
- Managing Grasses
 - Escapes are expensive
 - Increase total volume in spray volume
 - Skips and thin stands create grass problems
 - Be prepared to have a post backup



Odle's Weed Control Program

- No-till Pre-emerge program
- Post as a rescue
- Make sure label can handle the weed species present
- Challenges
- Cover Crops Issues



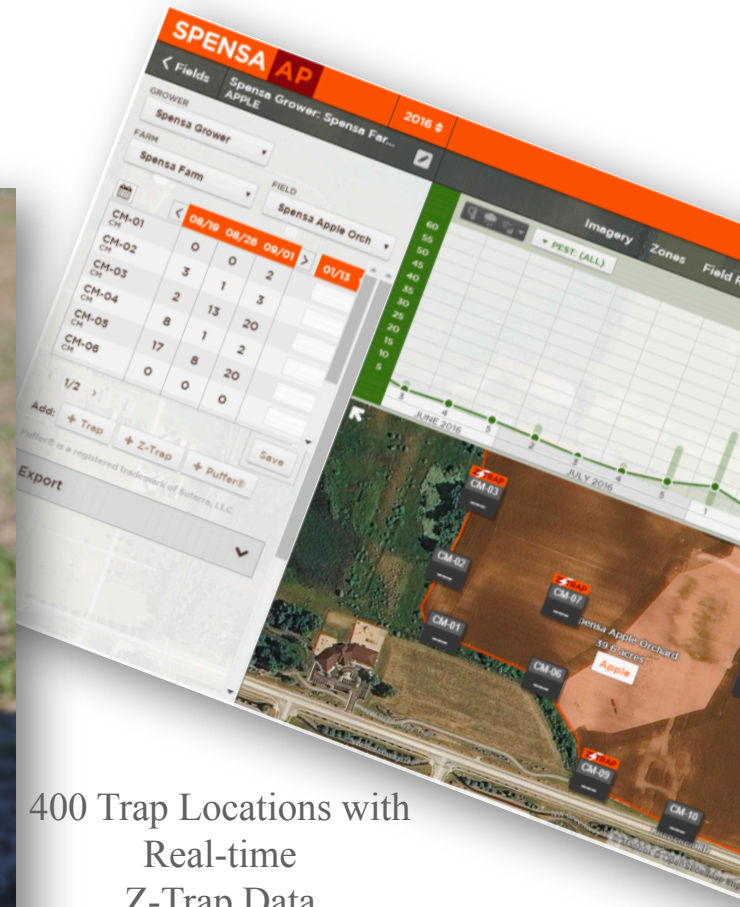
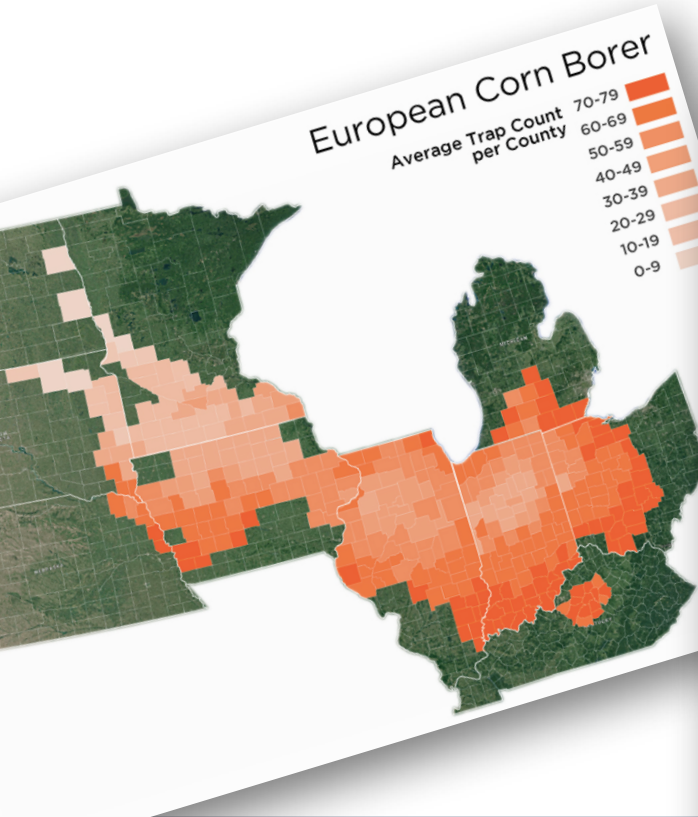
Non-GMO Agronomic Management - Insect Pest Management

- More diligent scouting may be necessary during some parts of the growing season.

