

2019 AGRO EXPO

connect. discover. innovate.

OFFICIAL SHOW GUIDE



A SPECIAL SUPPLEMENT TO

Michigan
Farm News

AUGUST 13 & 14, 2019 | ST. JOHNS, MI
WWW.THEAGROEXPO.COM

GOOD SEASONS, AND BAD: WE'LL BE THERE.

Soybeans • Identity preserved soybeans • Agronomy services
Corn • Dry bean services • Freight on board delivery • Wheat



At MAC, our experienced team provides price and service advantages. We specialize in individual marketing plans with flexible pricing options. Our elevators offer large storage capacity, ample wet storage and high speed dryers. With upgraded conveyors, pits, and automated scale technology, our goal is having you in and out of our facility in 15 minutes or less. With statewide delivery locations and local, prompt settlements, you can't go wrong with MAC as a partner.

Learn more at www.michag.com today.

mac 
michigan agricultural commodities, inc.

Table of Contents

Welcome to AgroExpo..... 5

Getting to AgroExpo..... 6

Schedule at a glance..... 8

Schedule for Tuesday, August 13..... 10

Schedule for Wednesday, August 14 12

Plan your experience..... 14

On-farm technology that pays — sensor technology 16

Map at a glance..... 21

Exhibitors List..... 22

Detailed Map 23

Crop management challenge: Students are now in charge 28

Remote Sensing — Practical applications in agriculture? 30

It starts with the soil 38

AgroExpo field demos focus on sprayer technology 40

MANDAKO

HEAVIEST BUILT LAND ROLLER ON THE MARKET



Increase crop yields | Faster decomposition of corn stalks | Increase seed germination | Vigorous alfalfa regrowth

FARMCO DISTRIBUTING INC

MORE THAN A ROCK ROLLER
WORKING WIDTHS FROM 6' TO 85'

For more information or the dealer nearest you contact:
13619 S. DEWITT ROAD, LANSING, MI 48906
PHONE: 517-669-8391 FAX: 517-669-6405
www.farmco.com

2019 AGRO EXPO

connect. discover. innovate.

ENTER TO WIN!



GoPro HERO7 Black
Waterproof Digital
Action Camera

OR



DJI Spark with
Remote Control
Combo

Sign up to register to win at the welcome booths located on the grounds. The winners will be selected at the conclusion of the event on August 14th.

DESIGNED TO PERFORM WHERE PROPER SEEDBEDS ARE ESSENTIAL

MANAGE RESIDUE, BREAK COMPACTION



DOMINATOR® 4855 PRIMARY TILLAGE SYSTEM

- Ultra-large 25" diameter coulters on 9" spacing offer superior residue cutting
 - Two ranks of shanks on 18" spacing provide maximum soil fracture and non-stop operation in heavy residue
 - Disc Conditioner System provides clod sizing and leveling
 - Heavy-duty 24/7° Conditioning Reel achieves aggressive clod sizing and soil firming
- 10'6" to 19'6" working widths

EXCELERATOR® 8005 VERTICAL TILLAGE SYSTEM

- Excalibur® blade captures and sizes residue
 - Adjustable gang angle varies soil movement and residue mixing
 - Star Wheel™ treaders aggressively mix soil and residue while sizing clods
 - 24/7° dual range conditioner provides final clod sizing and firming
- 11' to 50' working widths

DESIGNED FOR TRUE VERTICAL TILLAGE



BAD AXE
TRI COUNTY EQUIPMENT
989-269-9249
www.tricountyequipment.net

CORUNNA
LLOYD MILLER & SONS, INC.
989-743-4049
www.lloydmillrandsons.com

MARLETTE
TRI COUNTY EQUIPMENT
810-346-2761
www.tricountyequipment.net

SANDUSKY
TRI COUNTY EQUIPMENT
810-648-2404
www.tricountyequipment.net

INVEST IN QUALITY®
KuhnNorthAmerica.com



10231 Rose Blvd.
Morrice, MI 48857
Near the I-69 and M-52
Interchange

517-625-4590

www.michironandequip.com



Compact Tractors

Front Loaders

Backhoes

Zero Turn Mowers

Utility / Equipment Trailers



KIOTI® Tractor



Ferris ZTR



Liberty Trailers

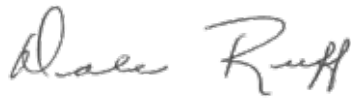
AgroExpo in 2019: It's about you, the farmer

Welcome to the 2019 AgroExpo!

There is no such thing as a 'typical' year in agriculture. From weather to markets to regulations, our industry is in a constant state of flux. The one thing we have to do is continue to adapt to change. Growers need to be proactive in being ahead of the change curve. From the very beginning, the AgroExpo has strived to provide the tools, education, and information growers need to be ready for the next opportunity. The AgroExpo draws together progressive, innovative farmers and industry professionals for the sole purpose of discussing the latest advances in agriculture.

We want you to go home with additional tools, but this event is not necessarily about the exhibitors. It's about you, the farmer, in 2019; and the information you need to make every season more successful on your operation.

So, take a couple of days and enjoy the AgroExpo. Enjoy connecting with the people who make this industry great. Enjoy the innovation, research and technology that make agriculture an industry unlike any other.



Dale Ruff
AgroExpo Event Coordinator



2019 AGROEXPO STEERING COMMITTEE

Carla Wardin
Evergreen Dairy

Kris Wardin
Evergreen Dairy

Jim Zook
Michigan Corn Growers Association

Dann Bolinger
Pioneer

Dan Putman
H&S Manufacturing Company

Mark Seamon
*Michigan Soybean Promotion
Committee*

Steve Gower
DELKALB/Asgrow

Kristi Keilen
K&K Dairy Farms LLC

Nick Bancroft
AgroLiquid

Tim Duckert
AgroLiquid

Brad Cesal
Bush Hog

Jay Eccleton
AgroLiquid

Dusty Humm
Bader & Sons Co.

Tim Rogers
Michigan Farm Bureau

Dale Ruff
AgroExpo

Burt Henry
AgroExpo

GETTING TO AGROEXPO

Event Address:

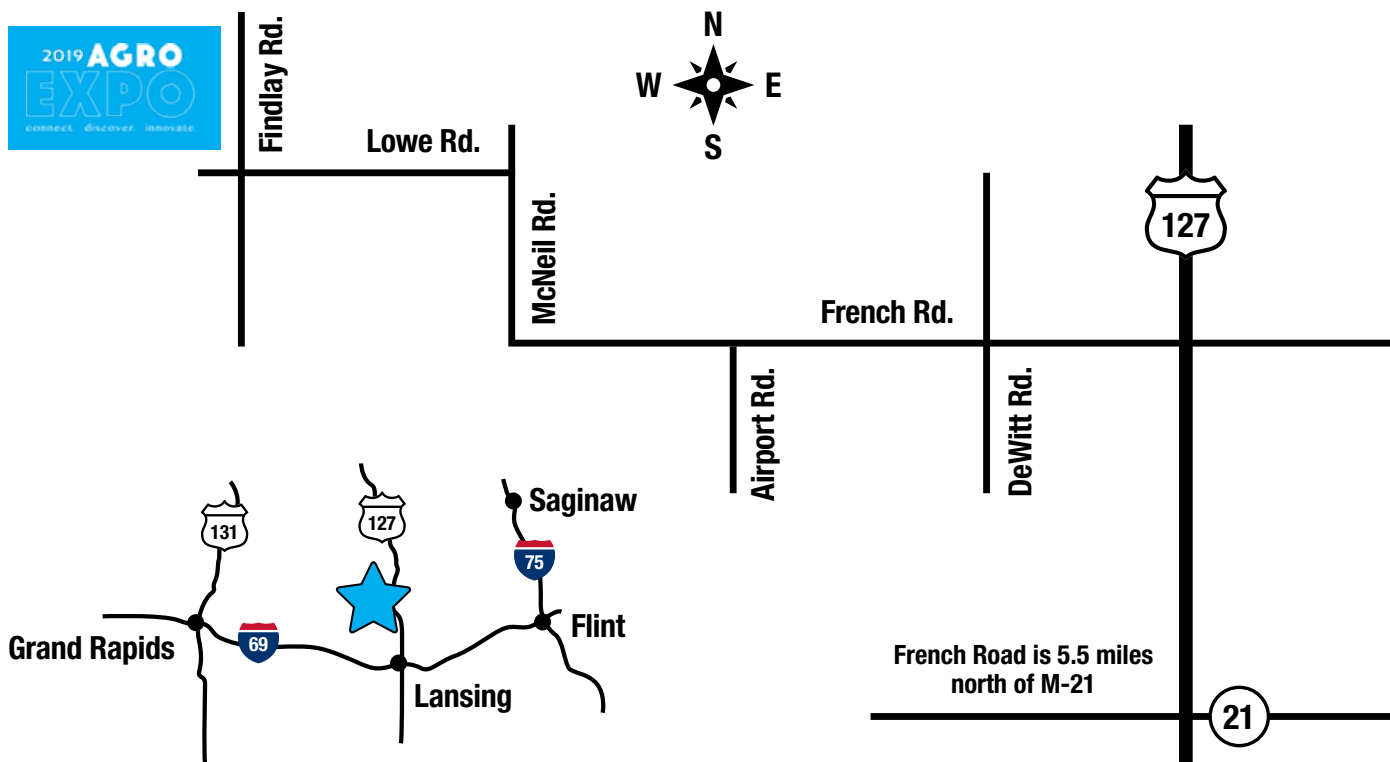
5605 Findlay Road, St. Johns, MI 48879

Coming from the north on US-127:

French Road is approximately 27 miles south of M-46 and 4 miles south of Uncle Johns Cider Mill.

Coming from the south on US-127:

French Road is approximately 20 miles north of I-69 and 5.5 miles north of M-21.



**OFTEN IMITATED,
BUT NEVER
DUPLICATED.**

HERE TODAY AND HERE TO STAY.
Superior innovation solutions and smart irrigation technologies backed by the best warranty in the industry. Our products are tough, tested and built to last. When it comes down to it, no other brand of pivot can compare.
Valley is your proven strength in the field.

Valley Irrigation
valleyirrigation.com

Michigan Valley Irrigation
4802 W. Caro Rd.
Vassar, MI 48768
(989) 673-6741

Michigan Valley Irrigation
2071 E. Main Street
McBride, MI 48852
(989) 762-5028

Michigan Valley Irrigation
14265 Beadle Lake Rd.
Battle Creek, MI 49014
(269) 565-4426

www.mvi.farm



GO BIG WITH MICHELIN AG
TRACTION. TREAD LIFE. COMFORT.



