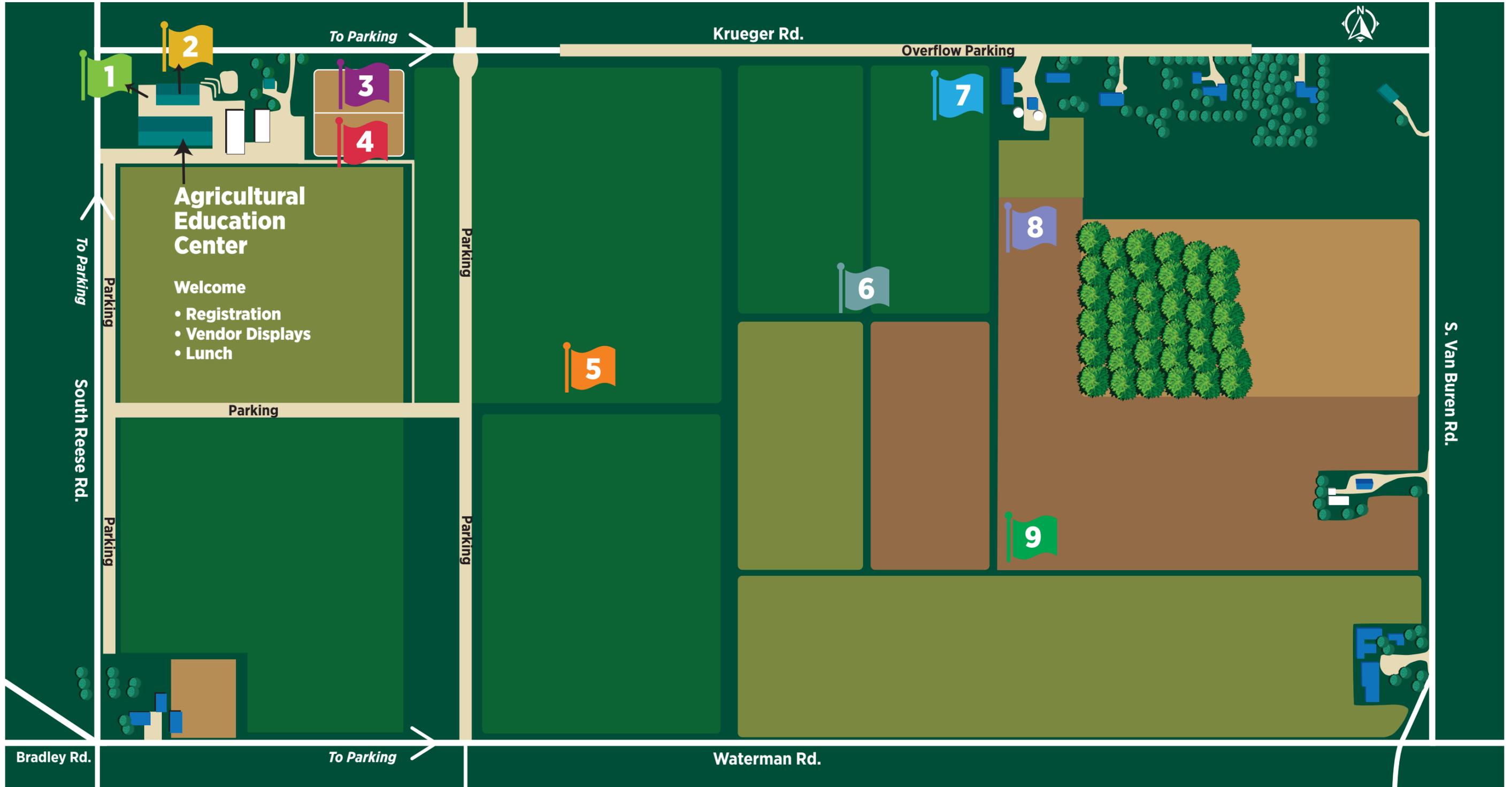


# MSU Agriculture Innovation Day: Focus on Soils

August 24, 2016

Saginaw Valley Research and Extension Center in Frankenmuth, Michigan



Sponsored by: **College of Agriculture and Natural Resources**  
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## MSU's premiere Agriculture Innovation Day to focus on soils Aug. 24 in Frankenmuth

**Michigan State University (MSU) will host its first MSU Agriculture Innovation Day: Focus on Soils on Aug. 24 at the Saginaw Valley Research and Extension Center in Frankenmuth, Michigan.**

The educational field day will deliver cutting-edge information on soil health topics ranging from nutrient management and soil quality to compaction and tile technology. Farmers will have the opportunity to hear

science-based expertise and see the results of various techniques on both crop growth and soil quality. They will also learn about the soil testing and plant diagnostics resources offered by MSU.

Participants attending the program will be eligible to receive up to 5 RUP credits for commercial, private or 1A categories, and up to 8 CEUs for certified crop advisors – 2 in nutrient management and 6 in soil and water.

### Schedule

<b>8 a.m.</b>	<b>Check-in/Registration</b>
<b>8:30 a.m.</b>	<b>Welcome and View Educational Displays</b>
<b>8:45 - 11:45 a.m.</b>	<b>Educational Sessions* (5 sessions: 8:45 a.m., 9:30 a.m., 10:15 a.m., 11 a.m., 11:45 a.m.)</b>
<b>12 - 2 p.m.</b>	<b>Lunch with Formal Program and View Educational Displays</b>
<b>2 - 4:30 p.m.</b>	<b>Educational Sessions* (4 sessions: 2 p.m., 2:45 p.m., 3:30 p.m., 4:15 p.m.)</b>

\*Except for Presentation 5, each educational session time will be determined at check-in.