Important major insect pests:

- European corn borer
- Corn earworm
- Corn rootworm
- Fall Armyworm
- Other minor corn insects require field scouting

Spectrum/Spensa Z-Trap Network



400 Trap Locations with
Real-time
Z-Trap Data

Scott's Insect Management

- Rootworm
 - In-row insecticide program
 - Rootworm are critical to manage
 - rotation is key
 - Seed-applied insecticides offer broad spectrum control (250, 500, 1250)
- Corn Borer
 - Timing issue
 - Hybrid selection
- Other
 - Spraying for Japanese beetles



Cover Crops



- Increase Soil Organic Matter
- Increase Nitrogen Balance (C:N Ratio)
- Suppress Weeds
- Provide Habitat for beneficial Insects
- Enhance Soil Biological Activity
- Control Soil Erosion
- Prevent Soil Compaction

Disease and Plant Health

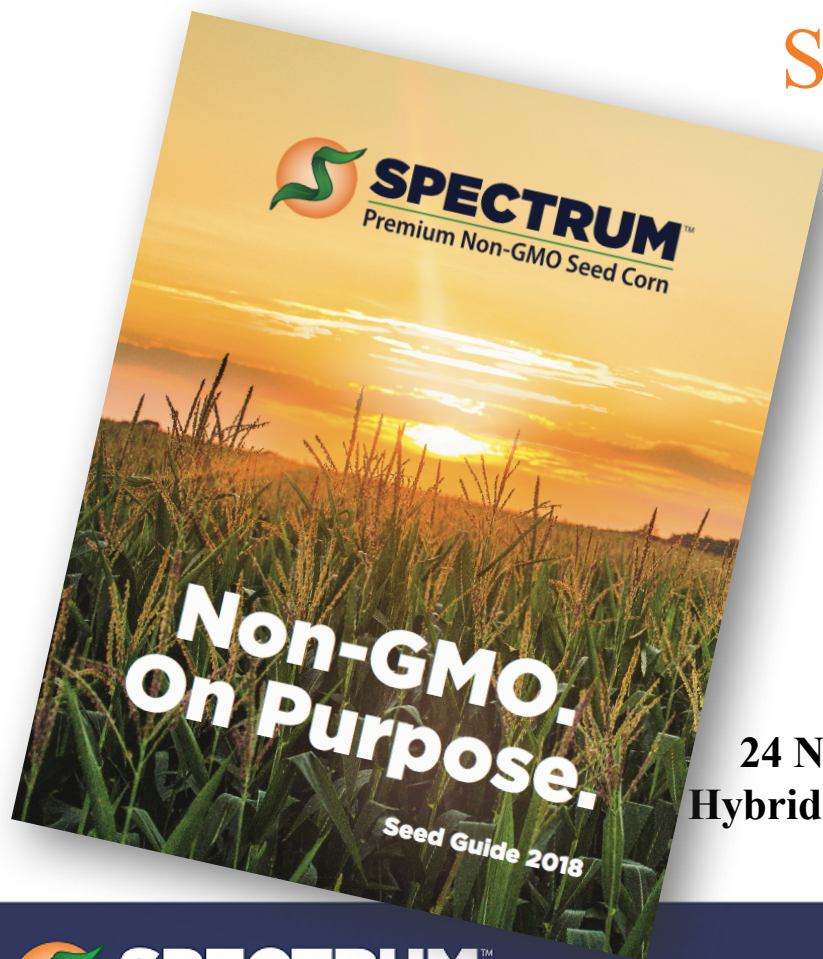
- Fungal leaf diseases can have a significant effect on corn yield potential.
- Select hybrids with good disease ratings
- Implement a planned treatment approach
- Rotate Fields



Summary

- Premiums are available for non-GMO production
- Non-GMO corn in a no-till system is a feasible option
- Agronomic management tools are key to success
- Hybrid selection and placement is crucial

Spectrum Non-GMO Hybrids



**24 Non-GMO
Hybrid Line-up for
2018**

Maturity Range (Days)	Hybrids
80 – 91	6
92 - 102	6
103 -109	6
110-115	6
111 - 115	6

Spectrum Premium Non-GMO Seed Corn Non-GMO on Purpose.

- Unique, proprietary, non-GMO corn breeding program
- Testing at 52 locations across the Corn Belt
- 1200 non-GMO hybrid candidates evaluated
- Advance only the top 3-5 Non-GMO hybrids each year
- Professional Seed Consultants that place the right hybrids to match your growing conditions
- Based in Lafayette, Indiana



SPECTRUM™

(866) 400-9468 - www.SpectrumSeed.com

The End. Thank You.

- Spectrum Premium Non-GMO
- (866) 400-9468
- www.SpectrumSeed.com

The trend is clear!

Powerful brands are now sourcing Non-GMO ingredients!



General Mills



Top Line Genetics.