Kleber

Steve's Tire Service
Marion, MI
(231) 825-2196

Olson Tire Service
Mount Pleasant, MI
(989) 773-7978

Meekhof Tire
Muskegon, MI
(800) 956-7253

Meekhof Tire
Grand Rapids, MI
(616) 458-7667

Meekhof Tire
Zeeland, MI
(616) 772-0300

Meekhof Tire
Kalamazoo
(269) 668-4576

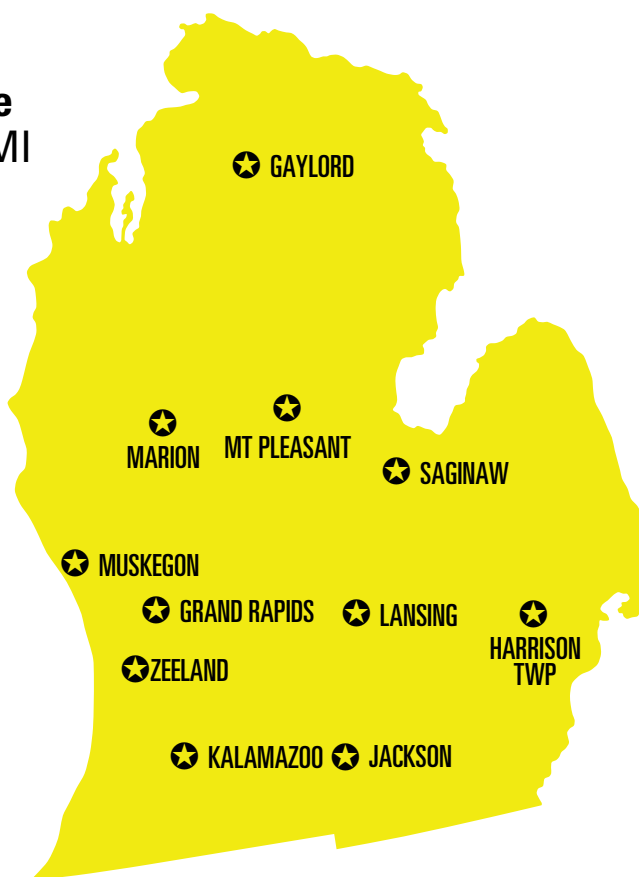
Meekhof Tire
Gaylord, MI
(989) 732-6258

Meekhof Tire
Saginaw, MI
(989) 525-2541

Meekhof Tire
Lansing, MI
(517) 253-0199

Meekhof Tire
Jackson, MI
(800) 980-8473

Leslie Tire
Harrison Twp, MI
(586) 469-3799



www.meekhoftire.com

24 Hour Road Service

Schedule at a glance

TUESDAY, AUGUST 13

8:30 am	Show is open to attendees
9:00 – 10:00 am	Sprayer Demonstrations* Demo Area
10:00 – 11:00 am	Soil & Remote Sensing Technology Demonstrations* Demo Area
10:00 am – 2:00 pm	Learning Center Presentations Learning Center
11:10 – 12:00 pm	Remote Sensing* Speaker Tent SPONSORED BY: CORN MARKETING PROGRAM OF MICHIGAN
12:00 – 1:00 pm	The Next Frontier: Refining Fertility for Greater Corn Yields* Speaker Tent SPONSORED BY: PIONEER
1:00 – 1:45 pm	Managing Risk in Cropping* Speaker Tent SPONSORED BY: DAVID CHAPMAN AGENCY
2:00 – 3:00 pm	Sprayer Demonstrations* Demo Area
3:00 – 4:00 pm	Soil & Remote Sensing Technology Demonstrations* Demo Area
4:00 pm	Show Closes
4:30 pm	Between the Rows* SPONSORED BY: CORN MARKETING PROGRAM OF MICHIGAN AND CONSUMERS ENERGY

WEDNESDAY, AUGUST 14

7:00 am	Season Long Nutrition: Advances in Fertilizer Technology and Recommendations* (registration required, limited seating) SPONSORED BY: COMPASS MINERALS
8:30 am	Show is open to attendees
9:00 – 10:00 am	Sprayer Demonstrations* Demo Area
10:00 – 11:00 am	Soil & Remote Sensing Technology Demonstrations* Demo Area
10:00 am – 2:00 pm	Learning Center Presentations Learning Center
11:10 – 12:00 pm	Remote Sensing* Speaker Tent SPONSORED BY: CORN MARKETING PROGRAM OF MICHIGAN
12:00 – 1:00 pm	Estate Planning** Speaker Tent SPONSORED BY: FRALEIGH LAW
1:00 – 1:45 pm	Building a Crop Insurance Plan Tailored to Your Farm** Speaker Tent SPONSORED BY: GREENSTONE FARM CREDIT SERVICES
2:00 – 3:00 pm	Sprayer Demonstrations* Demo Area
3:00 – 4:00 pm	Soil & Remote Sensing Technology Demonstrations* Demo Area
4:00 pm	Show Closes

*denotes 1 RUP & 1 CCA credit available

**denotes 1 CCA credit available only

Peters Brothers Farm Supply LLC

2807 Stapleton Rd., Memphis, MI 48041
Jon Peters 810-841-5403 • Terry Peters 810-841-5405



New Brandt 1020 or 1120 bu. Graincarts
scales, tarp. - \$39,000 for 1020, \$43,000 for 1120



2017 Horsch Maestro
24 row 30 inch planter,
130 bu. Seed, 1,000 gallon
fertilizer, variable rate seed and
fertilizer, 3inch fill, auto hydraulic
downforce, Martin-Till fertilizer
blades, 6,000 acres, excellent
shape, stored inside, **\$195,000**

Compact Disc Technology

This true residue management system offers a wide range of benefits to trump any of your existing tandem discs, field cultivators, vertical tillage implements and seedbed preparation tools. In other words, the Joker does what others can't!

The Joker is a universal tillage tool with proven results for a variety of applications. Spring or fall. Wet or dry. With working depths from 1 to 5 inches, it can be used as a primary tillage tool to chop and mix residue, or it can be used to warm the soil for spring seedbed preparation.

*Our High Speed Compact Disks Replace all other Forms of Spring Tillage, Creating the **BEST** Seedbed you have ever Planted in!*

AN EXCELLENT YIELD STARTS WITH **AN EXCELLENT SEEDBED \$\$\$\$!**



Horsch RT-28, electronic depth control, \$80,000



New MT-15 \$32,000



2017 Horsch RT-40, manual depth control,
43 foot overall width, new blades, \$98,000



Horsch RT-370, electronic depth control,
\$89,500



Used Horsch RT-230, electronic depth control,
like new, \$55,000



2018 Horsch RT-22, electronic depth control, iso bus
system for JD 2630 display, hydraulic jack, \$72,000



New Horsch RT-18, mechanical depth
control, narrow transport, \$52,000



2017 Horsch RT-25, manual depth control,
new blades, like new condition \$65,000



Used RT-370, new blades, electronic depth or manual
depth control, used on our farm, \$60,000

Schedule for Tuesday, August 13

SHOW OPENS

8:30 AM

SPRAYER DEMONSTRATIONS*

9:00 AM | DEMO AREA

This session will include five sprayers from different manufacturers. Each representative will operate their unit and present 6-8 minutes on the features of their unit that relate to correct and safe application of pesticides and crop nutrition products. The features that will be discussed will include but are not limited to: correct tip selection, tip wear and how that affects accuracy, drift control, the importance of regular calibration, boom height, spray controllers and how they assure accuracy, and new technology on the horizon.

SOIL AND REMOTE SENSING TECHNOLOGY DEMONSTRATIONS*

10:00 AM | DEMO AREA

This demonstration will include how SoilHawk™, SoilOptix®, and remote sensing/drone technologies can be used to develop maps and strategies to use them for proper placement of crop inputs including seed, fertilizer and pesticides.

IRRIGATION WATER APPLICATION

10:00 AM | LEARNING CENTER

Jason Preston, General Manager/Sales, Farm Services Inc.

Felipe Alves, Komet Irrigation - Technical Sales Manager, Farm Services Inc.

THE POWER OF BANDING NITROGEN CLOSE TO THE ROW

10:30 AM | LEARNING CENTER

Taylor Pulver, Regional Manager, 360 Yield Center

BALANCING DRIFT REDUCTION AND SPRAY COVERAGE TO MAXIMIZE HERBICIDE PERFORMANCE

11:00 AM | LEARNING CENTER

Nick Fleitz, Hypro Agronomist, Pentair Hypro

REMOTE SENSING*

11:10 AM | SPEAKER TENT

Rich Price, Researcher, College of Natural Science at Michigan State University

Technology has promised to improve our fertilizer efficiency and produce greater crop yields, therefore making us more profitable. Many producers are struggling with understanding how new technologies in precision agriculture can benefit their operation. Our research under the direction of Dr. Bruno Basso focuses on the applicability of multiple precision agriculture platforms and their viability on the modern farm. These platforms can be utilized to determine the need for pesticides, timing of application, correct pesticide selection for situation and rates to be used. Using this technology can also determine specific areas in the field that may need treatment thus allowing for less use of pesticides.

NUTRIENT PLACEMENT AND ITS EFFECTS ON THE CORN ROOT SYSTEM

11:30 AM | LEARNING CENTER

Mike Peterson, Soil Scientist/Agronomist, Orthman

THE NEXT FRONTIER: REFINING FERTILITY FOR GREATER CORN YIELDS*

12:00 PM | SPEAKER TENT

Matt Clover, Ph.D., Agronomy Manager, Pioneer

Featuring Michigan's own Don Stall (2018 NCGA Corn Yield Contest; National Top Yield at 477.7 bu/A)

Bushels per acre continue to increase. Is your fertility program keeping pace? Explore the latest nutrient research and information associated with maximum profitable output. These nutrient management tools can make for better plant health.

MANAGING RISK IN CROPPING*

1:00 PM | SPEAKER TENT

David Reddel, Technical Agronomist, Berkley Agribusiness Risk Specialists

Success in agronomy today is more than the selection and placement of seed, crop protection and fertilizer. David will discuss how these decisions relate to pesticides. Correlating plant health to pesticide use is a risk-management tool for all to learn and execute. In today's highly volatile agronomic and economic environment, David helps develop agronomic Risk Management solutions for today's farmer, rancher, grower and commercial agribusiness.

HOW CREATION AND INTEGRITY OF THE SEED FURROW ARE CRUCIAL TO YIELD

1:00 PM | LEARNING CENTER

Jason Koning, Region Manager, Precision Planting

BUILDING A CROP NUTRITION PROGRAM THAT WILL SHOW THE BEST RETURN FOR YOUR FERTILIZER DOLLAR

1:30 PM | LEARNING CENTER

Katherine Wolfe, Michigan and Ohio Sales Account Manager, AgroLiquid

SPRAYER DEMONSTRATIONS*

2:00 PM | DEMO AREA

SHARED INSIGHTS PROGRAM – SOIL AND PLANT TISSUE TRACKING TO ALLOW FOR NUTRIENT ADJUSTMENT DURING THE SEASON

2:00 PM | LEARNING CENTER

James Fasching, Field Representative, Midwest Laboratories

SOIL AND REMOTE SENSING TECHNOLOGY DEMONSTRATIONS*

3:00 PM | DEMO AREA

SHOW CLOSES

4:00 PM

BETWEEN THE ROWS*

4:30 PM | DINING TENT

Dr. Martin Chilvers, Assistant Professor, Michigan State University

*denotes 1 RUP & 1 CCA credit available

**denotes 1 CCA credit available only

Schedule for Wednesday, August 14

SEASON LONG NUTRITION: ADVANCES IN FERTILIZER TECHNOLOGY AND RECOMMENDATIONS*

7:00 AM | SHOW OFFICE BUILDING

SEATS ARE LIMITED – REGISTER AT WWW.THEAGROEXPO.COM

Kyle Lilly, Senior Product Manager, Compass Minerals

While adequate pre-plant application of N, P, and K fertilizer has many practical benefits, farmers often ask why they do not get higher yields with higher fertilizer application rates. This presentation will show new research on fertilizer application rate, timing, source, and placement with a focus on micronutrients, crop stresses, and physiology across the growing season. This presentation will demonstrate how reducing plant stress can reduce the susceptibility of crops to insects and diseases, which reduces the needs for pesticide application.

SHOW OPENS

8:30 AM

SPRAYER DEMONSTRATIONS*

9:00 AM | DEMO AREA

This session will include five sprayers from different manufacturers. Each representative will operate their unit and present 6-8 minutes on the features of their unit that relate to correct and safe application of pesticides and crop nutrition products. The features that will be discussed will include but are not limited to: correct tip selection, tip wear and how that affects accuracy, drift control, the importance of regular calibration, boom height, spray controllers and how they assure accuracy, and new technology on the horizon.

SOIL AND REMOTE SENSING TECHNOLOGY DEMONSTRATIONS*

10:00 AM | DEMO AREA

This demonstration will include how SoilHawk™, SoilOptix®, and remote sensing/drone technologies can be used to develop maps and strategies to use them for proper placement of crop inputs including seed, fertilizer and pesticides.

BUILDING A CROP NUTRITION PROGRAM THAT WILL SHOW THE BEST RETURN FOR YOUR FERTILIZER DOLLAR

10:00 AM | LEARNING CENTER

Katherine Wolfe, Michigan and Ohio Sales Account Manager, AgroLiquid

IRRIGATION WATER APPLICATION

10:30 AM | LEARNING CENTER

Jason Preston, General Manager/Sales, Farm Services Inc.

Felipe Alves, Komet Irrigation - Technical Sales Manager, Farm Services Inc.