### Presentations

#### 1. Reducing Compaction (and Increasing Profits) With the Right Tires, Air Pressure and Weight Distribution

Ever wonder if field compaction can be reduced through minor adjustments to tractor tires and tracks? An engineering expert from Michelin's North American will show how this is possible, particularly when dealing with certain Michigan soils and the unique tillage or harvesting methods associated with many of Michigan's crops. Learn how proper air pressure, new tire and track technology, field traffic patterns and other tactics can reduce or prevent tire and track compaction, and help increase the bottom line.

#### 2. Get Water and Nutrients Where You Want With Drainage Management

Examine how soil drainage strategies not only help improve the bottom line but also improve overall water quality. Larry Brown, professor in The Ohio State University's Department of Food, Agricultural and Biological

Engineering, will showcase the benefits and impacts of sub-surface drainage, controlled drainage structures, bio-filters, sub-irrigation and more. Walk away with new tools and techniques to make better drainage decisions for specific soil types and field topography.

#### 3. Making the Most of Your Nitrogen and Your Dollar

Learn new strategies for applying nitrogen that optimize plant growth while minimizing nutrient movement to surface and ground water. Peter Scharf, University of Missouri professor in plant sciences, will demonstrate the latest technology in crop sensors to evaluate corn nitrogen status in fields throughout the year to help producers make the best decisions about nitrogen application practices. He will also discuss best practices to use with crops sensing technology from managing crop height and ground temperature to leaf wetness. Leave this session with all the resources you need to improve your yield and bottom line.

#### 4. Successful Cover Crops – From Seed Selection to Planting Techniques

Erin Hill, academic specialist in MSU's Department of Plant, Soil and Microbial Sciences, will focus on innovative management strategies to maximize biomass, determination of synergistic ratios of species in mixtures, soil health impacts for particular commodities and whole systems, and variety trials in cover crops. You'll examine several types of equipment for interseeding and hear directly from other producers about their success and failures with different techniques. Karen Renner, professor in MSU's Department of Plant, Soil and Microbial Sciences, will also discuss her latest research on interseeding and plant competition.

#### 5. Make Your Soil Smoke and Load Your Tool Box for Optimum Soil Health

Watch smoke rise from the ground during certified soil scientist Frank Gibbs' demonstration of how water percolates in tiled fields with various soil structures. Learn about the importance of soil structure to water holding capacity as well as techniques to manage and improve soil quality, all while reducing direct pathways for nutrient displacement. Determine how best to build your management strategy tool box including: the 4-R's (Right Source, Right Rate, Right Time and Right Place) and various drainage conservation practices to help ensure a safer water supply and improve your soil quality. *This session will be presented at 8:45 a.m. and 11:45 a.m. only.*

#### 6. Save Money and Protect Your Watershed with Wise Phosphorus Decisions

Hear an overview of contemporary phosphorus application recommendations from Kurt Steinke, assistant professor of soil fertility and nutrient management at MSU. Gain a better understanding of soluble phosphorus and make better sense of soil test reports while finding ways to save money with various phosphorus application and management strategies. Learn how to prevent nutrient movement into surface and ground water while still optimizing plant growth.

#### 7. Digging into the Science of Soil Compaction: How to Prevent, Detect and Alleviate Soil Compaction

View the impact that compaction has beneath the surface in a soil pit and discover ways to minimize compaction problems using modern farming practices. Francisco Arriaga, assistant professor in the University of Wisconsin-Madison's Department of Soil Science, will discuss how soil compaction affects soil properties and crop production, and how to alleviate soil compaction with tillage

and other methods. He'll explain methods for detecting soil compaction and ways to avoid compaction from occurring in the first place. Arriaga's research supports the development of management systems that promote crop productivity as well as soil and water conservation.

#### 8. How Do Your Soils Handle Rain? Understand the Impact of Rainfall on Various Tillage and Cropping Systems

MSU Extension field crops educator Paul Gross will demonstrate a rainfall simulator. Observing rainfall infiltrating into the soil provides important insights into the physical properties of soil that affect crop production. These properties include surface sealing, porosity, aggregate stability and the interaction between these properties, crop residue and the plant canopy. Rainfall simulation evaluates the effectiveness of various systems to maximize water infiltration into the soil. Systems that will be observed include conservation tillage, conventional systems, cover crops and no-till. Jim Marshall from the Natural Resources Conservation Service will also be on hand to demonstrate the impact of cropping systems on aggregate stability and soil's ability to handle heavy rainfalls.

#### 9. Healthy Soil – Dig a Little, Learn a Lot

Get to the bottom of soil health by viewing a root pit. Learn how management practices above ground can produce vast differences in soil health beneath the ground's surface. See how cover crop usage and a diversified crop rotation create better functioning, healthier soil that's dark, crumbly and porous. Learn how to have soil that's home to worms and other organisms that squirm, creep, hop or crawl and that has the right amount of air, water and organic matter for microorganisms to thrive and for plants to grow. Dig a little and learn a lot about healthy soil from the bottom up. Dean Baas, MSU Extension sustainable agriculture educator, will teach this session. Baas is involved in cover crop, soil health and organic agriculture research and education. Lisa Tiemann, Ph.D., from MSU's Department of Plant, Soil and Microbial Sciences, will share the latest research on soils from fundamental soil analyses to isotopic traces and metagenomics.

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