3226 RM 80

- Versatile "in-zone" placement in northern tier states
- Well-suited to lower to medium populations

3615 RM 86

- Flexible management at lower populations
- Strong emergence in cold soils

4130 RM 90

- Yield leader for grain or silage
- Fast drying for timely harvest in Northern Corn Belt

4216 RM 92

- Outstanding performance on any acre
- Moves south as an early maturity option

4655 RM 96

- Top-end in high yield environments
- Excels in 95-100 RM zones with Goss' tolerance

5098 NEW! RM 100

- Consistent yield levels in varying environments
- Moves south as an early maturity option

3291 RM 82

- Excellent performance in high yield environments
- Excellent in narrow rows

3617 NEW! RM 86

- Balanced combination of agronomics and yield
- Longer, flex-style ear with very good grain quality

4046 RM 91

- Excellent combination of yield and agronomics
- Moves south as an early maturity option

4432 RM 94

- Superb overall performance with fast row canopy
- Strong roots and stalks

4725 RM 98

- Excellent dual purpose option with early vigor
- Tremendous ear flex at lower populations

5285 RM 102

- Highly versatile and well-adapted on any acre
- Moves south as an early maturity option

Bottom Line Results.

5452 RM 104

- Yield leader with strong roots
- Manage European Corn Borer

5859 RM 108

- Consistent performance in variable soils
- Strong agronomics and disease package

5997 RM 109

- Top-end in high yield environments
- Plant health management recommended

6105 RM 111

- Versatile with multi-use features
- Robust silage, or excellent grain quality option

6241 RM 112

- Industry-leading performance with stress tolerance
- Fast emergence with strong roots

6334 RM 113

- Versatile with excellent agronomics
- Drought tolerant with strong roots and stalks

5654 RM 106

- Excellent yield performance in prairie soils
- Strong roots and stalks with fast drydown

5967 RM 109

- Industry-leading performance at higher populations
- Plant in warmer soils for top-end potential

5998 NEW! RM 109

- Outstanding yield stability across environments
- Grain quality well-suited for special applications

6115 NEW! RM 111

- Dominant performance with wide area adaptation
- Excellent dual purpose for grain or silage

6244 RM 112

- Highly adaptive to variable soil types
- Expresses flex ear with very deep kernels

6515 RM 115

- Robust plants with flex ears
- Superb grain quality for food-grade applications

Non-GMO Grain Buyer Contacts

ADM	www.adm.com	Specialty Grains – Non-GMO grains program	Selected locations on the Mississippi and Illinois Rivers	Je Mauck /Jason Depenbrock at 800-851-9943, or the elevator manager at your closest ADM delivery point
BUNGE	www.bungenorthamerica.com	Specialty Grains – Non-GMO corn programs	River terminals on the Mississippi and Ohio Rivers	Elevator manager at your closest Bunge delivery point
Cargill	www.cargill.com	Non-GMO corn program	Delivery points located on the Illinois River (in north central Illinois) and on the Missouri River	Shane McKibbon 800 -352-2028 shane_mckibbon@cargill.com
CGB	www.cgb.com	Premium Grains – post-harvest, chemical free Non-GMO	Delivery locations on the Mississippi, Illinois and Ohio Rivers	IP manager at your closest CGB delivery point
CHS Inc.	www.chsinc.com	Non-GMO corn program	Delivery locations on the Mississippi, Illinois and Ohio Rivers	John Whittle
Tate & Lyle	www.tateandlylegrain.com	Non-GMO corn taken as needed	Delivery locations in central Illinois and northwest Indiana	Brad Morrison 800-442-8852 bradlee.morrison@tateandlyle.com
The Scoular Company	www.scoular.com	Premiums on all conventional hybrids for waxy, hard endosperm, white corn Premiums on most conventional hybrids for non-GMO and hard endosperm	Andres, Leland, and Ottawa, IL Waverly, IL and St. Louis, MO	Tom, Chris, Drew, or Chris at 630-874-2940

Non-GMO Identity Preservation and Grain Quality Management

- Crop rotation can reduce the risk of contamination from other corn.
- Identity preservation requirements may include a specific protocols.
- Isolation requirements may apply.
- Know what's growing in surrounding fields and follow isolation protocols to minimize risk of contamination.
- Storage needs for specific contract production should be carefully estimated.
- Traits such as kernel hardness, test weight, or grain appearance may also be rewarded.
- Absence of any chemical insect control on stored grain is important.

Non-GMO Project Standard – Action Thresholds

Category	Action Threshold
Seed and other propagation materials	.25% ^{a,b}
Inputs to human food, ingredients, supplements, personal care products, and other products that are either ingested or applied directly to skin, and pet food	.9%
Livestock feed and supplements, including those used for animal-derived inputs to human food products	5% ^c
Inputs to packaging, cleaning products, textiles and other products that are not ingested or applied directly to skin	1.5%

- a. For seeds of species not listed in Appendix B, and for all species not listed in Appendix B, there is no allowable presence.
- b. Different Action Thresholds exist for compliant seed used for livestock feed. See Table 4 in Section VII.A.2 for Action Thresholds for compliant seed used to grow livestock feed.
- c. This Action Threshold is based on the annual average of all lots tested.