NUTRIENT PLACEMENT AND ITS EFFECTS ON THE CORN ROOT SYSTEM

11:00 AM | LEARNING CENTER

Mike Peterson, Soil Scientist/Agronomist, Orthman

REMOTE SENSING*

11:10 AM | SPEAKER TENT

HOW CREATION AND INTEGRITY OF THE SEED FURROW ARE CRUCIAL TO YIELD

11:30 AM | LEARNING CENTER

Jason Koning, Region Manager, Precision Planting

ESTATE PLANNING**

12:00 PM | SPEAKER TENT

Mike Fraleigh, Attorney At Law, Fraleigh Law

The Ag community faces increasing risk due to financial challenges, the changing role of government and agriculture programs, changes in production technology, global competition, complex environmental regulations, an uncertain tax environment, liability exposure, and the list goes on and on. As part of a family that has been farming for four generations, Mike has a unique understanding of the issues the Ag community faces. He will discuss how to go about developing a plan that meets both your business and family goals.

BUILDING A CROP INSURANCE PLAN TAILORED TO YOUR FARM**

1:00 PM | SPEAKER TENT

Devin Roth, Crop Insurance Specialist, Greenstone Farm Credit Service

Today's portfolio of crop insurance products has evolved into a complex matrix of tools and services. Knowing how to design the best plan for your farm will be the topic of Devin Roth's presentation. He will discuss the various risk management resources available to farmers, including options for covering crop, dairy and livestock operations. He will address factors farmers should consider when choosing insurance coverage and how the individual programs are structured.

SHARED INSIGHTS PROGRAM – SOIL AND PLANT TISSUE TRACKING TO ALLOW FOR NUTRIENT ADJUSTMENT DURING THE SEASON

1:00 PM | LEARNING CENTER

James Fasching, Field Representative, Midwest Laboratories

THE POWER OF BANDING NITROGEN CLOSE TO THE ROW

1:30 PM | LEARNING CENTER

Taylor Pulver, Regional Manager, 360 Yield Center

SPRAYER DEMONSTRATIONS*

2:00 PM | DEMO AREA

BALANCING DRIFT REDUCTION AND SPRAY COVERAGE TO MAXIMIZE HERBICIDE PERFORMANCE

11:00 AM | LEARNING CENTER

Nick Fleitz, Hypro Agronomist, Pentair Hypro

SOIL AND REMOTE SENSING TECHNOLOGY DEMONSTRATIONS*

3:00 PM | DEMO AREA

SHOW CLOSES

4:00 PM

*denotes 1 RUP & 1 CCA credit available

**denotes 1 CCA credit available only

Wear Your Walking Boots!

There's a lot to see at the 2019 AgroExpo

WHERE DO I START?

Your first stop should be at the information tent. This is a great spot to take a moment to get your bearings. Identify where you are, and where all the AgroExpo attractions are located. You can also use this time — and take advantage of the shade in these tents — to circle the speakers or in-field demos you are interested in seeing. Also, if you have any questions at any point — the folks in these tents can help. Make sure you stop at the welcome booth to enter for a chance to win awesome prizes.



EDUCATIONAL SESSIONS

There are opportunities each day to hear from the experts in our industry. These featured speakers will be focused on providing practical, usable information on a number of topics. Sessions last 45 minutes to an hour, and most offer RUP and CCA credits for attending. This is a great way to earn those continuing education credits and hear from the best in the business. Be sure to review the descriptions of these sessions in this Show Guide.

FIELD DEMOS

Numerous in-field experiences and demonstrations are planned throughout the AgroExpo to provide hands-on opportunities to see how these new technologies can be incorporated into a management strategy. There are live sprayer demonstrations, as well as soil testing and remote sensing equipment that will be running at various times. Again, be sure to review this entire Guide to know when and where you can see this equipment in the field.



TRADE SHOW

New equipment, technology and information — you can find it all in the trade show area of the AgroExpo. A record number of vendors are bringing their best people and newest methods, advancements and technology to the AgroExpo. You get to see it all in one place!



MEALS

Always an important consideration — where is the best food? Well, that depends on your preference, and luckily, the AgroExpo has several food trucks to choose from for a variety of delicious options. Have a seat in the food tent, and enjoy good food and the company of others in the ag industry.



NETWORK

The AgroExpo is an opportunity to come together with others in the ag industry. Sit down next to someone new at lunch, strike up a conversation at the sprayer demo, take advantage of the ideas and experiences of other attendees and exhibitors. These connections and interactions could be your most valuable take-away from the AgroExpo.

Most of all, enjoy your time at the AgroExpo. Make the most of this rare day off in mid-summer and appreciate everything our industry has to offer — and in one place — at the 2019 AgroExpo.

On-farm technology that pays — sensor technology

FARM NEWS MEDIA

Driven by economic necessity, Michigan farmers are constantly considering new ways to increase yields and cutting costs to improve profitability. The latest advancements in nitrogen management — utilizing sensor technology — could be essential to interpreting interactions between the soils, weather, plants and other management decisions determine full yield potential.

Crop sensing technologies, designed to feed the corn crop the right amount of nitrogen, when the crop needs it, have gained the confidence of many growers. Sensors that estimate crop nitrogen needs drive variable rate application (VRA) applicators on the go based on crop chlorophyll content to simplify nitrogen management.

On-the-go sensor technology is helping to reduce costs and application rates of nitrogen (N) — considered one of the most commonly applied nutrient and most expensive inputs, ranging from 13% to 18% of the variable costs of Michigan corn production for two Lenawee county farmers.

Blaine Baker and Tim Stutzman have been using crop nitrogen sensing technology for more than a decade. With this technology, variable nitrogen rates (based on the NDIV field map of a well-fertilized reference strip) can be applied up to V9 corn growth, minimizing losses and supplying the nitrogen when it is most crucial to the plant.

According to Baker and Stutzman, since the sensors read the corn on the go, they are applying about 30% less nitrogen when compared with the conventional “1 bushel per 1 pound of nitrogen” recommendation and still getting the same yields.

Baker, a no-till grower, began testing on-the-go nitrogen sensing

on a small portion of his farm about 10 years ago. Retaining nutrients in the root zone and improving nitrogen use efficiency for profitability and protecting the environment are a high priority on the farm.

All fields are grid-soil sampled regularly, and commercial fertilizers are applied as close to planting as possible using VRA. Split applications of nitrogen on the corn ground include a portion applied through the planter with makeup sidedress nitrogen.

Previously, makeup nitrogen was based on the pre-sidedress nitrogen

test (PSNT). As confidence grew in on-the-go nitrogen sensing technology, PSNT acreage dropped and sensor acreage increased on Baker's corn crop. Now, all sidedress nitrogen is sensor-based.

Total nitrogen per acre has decreased, but the most significant benefit is in getting the right amount of nitrogen in the right place. Applying a flat rate based on expected yields may be correct on average, but over-apply in low-yielding areas and under-apply in others.

Baker believes the technology does an excellent job in conventional tillage

»CONTINUED ON PAGE 17



DECRA
Roofing Systems

DECRA has been the preferred choice for Stone-Coated Steel Roofing for 60 years! A beautiful, low maintenance metal roof solution with:

- 120mph Wind Resistance
- Class 4 Impact Resistance
- Limited Lifetime Warranty

With its hidden fasteners and interlocking panels that won't crack, break, warp, curl or split, DECRA is the overall best choice when it comes to your roof.

Call us for info on where to buy.

ARP
Advanced Roofing Products

Advanced Roofing Products
6473 S. State Road 15
Claypool, IN 46510
1-888-492-2609
www.arpsteelshingles.com

»CONTINUED FROM PAGE 16

systems with lower soil organic matter, but still can be improved in no-till situations where the percent of soil organic matter tends to be higher.

Even so, he and Stutzman contend that sensor technology is less labor intensive compared to the pre-sidedress nitrogen test (PSNT), and it eliminates the lag time between measurement and application. Closing the lag gap reduces the risk of yield and profit-robbing nitrogen loss from leaching and nitrogen loss to the atmosphere with excessive rain when nitrogen is applied pre-plant or early in the growing season.

Sensors are typically positioned directly over a cornrow. The sensors measure light reflected by the crop canopy, so the best results come with applications made at or after growth stage V6. The sensors have a light source, so they work equally well in low light as in full sunlight. Information from the sensor adjusts the nitrogen application rate on the go.

Typically, one-third to one-half of the expected nitrogen needed for the season is applied at planting with the remainder delivered at sidedress time based on information from the sensor. Growers need to create a well-fertilized nitrogen reference strip in each field at planting time as a benchmark or calibration strip for that field to “train”

the sensor about variability in the field.

While the nitrogen cost-to-benefit ratio usually exceeds that of other fertilizer inputs, growers seek to use nitrogen efficiently to maximize its value and minimize nitrogen losses by applying the nutrient at the appropriate rate and timed to coincide with the need of the crop. The goal is to make sure crop yield is not limited by lack of nitrogen throughout the crop life cycle.

Stutzman thinks many farmers fear they aren’t applying enough nitrogen, and a possible corn yield reduction is one of the reasons why more farmers don’t use this technology. He believes farmers who have been applying nitrogen in the same way for the past

several years (based on bushels) might find it challenging to switch to a new technology such as nitrogen sensing.

Baker’s recommendation to farmers wary of trying the technology is to start small (10 acres or so) and compare it to their current way of applying nitrogen. According to both farmers, they have had excellent results throughout the years, and “there is money to be made with this technology.”

Pictured below: Variable nitrogen application through the use of nitrogen sensing technology is helping farmers to minimize nitrogen losses and reduce costs, proving that integrating crop-sensing technology in your nutrient management program is an effective way to feed your corn crop on the go.

| Ricardo Costa, MSU Extension



MARK YOUR CALENDAR

2020 **AGRO**
EXPO
connect. discover. innovate.

AUGUST 11 & 12, 2020

2019 AGRO EXPO

connect. discover. innovate.

SPRAYER
DEMONSTRATION
9 AM & 2 PM DAILY



DEMONSTRATION AREA
IS LOCATED SOUTH
OF THE PARKING LOT

YOU HAVE ENOUGH WORRIES...

We know life on the farm can be *full of surprises*. But what's not surprising is what you'll get when you partner with Renk — high-performing **products**, a dedication to **reliability**, and friendly, knowledgeable **professionals** committed to your success.

**Dealership Opportunities
Available!**



LET US TAKE CARE OF YOUR SEED.



Amy Allen, District Manager
Climax, MI • 269-720-3150

Henry Buiting, District Manager
Applegate, MI • 989-284-6799

It's what helps make America the beautiful.

The durable Kubota L Series compact tractor makes handling easier and helps get jobs done right. It's why the L Series has been the #1 selling compact tractor in America for over ten years*. Visit us today.



DOWAGIAC
AUSRA KUBOTA INC.
269-683-7272

FORT GRATIOT
JONES EQUIPMENT RENTAL,
SALES & SERVICE
810-385-6000

KubotaUSA.com

*Based on UCC filings for tractors financed in 2017 for the utility tractor segments.

© Kubota Tractor Corporation 2019. This material is for descriptive purposes only. Kubota disclaims all representations and warranties, express or implied, or any liability from the use of this material. For complete warranty, safety and product information, consult your local Kubota dealer. For the complete disclaimer, go to KubotaUSA.com/disclaimers and see the posted disclaimer.

Map at a glance



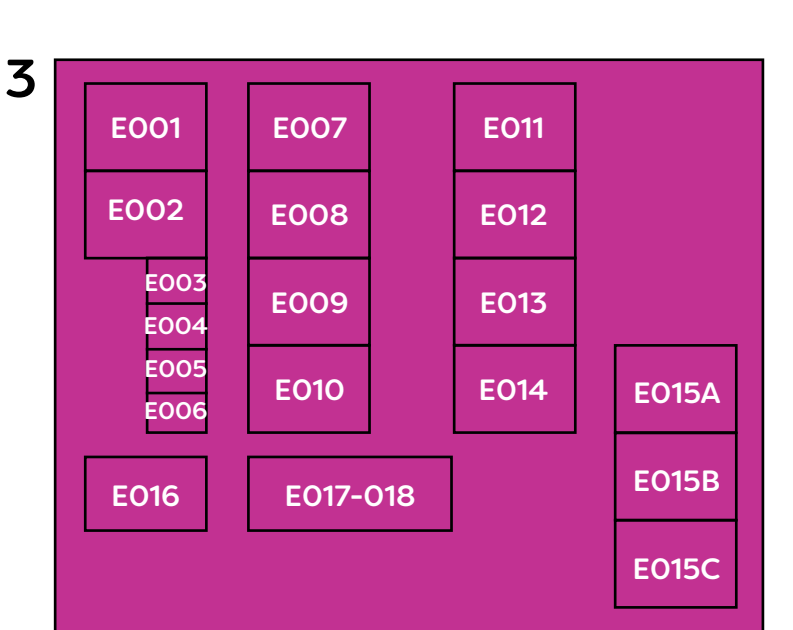
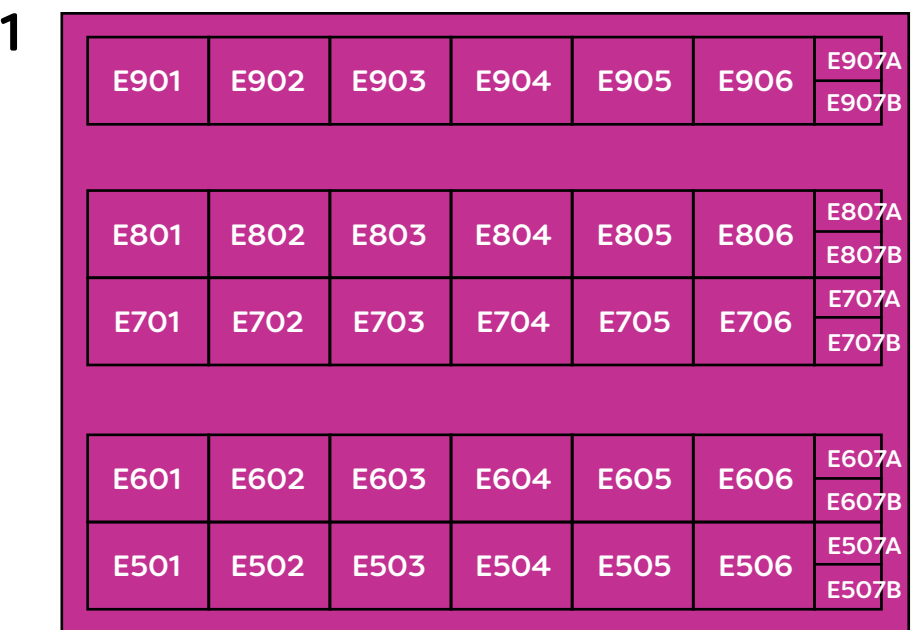
Exhibitors List

COMPANY	Lot #
Learning Center Area Lots	
360 Yield Center	P306, P307
AgroLiquid	P309, P310
Farm Services Inc	P414, P415
Midwest Laboratories	P311, P312
Orthman Manufacturing	P411, P412
Pentair Hypro	P406, P407
Precision Planting	P314, P315
Other Lots	
Ag-1 Crop Solutions LLC	E611
Ag Armour Seeds	P110, P210
Ag Pro Farm Services / Enduraplas	E702
AgriGold Hybrids	P112, P212
Agri-King Inc	E004
Agri-Labs Inc	E807B
AIS Construction Equipment	E705, E706
Alderman's Incorporated	E711
American Metal Roofs	E47
Applebee Oil & Propane	E43
Bader & Sons Co	E508, E509, E510
BASF/Credenz	P119
Bayer Crop Science DEKALB/ Asgrow	P107, P108, P207, P208
Beck's Hybrids	P219
Brown Dairy Equipment	E003
Bush Hog Inc	E712, E713
Capital Equipment	E603
Carquest: St. Johns Auto Parts	E505
Compass Minerals	P302, P303, P304, P402, P403, P404
Conklin AgroVantage	P118, P218
Consumers Energy	E008
Corn Marketing Program of Michigan	E18
Crop Risk Services	E37
Cushman Creek Supply	E33
Custom Manure Irrigation	E710
Dairy Farmers of America	E2
Dairyland Seed	P113, P114, P213, P214
David Chapman Agency	E49
DF Seeds/Legacy Seeds	E48
Diesel Equipment	E22
Diesel Injection Service	E707B
DigiFarm VBN	E34
Direct Enterprises	E612

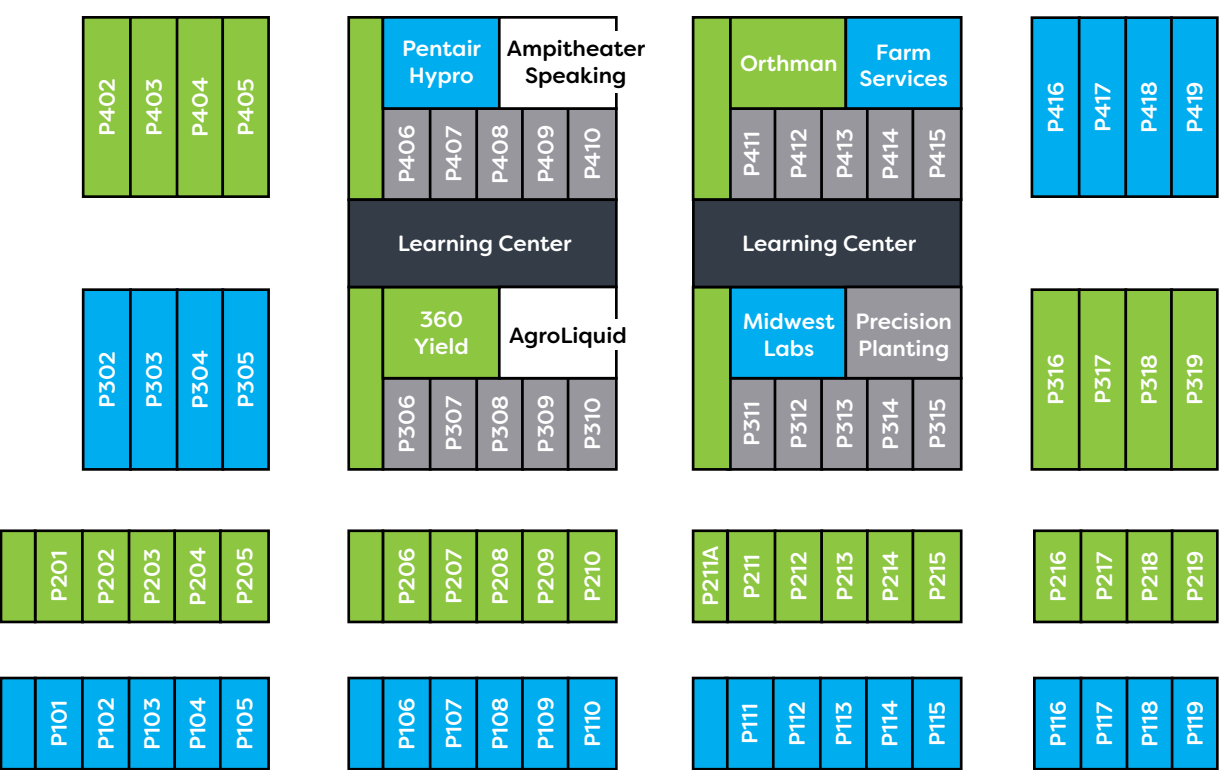
Easterseals Michigan AgrAbility	E35	Michigan Milk Producers	E38
Ellens Equipment	E701	Michigan Potato Industry Commission	P419
Exhibit Farm	E15	Michigan Soybean Promotion Committee	P418
Farm Bureau	E007	Michigan Valley Irrigation	E009, E010
Farm Depot	E605, E606	Miedema Asset Management Group	E27
Farmco Distributing Inc	E011, E012, E013, E014	Morton Buildings	E50
Feldpausch Precision Services	P316, P416	MSU Extension	P305
Fertilizer Dealer Supply	E503, E504	Mycogen Seeds	P109, P209
Fiber By-Products	E3	Nutrien Ag Solutions	P111, P211
Fox Chrysler Dodge Jeep Ram	E015B, E015C	Pauli Ford	E016
Frleigh Law Firm PLLC	E24	Performance Tillage and Bolt	E44, E45, E46
Genesee County Farm Bureau	E607B	Peters Brothers Farm Supply LLC	E601, E602
Gilbert Sales & Service Inc	E507B	Pioneer	P116, P117, P216, P217
Golden Harvest	P106, P206	Pond Hill Sales & Service	E513
Great Lakes Cleaning Systems	E707A	Precision Ag Solutions LLC	E704
GreenStone	E21	Premier Components Inc	E511
H&S Manufacturing Co Inc	E502	Puck Custom Enterprises Inc	E25
Harvest Energy Solutions	E811	Quality Solar LLC	E613
Herbruck Poultry Ranch Inc	E29	RangeLine Group	E908, E909
HJV Equipment	E812	Renk Seed Company	P102, P202
Hub Tire	E506	Retro Foam of Mid-Michigan Inc	E41
INA Store Inc	E501	RH Wiles Sales Inc	E805, E806
MSU/Institute of Agriculture Technology	E30	Richmond Brothers Equipment	E36
Janson Equipment Company	E703, E803	Rupp Seed Inc	P115, P215
JW Turf	E905	Searles Cleaning Systems	E1
Kaeb Sales Inc	E903, E904	Seneca Dairy Systems	E801
Kubota Tractor Corporation	E609, E610	Seven Oaks Seed LLC	P103, P104, P203, P204
La Crosse Seed	P319	Southeastern Equipment Company	E512
LaSalle Agri Inc	E907B	SoilHawk LLC	E813
Legend Seeds Inc	P405	Spartan Insurance	E31
LG Seeds	P101, P201	SQM North America	E26
Lynnman Construction LLC	E19, E20	Stine Seed Co	P105, P205
MAIN	E32	Stokes Seed Inc	E39
Marloo Equipment	E708, E709, E808, E809	Stor-Loc	E16, E17
MDARD	E211A	Texas Refinery	E28
MDARD: MAEAP	E55	The Nature Conservancy	E507A
MDARD: RTF	E54	Thumb Drone Works/P&C Ag Solutions	E807A
Meekhof Tire Sales & Service	E608	Timac Agro USA	P317, P417
Mensch Manufacturing	E002	Topcon Agriculture America's	E23
Michigan Agricultural Commodities	E001	University of Michigan & Rich Earth Institute	P318
Michigan Agricultural Mediation Program	E40	US Department of Agriculture	E53
Michigan CAT	E015A	Valley Farms Supply	E907A
Michigan Department of Ag & Rural Development	E56	Walinga USA Inc	E604
Michigan Iron & Equipment	E810	Williams Farm Machinery	E906
Michigan Foundation For Agriculture	E5	Young Chevrolet of St. Johns	E017, E018

Detailed Map

OUTDOOR BOOTHS

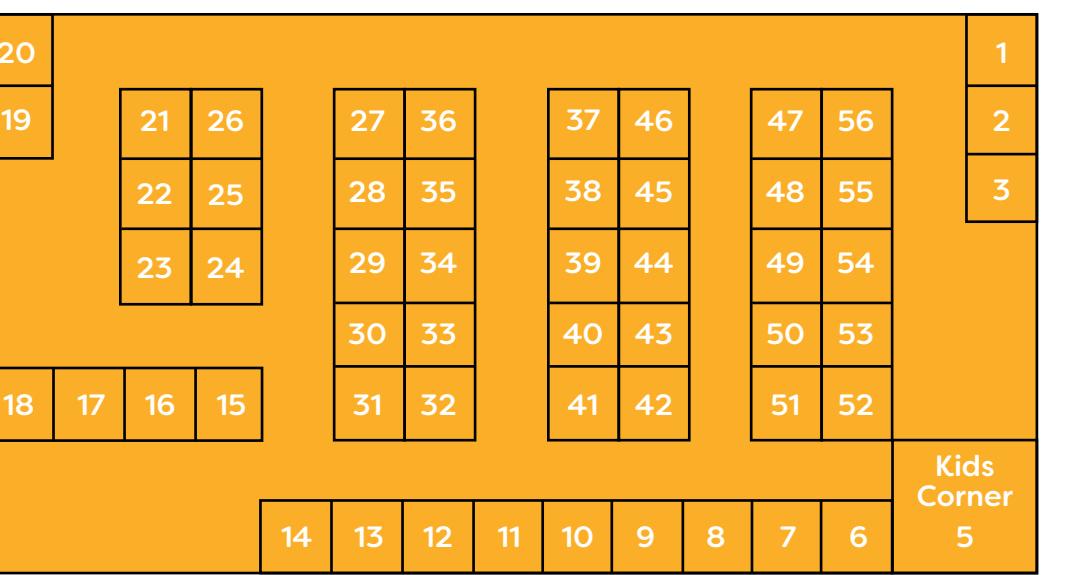


OUTDOOR BOOTHS WITH PLOTS



CORN
SOYBEANS

INDOOR BOOTHS





Moving you closer to your TARGET!

No matter when you apply fertilizer, no matter how, AgroLiquid has the experts and products to move you closer to your target. Learn more at agroliquid.com



Best-In-Class* Capability for Work or Play. The Ford F-150 makes tough tasks look easy, whether you're working on the job or heading out on a weekend of recreation. F-150 outperforms every other truck in its class when hauling cargo in the bed or towing a trailer.**

Farm Bureau members receive

\$500 BONUS CASH***



2019 FORD F-150

BUILT

Ford

PROUD

Don't miss out on this offer.
Visit FordFarmBureauAdvantage.com today!



BAY CITY
HAGEN FORD, INC.
989-684-4600
www.hagenford.com

CEDAR SPRINGS
VANDERHYDE FORD
616-696-1541
www.vanderhydeford.com

COLDWATER
COLE FORD LINCOLN
888-839-8129
www.colefordlincoln.com

GRAYLING
FEENY FORD OF
GRAYLING, INC.
989-348-3242
www.feenyford.com

HEMLOCK
RICK FORD SALES, INC.
989-642-5261
www.rickfordsales.com

HOLLAND
BARBER FORD
616-396-2361
www.barberford.net

LANSING
LAFONTAINE FORD OF
LANSING
517-394-7000
www.lafontaineFord.com

REED CITY
BABB FORD SALES, INC.
231-832-2206
866-333-2206

SOUTHFIELD
AVIS FORD, INC.
248-365-7500
www.avisford.com

STANDISH
RICHARDSON FORD
888-376-2591
www.richardsonstandish.com

WESTLAND
NORTHBROS FORD, INC.
734-421-1300
www.northbros.com

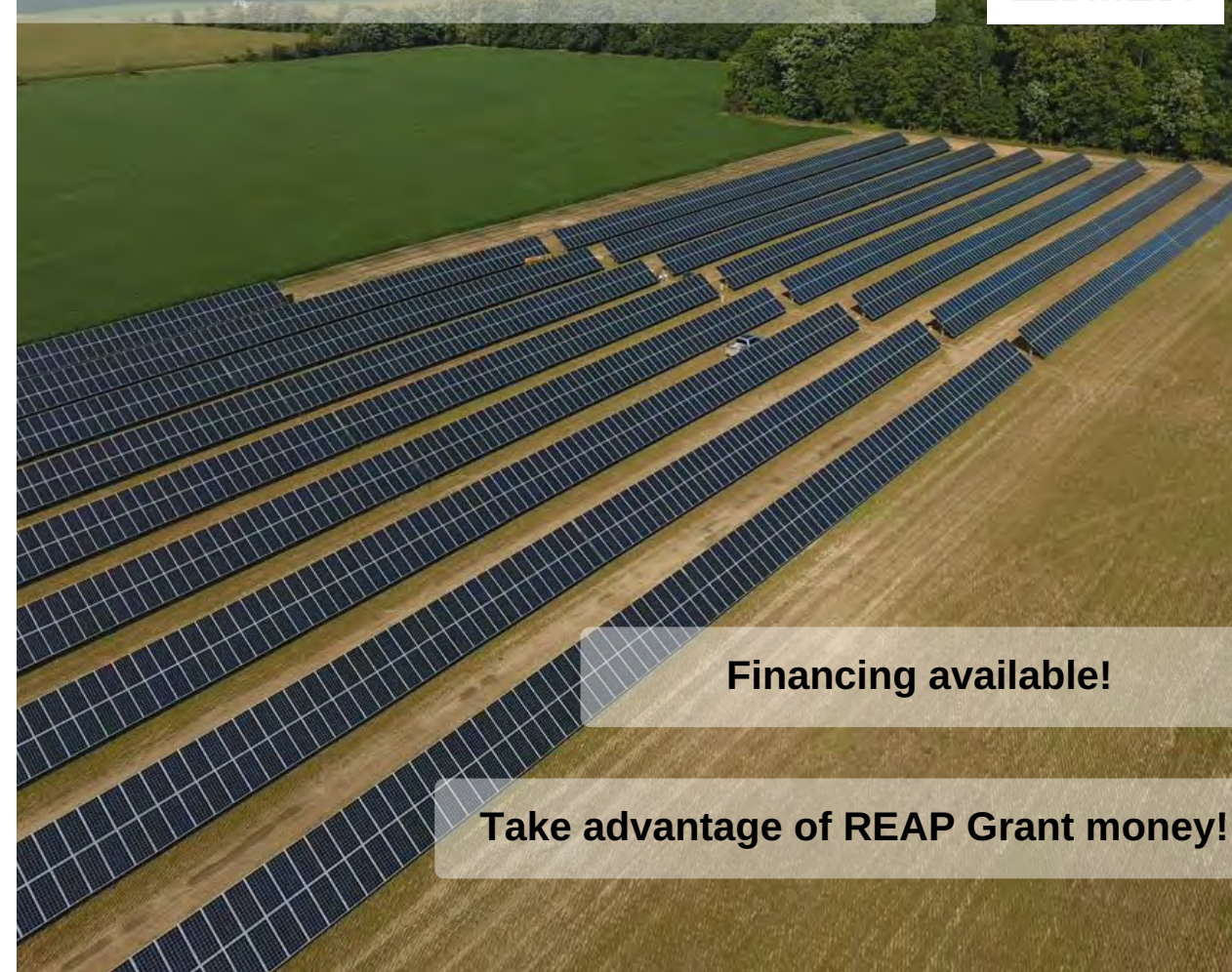
*Class is Full-Size Pickups under 8,500 lbs. GVWR based on Ford segmentation.

**Max payload on F-150 XL Regular Cab, 6' box, 5.0L V8 4x2, Heavy-Duty Payload Package and 18" heavy-duty wheels (not shown). Max towing on F-150 XL SuperCrew®, 6.5' box, 3.5L EcoBoost® 4x2, and Max Trailer Tow Package (not shown).

***Farm Bureau Bonus Cash is exclusively for active Farm Bureau members who are residents of the United States. This incentive is not available on Shelby GT350®, Shelby® GT350R, Mustang Bullitt, Ford GT, Focus RS and F-150 Raptor. This offer may not be used in conjunction with most other Ford Motor Company private incentives or AKZO-Plans. Some customer and purchase eligibility restrictions apply. Must be a Farm Bureau member for 30 consecutive days prior to purchase and take new retail delivery from dealer by January 2, 2020. Visit FordFarmBureauAdvantage.com or see your authorized Ford Dealer for qualifications and complete details.

Come visit us at the AgroExpo!

August 13-14, 2019



Financing available!

Take advantage of REAP Grant money!

2019 is the last year with the full
30% tax credit & net-metering
policies are changing. The time to
go solar is NOW!

HarvestEnergySolutions.com

888-90-SOLAR

harvest
energy solutions

Beyond N-P-K

The role of micro and secondary nutrients

MICRONUTRIENTS

BORON (B)

Boron is necessary for cell division and differentiation. It helps maintain a balance between sugar and starch and aids in the movement of calcium. Boron is also essential for the germination of the pollen grains and pollen tubes in plants and has a direct affect on yield. No pollination, no crop.

COBALT (Co)

Cobalt plays a critical role in the overall growth of plants. Cobalt is necessary for the processes of stem growth, elongating the coleoptiles, and expanding leaf discs. A cobalt deficiency will reduce or stunt plant growth and reduce seed germination.

COPPER (Cu)

Copper aids in root metabolism and the utilization of proteins. Copper is essential for better stalks or stems and standability. It is also key to seed coat resiliency, disease control, test weight, and seed size.

IRON (Fe)

Iron is required for the formation of chlorophyll in plant cells. It activates respiration, photosynthesis, and symbiotic nitrogen fixation. Low iron levels in the plant result in poor energy transfer from leaves to growing points or fruiting structures thus slowing growth and lowering yields.

MANGANESE (Mn)

Manganese is needed for phosphorus and magnesium uptake and aids in the utilization of nitrogen, accelerating seed germination and maturity. Because it plays a major role in the production of chlorophyll, it directly affects the health of the crop and whether a plant reaches maturity or not.

MOLYBDENUM (Mo)

Molybdenum acts as a catalyst in nitrate reduction, and in nitrogen transport and utilization within the plant. Molybdenum is also associated with disease resistance in plants.

NICKEL (Ni)

Nickel is important in nitrogen metabolism because it is a component of the urease enzyme. Without the presence of nickel, urea conversion is impossible. It is required in very small amounts, with the critical level appearing to be about 0.1 ppm.

ZINC (Zn)

Zinc is necessary for chlorophyll and carbohydrate production. High yields are impossible without zinc due to its importance in growth, metabolism, and photosynthesis. High soil phosphorus, soil organic matter, biological activity, and irrigation play a role in zinc availability.

SECONDARY NUTRIENTS

CALCIUM (Ca)

Calcium is a secondary plant nutrient that stimulates root and leaf development, activates several plant enzymes, and is required by nitrogen-fixing bacteria. In the soil, calcium indirectly influences yield by reducing soil acidity. It also helps improve root growth conditions, molybdenum availability, and uptake of other nutrients.

MAGNESIUM (Mn)

Magnesium is a secondary plant nutrient. It serves as an activator of many plant enzymes required in growth. It's the central atom in chlorophyll, and also aids in phosphate and nitrogen metabolism. Magnesium is necessary for the formation of oils, fats, amino acids, and sugars. It promotes early growth and uniform crop maturity.

FARMCO DISTRIBUTING INC



AKRON



Automatic



BATCO



Danco



Danco



Herd
BRIDGES CO. INC.



LUCAS NGW
PRODUCTS



MAINERO



MANDAKO



MAUER



REM



ROTO GRIND



SCHULTE



SCHULTE



WHEATHEART



WESTFIELD

**SERVING MICHIGAN
AGRICULTURE FOR
OVER 30 YEARS**

For more information or the dealer nearest you call

13619 S. DEWITT ROAD, LANSING, MI 48906
PHONE: 517-669-8391 FAX: 517-669-6405
www.farmco.com

Crop management challenge: FFA students are now in charge

FARM NEWS MEDIA

By entering AgroExpo's 2019 Crop Management Challenge, FFA students are now in charge.

At least, that's the idea behind the first-year competition, said Megan Merrill, a Springport agriscience teacher and FFA advisor.

"From our end, what I like about this event is that many of our students are coming from family farms, but those kids aren't making decisions," Merrill told *Michigan Farm News*. "The event is structured where students have to dig into the costs and ... management skills. Kids here are having a conversation and really have to engage."

The Crop Management Challenge is a competition for FFA chapters to enter and expand their members' agronomy skills. Contestants compete with other chapters to make sound agronomic, marketing and environmental decisions in a demonstration plot of corn.

The goal of the first-year event? To raise student awareness in agronomical career opportunities.

Normally, according to Merrill, "kids aren't in those big decisions" on the farm.

"They learn to expect a return (from the crop), (and) when it is not a beneficial input," Merrill said. "I think it's awesome. It gives my students a very real and hands-on experience with decision-making and agriculture. The idea behind the project is to give students an experience to make decisions."

Merrill has five students participating in the corn plot challenge — two soon-to-be juniors, one sophomore and two freshmen. Contestants in the challenge are judged on yield (35%), economics (35%) and presentations/responses (30%) to the judges' questions.



Engineered to meet the demands of the market:

- Post-frame efficiency with the durability of concrete
- Lifetime guarantee
- 10,000 psi precast concrete
- 60,000 psi A706 rebar
- Powder-coated steel bracket
- Sized to fit laminated columns and solid posts

Keep your reputation out of the dirt

The threat of rotting posts is eating away at post-frame business opportunities. News travels fast, and your customers are quickly learning that post-frame construction has advanced beyond the decaying practice of burying wood columns in the ground.

Capitalize on post-frame done right

Perma-Column® precast concrete columns outperform traditional wooden posts and easily integrate into your current post-frame building process. Your structures can now achieve the durability of concrete without the costly expenses of a continuous pour foundation.

Elevate your business

The integrity of your business is defined by the integrity of your structures. Build on your reputation for quality by providing your post-frame customers the industry's most enduring foundation: The Perma-Column® system.

Build better, build stronger, build to last.

TEMPORARY FOUNDATIONS

PERMANENT SOLUTIONS

PROTECT YOUR BUSINESS. BUILD WITH PERMA-COLUMN.

RICHLAND
LAMINATED COLUMNS LLC

PH: 419-895-0036 FAX: 419-895-0062

»CONTINUED ON PAGE 29

»CONTINUED FROM PAGE 28

The FFA chapter involved in the competition will be expected to attend the AgroExpo and occupy a tent by their plot area. There, participants will explain their challenge plot decisions and provide a final report based on yield data after the harvest.

First-place winners will receive a plaque, traveling trophy and \$1,000; second-place winners will receive a plaque and \$500; and third-place winners will receive a plaque and \$250.

"I love the concept, and I want to continue this," Merrill said. "My students can mentor and carry this over to others. The students I chose are the ones who are the tractor drivers on the farms. ... They don't get to be decision-makers.

"This gives them a chance to do that."

The AgroExpo FFA Crop Management Challenge is sponsored by AgroLiquid and Michigan Corn Growers Association. FFA chapters participating include Mason, Springport, Laker, Sanilac Career Center, Montcalm Career Center, Fowlerville, Perry, Ovid Elsie, Olivet and Coleman.

"This is a great opportunity," said Robert Sollman, biotechnology instructor at the Sanilac Career Center. "I have six kids working on the project. So far, we are weighing the pros and cons of the timing of the nutrient applications. The students did quite a bit of research."

Similarly to Merrill, Sollman said he enjoys his students finally making the farming decisions.

"Kids are forced to learn and then defend what they are learning," he told

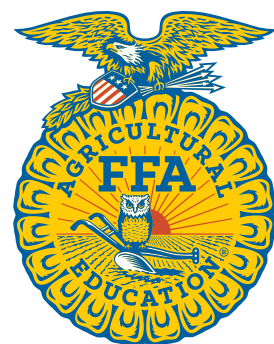
Michigan Farm News.

"They ... go deeper into the subject. This project is so awesome at driving kids into the subject matter so they truly understand what goes into a crop."

Merrill agrees.

"The beauty is we made contact with a local producer," she said. "He met with our team and gave us a real-life perspective on how he uses the local product while helping us make our management decisions.

"He gave us that real perspective."



Lean, mean working machine.

Tackle everything on your to-do list with WORKMASTER™ compact tractors. Built tough and easy to operate, WORKMASTER compact tractors deliver reliable, hardworking power, day in and day out. If you are looking for the best performing compact tractor for your hard-earned dollar, look no further than WORKMASTER compact tractors. Let's get it done.



newholland.com

ALPENA
DON'S TRACTOR & EQUIPMENT SALES
989-356-6317
donstractorsales.com

NASHVILLE
MAPLE VALLEY IMPLEMENT
517-852-1910
www.maplevalleyeq.com

© 2019 CNH Industrial America LLC. All rights reserved. New Holland is a trademark registered in the United States and many other countries, owned by or licensed to CNH Industrial N.V., its subsidiaries or affiliates.

Thank you to the following businesses and organizations that sponsored the 1st annual Michigan FFA Crop Management Contest.

GOLD SPONSORS

AgroLiquid
Corteva Agriscience
Corn Marketing Program of Michigan
Spartan Insurance

SILVER SPONSORS

Compass Minerals
Farmers Advance

SEED SPONSOR

Nutrien Ag Solutions

CROP PROTECTION SPONSOR

Nutrien Ag Solutions

PLOT SPONSORS

Golden Harvest
Bush Hog
Michigan Foundation for Agriculture

Remote Sensing – Practical applications in agriculture?

GRINDGIS, FARM NEWS MEDIA

Remote sensing is the acquisition of information about an object or any phenomenon without making any physical contact with the object. It is a phenomenon that has numerous applications including photography, surveying, geology, forestry and more.

But it is in the field of agriculture that remote sensing has found significant use. There are very many applications of remote sensing in the agricultural sector. Below is a summary of these applications.

Crop production forecasting:

Remote sensing is used to forecast the expected crop production and yield over a given area and determine how much of the crop will be harvested under specific conditions. Researchers can be able to predict the quantity of crop that will be produced in a given farmland over a given period of time.

Assessment of crop damage and crop progress:

In the event of crop damage or crop progress, remote sensing technology can be used to penetrate the farmland and determine exactly how much of a given crop has been damaged and the progress of the remaining crop in the farm.

Horticulture, Cropping Systems

Analysis: Remote-sensing technology has also been instrumental in the analysis of various crop planting systems. This technology has mainly been in use in the horticulture industry where flower growth patterns can be analyzed and a prediction made out of the analysis.

Crop Identification: Remote sensing has also played an important role in crop identification especially in cases where the crop under observation is mysterious or shows some mysterious characteristics. The data from the crop is collected and taken to the labs where various aspects of the crop

including the crop culture are studied.

Crop acreage estimation: Remote sensing has also played a very important role in the estimation of the farmland on which a crop has been planted. This is usually a cumbersome procedure if it is carried out manually because of the vast sizes of the lands being estimated.

Crop condition assessment and stress detection:

Remote sensing technology plays an important role in the assessment of the health condition of each crop and the extent to which the crop has withstood stress. This data is then used to determine the quality of the crop.

Identification of planting and harvesting dates:

Because of the predictive nature of the remote sensing technology, farmers can now use remote sensing to observe a variety of factors including the weather patterns and the soil types to predict the planting and harvesting seasons of each crop.

Crop yield modelling and estimation:

Remote sensing also allows farmers and experts to predict the expected crop yield from a given farmland by estimating the quality of the crop and the extent of the farmland. This is then used to determine the

overall expected yield of the crop.

Identification of pests and disease infestation:

Remote sensing technology also plays a significant role in the identification of pests in farmland and gives data on the right pests control mechanism to be used to get rid of the pests and diseases on the farm.

Soil moisture estimation:

Soil moisture can be difficult to measure without the help of remote sensing technology. Remote sensing gives the soil moisture data and helps in determining the quantity of moisture in the soil and hence the type of crop that can be grown in the soil.

Irrigation monitoring and management:

Remote sensing gives information on the moisture quantity of soils. This information is used to determine whether a particular soil is moisture deficient or not and helps in planning the irrigation needs of the soil.

Soil mapping: Soil mapping is one of the most common yet most important uses of remote sensing. Through soil mapping, farmers are able to tell what soils are ideal for which crops and what soil require irrigation and which

»CONTINUED ON PAGE 31



14 academic programs.
13 Michigan locations.
All Spartans.

iat.msu.edu • 517-355-0190 •  IATMSU

MICHIGAN STATE
UNIVERSITY

Institute of Agricultural Technology

»CONTINUED FROM PAGE 30

ones do not. This information helps in precision agriculture.

Monitoring of droughts: Remote sensing technology is used to monitor the weather patterns including the drought patterns over a given area. The information can be used to predict the rainfall patterns of an area and also tell the time difference between the current rainfall and the next rainfall which helps to keep track of the drought.

Land cover and land degradation mapping: Remote sensing has been used by experts to map out the land cover of a given area. Experts can now tell what areas of the land have been degraded and which areas are still intact. This also helps them in implementing measures to curb land degradation.

Identification of problematic soils: Remote sensing has also played a very important role in the identification of problematic soils that have a problem in sustaining optimum crop yield throughout a planting season.

Crop nutrient deficiency detection: Remote sensing technology has also helped farmers and other agricultural experts to determine the extent of crop nutrients deficiency and come up with remedies that would increase the nutrients level in crops hence increasing the overall crop yield.

Reflectance modeling: Remote sensing technology is just about the



only technology that can provide data on crop reflectance. Crop reflectance will depend on the amount of moisture in the soil and the nutrients in the crop which may also have a significant impact on the overall crop yield.

Determination of water content of field crops: Apart from determining the soil moisture content, remote sensing also plays an important role in the estimation of the water content in the field crops.

Crop yield forecasting: Remote sensing technology can give accurate estimates of the expected crop yield in a planting season using various crop information such as the crop quality, the moisture level in the soil and in the crop and the crop cover of the land. When all of this data is combined it gives almost

accurate estimates of the crop yield.

Flood mapping and monitoring: Using remote sensing technology, farmers and agricultural experts can be able to map out the areas that are likely to be hit by floods and the areas that lack proper drainage. This data can then be used to avert any flood disaster in future.

Water resources mapping: Remote sensing is instrumental in the mapping of water resources that can be used for agriculture over a given farmland. Through remote sensing, farmers can tell what water resources are available for use over a given land and whether the resources are adequate.

Precision farming: Remote sensing has played a very vital role in precision agriculture. Precision agriculture has resulted in the cultivation of healthy crops that guarantees farmers optimum harvests over a given period of time.

Soil management practices: Remote sensing technology is important in the determination of soil management practices based on the data collected from the farms.

Crop health analysis: Remote sensing technology plays an important role in the analysis of crop health which determines the overall crop yield.

Land mapping: Remote sensing helps in mapping land for use for various purposes such as crop growing and landscaping.





PERFORMANCE TILLAGE & BOLT

(989)506-0898
Perrinton, MI 48871

Website: www.performancetillagebolt.com

- Quality Tillage Parts
- Bolt Bin Assortments
- Hydraulic Hose Systems

- Volume Discounts
- Bolt Bin Restocking
- Tractor/Combine Parts

Let Us Save You Time And Money!






2019 AGRO EXPO

connect. discover. innovate.

SOIL & REMOTE
SENSING TECH
DEMONSTRATION
10 AM & 3 PM DAILY



DEMONSTRATION AREA
IS LOCATED SOUTH
OF THE PARKING LOT

GTW

Welding Supplies

616-754-6120

**Call Us, We'll
Make it Happen**

www.GTWSUPPLIES.com

201 W. Greenville West Dr., Greenville, MI 49326 / 975 E. Lincoln, Ionia, MI 48846
18710 Northland Dr., Big Rapids, MI 49307

- Industrial Gases
- Medical Gases
- Hydraulic Hoses & Fittings
- Propane
- Machine Repair & Certification
- Safety & Industrial Supplies
- Helium for Balloons
- CO₂ For Beverage Dispensing
- Cylinder Testing
- Torch & Hose Repair

Enduring strength. Uncompromising quality.

It's no wonder our post-frame buildings last a long, long time. We only use the highest quality lumber. We carefully shape our own steel and trusses. And our Wick-trained crews know only one way to install our designs: the right way.

Want the best quality at a competitive price? Call us. We'll make your hard-earned buck last a long, long time.

Contact us today for your free quote!

(517) 625-5558
LynnmanConstruction.com

**LYNNMAN
CONSTRUCTION**



Visit us at
2019 AGRO
EXPO
connect. discover. innovate.
Booth #019 & 020

**Wick
Buildings**
Authorized Wick Builder



KUBOTA BV SERIES

LESS WORK. BETTER BALES.



Unmatched dependability and efficiency is built in. Field after field these hard-working round balers create dense bales and tight outer layers with hassle-free engineering designed to help you have your best season yet.

Visit us to find out why the BV is the right baler for you.

ALANSON
GINOP SALES, INC.
231-548-2272
www.ginopsales.com

CARLETON
CARLETON FARM SUPPLY INC.
734-654-8222
carletonfarmsupply.com

CLARE
CAPITAL EQUIPMENT
989-386-2192
www.cedealer.com

COLDWATER
KUBOTA KINGS
517-279-8002
www.kubotakings.com

DRYDEN
ROSY BROS. INC.
810-796-3770
rosybrosinc.com

FREMONT
PELLS FARM SERVICE INC.
231-924-2510
www.pellsinc.com

JACKSON
KUBOTA OF JACKSON
517-784-3146
www.kubotakings.com

LENNON
ALDERMAN'S INC.
810-621-4201
www.aldermans.com

WILLIAMSBURG
GINOP SALES, INC.
231-267-5400
www.ginopsales.com

KubotaUSA.com

Optional equipment may be shown.



© Kubota Tractor Corporation, 2018

Come Join Us!
August 13, 4:30 pm - Dining Tent

BETWEEN THE ROWS TOUR

Event will include a catered dinner, safety update by Consumers Energy, a marketing update and an agronomy update by Dr. Martin Chilvers on pathogens affecting corn.

Pre-Registration is appreciated but not required at: www.cvent.com/d/jyqknq

BROUGHT TO YOU BY:



SCHULTE

**RS320
 "Jumbo"
 Rock Picker**



**5026
 Rotary Cutter**



RS320 "Jumbo" Rock Picker

- Extra large 3.2 cubic yard (2.43 m³) hopper
- T-iron tapered grate with 3/4" bottom and 1/2" top material virtually eliminates all small rock jamming
- 48" grate will pick at least 50 percent less dirt and trash than most conventional reel type models
- Removes surface rock from 2" to 28"

5026 Rotary Cutter

- 26' 2" working width
- Hydraulic phasing cylinders for level lift
- Spring steel bushings at all major pivot points
- Suspension for centre and wing frames
- 10 GA deck with front half deck protection rings

FARMCO DISTRIBUTING INC

For more information or the dealer nearest you contact:
 13619 S. DEWITT ROAD, LANSING, MI 48906
 PHONE: 517-669-8391 FAX: 517-669-6405
www.farmco.com

Quality • Service • Value • Trust



**DIESEL EQUIPMENT
SALES & SERVICE, INC.**



- Inspection and repair of fuel injection equipment using state-of-the-art equipment
- In-stock exchange units
- Injector testing
- Phone-in troubleshooting
- Genuine factory parts
- Friendly, knowledgeable service
- Factory-trained service technicians
- Distributor for heavy-duty starters, alternators and turbochargers

Potterville

578 East Main
Potterville, MI 48876

Toll Free (888) 769-8000

Diesel Fuel

Injection Specialists

Since 1952

St. Louis

1395 West Monroe
St. Louis, MI 48880

(989) 681-2320



**MICHIGAN
FARM BUREAU®**

**We grow
Michigan**

advocacy
membership & benefits
leadership development



michfb.com

**Forage
Shortage?**

**Prevented
Plant Acres?**



It was a tough Winter. It's been a tough Spring.

Whether you're facing a forage shortage or a prevented plant situation, Byron Seeds LLC has the answer:

- We've developed four new mixes just for this spring's tough conditions
- Quality emergency forage
- Summer cover crop/forage
- Prevented Plant mixes
- We have Certified Forage Specialists who can help you with the right prescription

Give us a call.

We're farmers helping farmers.



NE Territory Manager

Mark Hostetler

574-274-2454 • markdhostetler@gmail.com

2019 AGRO EXPO

connect. discover. innovate.

HUNGRY?

CHECK OUT OUR
FOOD VENDORS:

B.Y.O.B.

CHUCKIE D'S BBQ

FIRE AND RICE

FUN FOOD

WHO DOESN'T LIKE PIZZA

WILSON'S MEAT WAGON



FOOD AREA IS LOCATED
SOUTH OF THE OUTDOOR
BOOTH WITH PLOTS

Precision Planting
Premier Dealer



CLIMATE
FIELD
VIEW

Precision Planting Services

KNOWLEDGE • PRODUCTS • SUPPORT

Is **YOUR** planter set **RIGHT**?



Precision Planting

Ag Leader®

360 YIELD CENTER

Dakota Micro, Inc.

SUNCO
Farm Equipment

Marshall

HARVEST
international

Yetter
FARM EQUIPMENT

ag/cel

SHOUP
SEEDING EQUIPMENT

Need more information or want to know how we can help you?

Call: 517-230-2824 or Visit Us: PMPrecisionPlanting.com



PM Precision Planting



@pmprecision

Pole Buildings

"Free Quotes"

Serving Southern Mich., Ohio, Indiana & Northern Kentucky



We Will Custom Build Any Size

30'x40'x12'

1-16'x11' sliding door
1-3'-0"x6'-8" walk door
Trusses 4' O.C.

\$12,650 Erected Price

40'x64'x14'

1-20'x14' sliding door
1-3'-0"x6'-8" walk door
Trusses 4' O.C.

\$21,500 Erected Price

48'x80'x14'

1-20'x12'-8" sliding door
1-24'x14' sliding door
1-3'-0"x6'-8" walk door
Trusses 4' O.C.

\$34,000 Erected Price

60'x120'x14'

1-20'x12'-6" sliding door
1-24'x14' sliding door
1-3'-0"x6'-8" walk door
Trusses 4' O.C.

\$48,000 Erected Price

Call for all your building needs!

Or check us out on Facebook!



Prices Good Within A 100 Mile Radius

Arnold Lumber Co.

Decatur, Indiana

1-800-903-4206

Steel Building Package

100' x 125' - 16'

2-16' x 14' overhead doors with openers; 1-3/0 x 7/0 man door
\$109,000 Erected



FABRAL
METAL WALL AND ROOF SYSTEMS

Want a GOOD KILL USING minimum LABEL RATES?
VISIT OUR BOOTH FOR ANSWERS TO
 THIS AND OTHER IMPORTANT QUESTIONS.

USE TORCH HERBICIDE ENHANCER!

"We ran out of Torch so we went to our local supplier of Herbicides and bought their additive. We may as well have not added anything. Compared to Torch, Torch works!"

—Dolphia Eisenlohr, Shelby, MI

REASONS MANY FARMERS USE TORCH

- Better weed control
- Less weight to carry to the top of the tank
- 1 jug vs. 2 or 3 of others
- Very concentrated!
- **1 Jug treats 1200 gallons solution**
- **5 gallons per case**

AMMONIUM SULFATE REPLACEMENT

Torch will Replace:

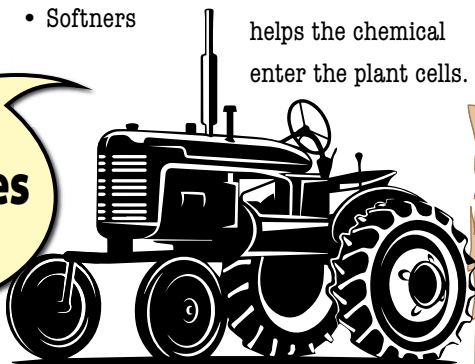
- Anti-Foamers
- Surfactants
- Anti-Drift
- pH Buffer
- Stickers
- Softners

WHY TORCH WORKS

- Torch will lower the pH of your water. This makes pesticides much more effective.
- Torch contains a very high quality surfactant that helps the chemical enter the plant cells.



Farmers report using **LESS PESTICIDES** when adding Torch.



DISTRIBUTOR:
Cushman Creek Supply
(231) 924-7014
Holton, MI 49425

ccsupply@ibifax.com



MICHIGAN Rep:
GERRY DAVIS
(517) 250-1144

gdavis051@gmail.com
 www.cushmancreek.com

**DO YOU WANT
 8 TO 10 BUSHELS
 MORE CORN!**

Cost is \$4.00 per acre!

Microbile Pop-up additive
 Add to you current pop-up
 program. Made by the
 same manufacture as
 Torch.

Metabolik SB



We ship to your door. These products are sold by Farmers to Farmer...



It starts with the soil

AGROLIQUID

Every grower has a budget for crop inputs – where should the first crop nutrition dollar be spent? What seed genetics will minimize variability? What crop protection products will I need? The first, most important tool for developing a crop management program is a good soil test. Unless a grower knows the condition of their soil, any cropping plan will be based on averages and generalities. In today's economic environment, it is vital to understand what the soil has, and what it doesn't have, in order to make a well-thought-out management program.

The first step is, of course, collecting a sample. So, what do you need to keep in mind when soil sampling?

KNOW YOUR FIELDS

Soil sampling can be done in a grid sampling pattern if nutrients are being applied using precision application and variable rate technology equipment. If variable rate applications are not intended, fields can be separated into similar areas (zones). Often the similar areas can be grouped by soil type. Knowledge of the field is critical, so that distinct areas of the field can be sampled separately. A composite soil sample should represent an area no larger than 20 acres. Larger areas should be split into multiple samples. Sampling should be done in a zig-zag pattern throughout the zone, making sure to stay away from the outside boundaries of each area. Make sure the zone is well represented in the soil sample. Remember that up to 20 acres are to be represented by less than 1 pint of soil in the sample bag, and the lab uses just a small portion of that to do their analysis.

Of course, there is available technology that can be helpful in developing maps and strategies to use for proper placement of crop inputs, including seed, fertilizer and pesticides. These technologies can make it possible

to test more ground in less time than conventional soil sampling. Some of these technologies will be demonstrated on the AgroExpo grounds.

SoilHawk™ helps farmers save on labor and avoid inaccurate soil tests by allowing one person to easily obtain accurate, pure soil samples from hundreds of acres per day.

SoilOptix® delivers a higher level of customization than ever available before. You can program Variable Rate Application for seed, fertilizer pesticides and other nutrient applications, tailored to the specific soil conditions across the planting area, with unprecedented accuracy. SoilOptix® measures and maps all common nutrient properties (e.g. pH, organic matter, phosphorus, potassium, calcium, magnesium) along with various soil textures (e.g. % clay, % sand, % silt) plus plant available water, and bulk density. These values are important in deciding pesticide applications and rates.

BE AWARE OF SEASONAL EFFECTS

Regardless of your sampling methods, consistency is key when comparing multi-year soils tests. There can be considerable seasonal influence on soil

test values, especially on potassium and pH. According to Midwest Labs, clay soils, like those in much of the northern corn belt, have a tendency to have a higher potassium level during winter months. Soil pH values can vary, as well, depending on rainfall or irrigation, nitrogen or sulfur inputs, and soil buffering capacity. It may be wise to take soil samples during periods when these variations hit average values. These periods are generally in the early fall (September-November) and again in the late March-April time frames.

THE NEXT STEP

While properly collecting and submitting soil samples is a critical first step, interpreting the results is another challenge. Upon first glance, a complete soil sample report can look like something a nuclear engineer carries in his briefcase. Luckily, the AgroExpo has some of the best agronomists in the business available to discuss your soils and cropping situation. Take advantage of having these professionals together at this event — and don't miss the Soil Sampling & Remote Sensing Technology demonstrations at 10:00 am and 3:00 pm each day in the demo area.



Industrial Hemp: A Bright Future for Your Economy & Environment!

Business Conference • Trade Show • Networking • Advocacy • Education • Products • Workshops

iHemp | EXPO

LANSING, MICHIGAN • JANUARY 10-11, 2020

The Midwest's largest Hemp Expo. Presented by iHemp Michigan.
Visit iHempMichigan.com or Call 810-202-8480



THE REINKE ADVANTAGE

Reinke center pivots are made of high-strength, low-alloy steel, making them lighter, more agile and yet stronger. The C-channel tower legs require no additional bracing and the simple, clean design minimizes the obstruction of water application and allows passage through taller crops with less damage. Reinke's unique v-ring seal provides a much stronger flange to flange connection, is completely protected from UV light and leaves a smooth internal pipe surface that does not disrupt water flow at every connection.

CALL JASON TODAY TO LEARN MORE ABOUT THE REINKE ADVANTAGE!



4840 North Greenville Rd. • Lakeview, MI 48850
989-352-8411 • www.farmservicesinc.com

Farm Irrigation • Complete Service & Repair

High-Calcium Stedman Ag-Lime



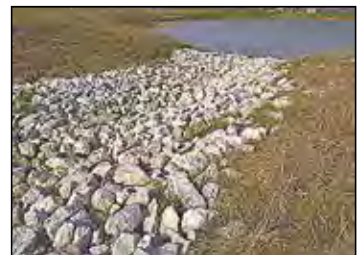
AGRICULTURAL LIME

- Neutralizes Acidic Soil
- Reduces Need To Fertilize
- Increase Yields
- Neutralizing Value (CCE)* 93.40%

* Value based on recent testing and is subject to change. Call for most recent test results.



**Driveways
Large Or Small**



RIP RAP

Erosion Control

**F.G. CHENEY
LIMESTONE CO.
269-763-9541**

Since 1946

**9400 Sand Road
Bellevue, MI 49021**

www.cheneylimestone.com

E-mail: info@cheneylimestone.com



AgroExpo field demos focus on sprayer technology

FARM NEWS MEDIA

Five of the top sprayer manufacturers will be represented at AgroExpo's demonstration site, offering a close-up look at all of the features of each unit. You'll get helpful tips on calibration, tip selection, tip wear and sprayer maintenance to name a few. Most importantly, you will get to see them in action as they operate in the demonstration area each day at 9 a.m. and again at 2 p.m.

JOHN DEERE R4038 SPRAYER

Completely redesigned from the ground up with the latest advances in technology, the smartest cab in its class, higher application rates and smooth-running comfort, John Deere's R4038 Sprayer can take your productivity to whole new levels, said Tony Rockafellow, commercial application specialist for Baders & Sons.

A 120-foot boom means fewer passes for less compaction and less time spent spraying. Swing link suspension improves stability, allowing the booms to shift horizontally (side-to-side) rather than lateral (up and down) movement, which helps to more accurately maintain spray height above the crop and deliver a precise spray pattern.

Equipped with the Gen 4Extended Monitor option, the operator can monitor quality of the work being done in broad acre, high-speed operations

by seeing a second full page run screen on a second interactive touch screen monitor. It also allows the operator to easily make or implement setting adjustments by reducing the need to swipe between multiple run pages.

Rockafellow also plans to showcase John Deere's ExactApply technology which gives users the ability to switch spraying between two pre-selected nozzles with the push of a button. There is also the option to automatically vary the rate across the entire boom. This ensures that the correct amount of material is applied to the right area of the field, improving spray resolution accuracy.

ROGATOR 1100C

Sponsored by Farm Depot, salesman Blake Laethem said the latest self-propelled sprayer system from Rogator has some very big changes that improve upon an already trusted machine. Outfitted with a 120-foot boom, the newest machine comes with an improved drive system and a totally redesigned liquid system, including one continuous boom.

Labelled as "the new benchmark in precision application," the RoGator C Series by Challenger has been redefined starting with the industry-exclusive LiquidLogic system to the sophisticated AWD SmartDrive system to the simple, intuitive AccuTerminal

operational platform that controls all chassis and machine functions.

Unprecedented Product Recovery: ClearFlow™, the industry's first full-recovery system, pushes unused product from the plumbing back into the tank prior to a tank or boom rinse. Rainout? No problem. Product goes back in the tank to be re-agitated or off-loaded, so waste and contamination are minimized.

Prevent Product Build-Up: More resistant weeds require more complex, potent product mixtures, which can create a greater risk of product contamination and crop damage. The FlowLogic system keeps product in motion and in suspension.

Prime Without Waste: Once the product pump and recirculation is turned on, product begins to flow through the entire boom plumbing, quickly priming the boom. You save time and money, and apply product only where it's needed.

APACHE MODEL AS1040

Designated as "The Best Selling Apache," the 1,000-gallon AS1040 sprayer fits perfectly for most any farming operation size, according to John Murphy of HJV Equipment LLC in Chesaning, Mich., which acquired the distributorship of the Apache line of

»CONTINUED ON PAGE 41



»CONTINUED FROM PAGE 40

Spray Equipment in 2009.

According to Murphy, the AS 1040 will be equipped with 100-foot aluminum boom, as well as standard features, including auto-steer, a Viper 4 controller, boom height control and a chemical injection and inductor system, keeping chemical and water separate until application.

A durable ZF six-speed power shifting transmission, equipped with a lock-up torque converter, doubles the engine's torque. A lock-up feature couples the engine to the transmission, creating a direct drive transmission which has been battle tested year-round in extreme conditions by world-class off-highway heavy equipment makers. This provides the shifting power you need without the added weight.

With a 1,000-gallon capacity tank, the Apache AS1040 Sprayer is the most popular sized model in the lineup. It features a mechanical drive that makes it simple to operate and nimble enough to work in field conditions competitive sprayers can't.

Capable of 35 mph road speeds, the AS1040 is engineered lightweight at just 20,000 pounds. That means better fuel economy, reduced compaction and a lower price. The Apache 1040 offers a turning radius of 18 feet and a wheel base of 15 feet — perfect for tight-fit areas.

CASE IH PATRIOT 3340

AgroExpo visitors will be able to witness the accuracy and consistency of the Case IH Patriot 3340, according to



Farm News
FIVE

**YOUR TRUSTED FARM NEWS
IN JUST FIVE MINUTES**

Hosted by
Janelle Brose



SUBSCRIBE NOW:
[HTTPS://TINYURL.COM/MCV45Z3](https://tinyurl.com/mcv45z3)

Aaron McKenzie of Janson Equipment. For 2019, the Patriot series is equipped with Advanced Farming Systems (AFS) AccuTurn and is now available through the AFS Pro 700 display.

The 3340 also includes AutoBoom automatic boom height control to maintain spray height for better coverage. AIM Command FLEX advanced spray technology delivers the ultimate in spray control so you can maintain optimal coverage over a range of speeds and terrain. This new system features flexible application, turn compensation and nozzle valve diagnostics.

The cab-forward, rear-engine Patriot design does much more than create a distinctive look — it also provides optimal weight distribution across the machine for earlier field access and less rutting and soil compaction.

With the option of a 60-, 90- or 120-foot boom, the 285 horsepower Patriot 3340 includes a 1,000 gallon tank and a centrally located service center for all tendering functions.



NEW HOLLAND GUARDIAN SP370F

Sponsored by Ellens Equipment, the demonstration will include a New Holland Guardian SP370F sprayer. The ground-breaking Guardian front boom sprayers from New Holland combines rugged construction with innovative design to save you time and make you more productive all season long.

Guardian front boom sprayers are the easiest way to spray. With the boom in front, you get the very best view of the spray nozzles and the field ahead to confidently cover ground faster. And with the highest ground clearance on the market — up to 78 inches, you'll be ready for late-season applications. You can adjust under-body clearance on the go from the seat to adapt to changing needs. For truck transport, you can easily lower the overall height down to 153 inches (12.75 feet) from the operator's seat.

The SP370F planetary drive system is electronically controlled and provides a long list of outstanding features such as full-time traction control, cruise control, anti-stall, integrated speed limiting and four driver-programmable speed settings.

Add to that a 32-mph road speed with four-wheel dynamic braking, and you have an effortless system to operate. Since the engine is mounted in the rear, Guardian sprayers offer better weight distribution, and you get better access and a quieter ride.



NEW & USED EQUIPMENT



WE CARRY THE TOP BRANDS TO MAKE YOUR JOB EASIER!



10 LOCATIONS TO SERVE YOU!

Bad Axe
1314 Sand Beach Rd.
989-269-9249

Burton
4135 Davison Rd.
810-742-3364

Fenton
2139 W. Baldwin Rd.
810-655-4886

Marlette
7454 Van Dyke Hwy.
810-346-2761

Saginaw
6150 Bay Rd.
989-791-1234

Birch Run
8461 Main St.
989-624-9356

Caro
415 Biebel Rd.
989-673-8400

Lapeer
3120 N. Lapeer Rd.
810-664-3798

Reese
9952 Saginaw St.
989-868-4165

Sandusky
989 W. Sanilac Rd.
810-648-2404



Find us on

Facebook

TRICOUNTYEQUIPMENT.COM

HARVEST ANY ROW SPACING,
IN ANY DIRECTION



ROW INDEPENDENT
CORN HEAD



For more information or the dealer nearest you call

FARMCO DISTRIBUTING INC

13619 S. DEWITT ROAD, LANSING, MI 48906
PHONE: 517-669-8391 FAX: 517-669-6405
www.farmco.com

Thank You Sponsors

AGROLIQUID

*Gold Sponsor &
Gold FFA Crop Management Contest Sponsor*

AL'S AERIAL SPRAYING

Fence Sponsor

APPLEBEE OIL & PROPANE

Fuel Sponsor

BUSH HOG

FFA Crop Management Contest Supporter

COMPASS MINERALS

*Breakfast Sponsor &
Silver FFA Crop Management Contest Sponsor*

CORN MARKETING PROGRAM OF MICHIGAN

*Speaker Sponsor &
Gold FFA Crop Management Contest Sponsor*

CORTEVA AGRISCIENCES

*Gold FFA Tractor Contest Sponsor &
Gold FFA Crop Management Contest Sponsor*

DAVID CHAPMAN AGENCY

Speaker Sponsor

FARM BUREAU

Tram Sponsor

FARMERS ADVANCE

Silver FFA Crop Management Contest Sponsor

FRALEIGH LAW FIRM

Speaker Sponsor

GOLDEN HARVEST

*Table Top Sponsor &
FFA Crop Management Contest Plot Sponsor*

GREENSTONE FARM CREDIT SERVICES

Speaker Sponsor

MICHIGAN AGRICULTURAL COMMODITIES

Gold Sponsor & Table Top Sponsor

MICHIGAN FOUNDATION FOR AG

FFA Crop Management Contest Plot Sponsor

NUTRIEN AG SOLUTIONS

*FFA Crop Management Contest Seed Sponsor &
FFA Crop Management Contest Crop Protection Sponsor*

PIONEER

Main Tent Speaker Sponsor

RUPP SEEDS

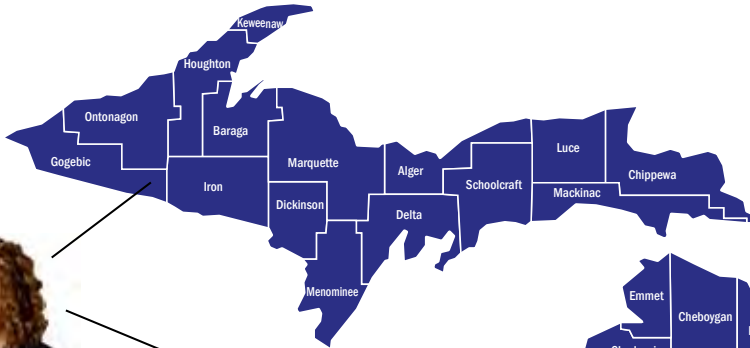
Tram Sponsor

SPARTAN INSURANCE

Gold FFA Crop Management Contest Sponsor

2019 **AGRO**
EXPO
connect. discover. innovate.

Your Michigan Crop Insurance Team



Adam Gulvas
Saginaw Valley
Specialist
(989) 205-3526
agulva1@fbinsmi.com



Janna Fritz
Manager
(989) 550-6245
jfritz@fbinsmi.com



Brenda Szach
North Specialist
(989) 329-7290
bszach@fbinsmi.com



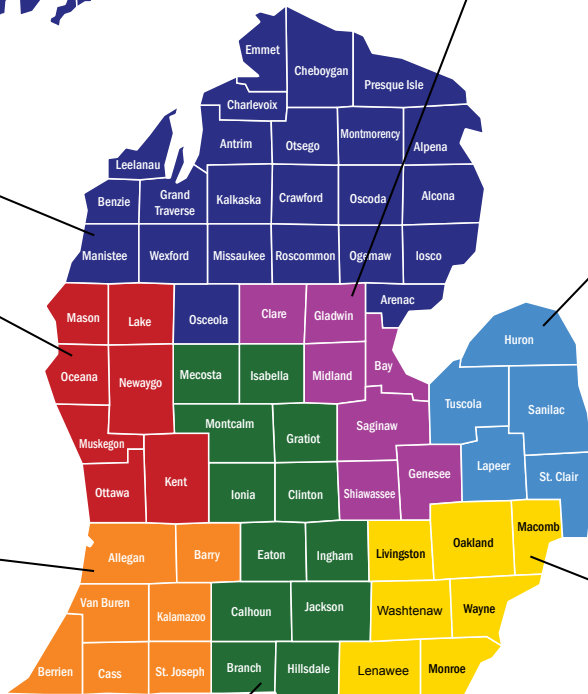
Ryan Fox
West Specialist
(269) 313-5566
rfox@fbinsmi.com



Marc Reinhardt
Bay-Thumb Specialist
(989) 450-4851
mreinha@fbinsmi.com



Marc Erffmeyer
Southwest Specialist
(269) 569-1039
merffme@fbinsmi.com



Nate Gust
Southeast Specialist
(517) 605-1076
ngust@fbinsmi.com



Ali Cronin
Sr. Crop Ins. Support Specialist
(517) 679-5669
acronin@fbinsmi.com



Matt Thelen
Central Specialist
(989) 640-0570
mthele1@fbinsmi.com

**Contact your local
Crop Specialist today!**



**Michigan's
Crop Insurance**

FarmBureauInsurance.com/Crop