### Contact Information
Name: Erin Hill  
Organization: Department of Plant, Soil and Microbial Sciences, Michigan State University  
Email: hiller12@msu.edu  
Phone: 517-353-0467

### RESEARCH - On-going cover crop research (by primary discipline)

<table>
<thead>
<tr>
<th>Name(s)</th>
<th>Project title/objective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMODITY SPECIFIC</strong></td>
<td></td>
</tr>
<tr>
<td>Baas, D.</td>
<td>Evaluation of oilseed radish added to wheat to increase wheat yields in Michigan</td>
</tr>
<tr>
<td>Baas, D. and P. Gross</td>
<td>Using cover crops with wheat to improve rotational profitability</td>
</tr>
<tr>
<td>Bird, G., N. Rothwell, D. Baas, B. Klein, and K. Powers</td>
<td>Impact of cover-crops/mulch/compost on tart cherry orchard development/productivity and soil health</td>
</tr>
<tr>
<td>Bird, G. and S. Gower</td>
<td>Corn yield response to cover crop mixtures and management strategies</td>
</tr>
<tr>
<td>Brainard, D. (joint with Cornell University and the University of Maine)</td>
<td>Interactions between winter-killed cover crops and tillage systems prior to snap beans</td>
</tr>
<tr>
<td>Brainard, D.</td>
<td>Impact of spatial segregation of cover crop mixtures for late-planted broccoli production</td>
</tr>
<tr>
<td>Hill, E.</td>
<td>Maximizing the cover crop potential of cereal rye before soybean through alternative termination timings and methods</td>
</tr>
<tr>
<td>Long, C., L. Tiemann, N. Rosenzweig, and E. Hill</td>
<td>Impact of increased cropping system diversity as measured by improved productivity and sustainability in a Michigan potato production system.</td>
</tr>
<tr>
<td>Pennington, D. and M. Nagelkirk</td>
<td>High yielding wheat study: How will growth regulator(s) impact interseeded clover?</td>
</tr>
<tr>
<td>Renner, K., C. Sprague, and A. Brooker (Ph.D. student)</td>
<td>Interseeding cover crops into corn, exploring species, mixtures, and timings</td>
</tr>
<tr>
<td>Thelen, K., S. Wang (Ph.D. student), and P. Tubalam</td>
<td>Great Lakes Bioenergy Project lifecycle analysis</td>
</tr>
<tr>
<td><strong>COVER CROP MANAGEMENT</strong></td>
<td></td>
</tr>
<tr>
<td>Snapp, S., S. Kravchenko, et al. (collaboration with IL, MN, and PE)</td>
<td>Precision Zonal Management, includes a rye cover crop in some treatments</td>
</tr>
</tbody>
</table>
### FORAGES/FEED

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<tr>
<td>Cassida, K. and S. Gerdes (M.S. student)</td>
<td>Forages as cover crops in a wheat-corn rotation</td>
<td></td>
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<tr>
<td>Thelen, K. and M. Jean (M.S. student)</td>
<td>Interseeding cover crops into corn to examine the bioenergy and animal feed potential</td>
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### PEST/DISEASE MANAGEMENT

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<tbody>
<tr>
<td>Bird, G., J. Shoemaker (M.S. Student), K. Renner, and J. Diel</td>
<td>Accessing the trap crop potential of cover crops for control of Soybean Cyst Nematode</td>
<td></td>
</tr>
<tr>
<td>Baas, D. and D. Pennington</td>
<td>Comparing wheat, triticale, and rye for biomass production and weed control</td>
<td></td>
</tr>
<tr>
<td>Brainard, D., D. Baas, and H. Melakeberhan</td>
<td>Cover crops before carrots for control of nematodes (lesion and root knot) and improved soil health</td>
<td></td>
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<tr>
<td>Chilvers, M. (contributing to Iowa State University)</td>
<td>Sequencing fungal and oomycete pathogens associated with cover crops</td>
<td></td>
</tr>
<tr>
<td>Chilvers, M., M. Roth (Ph.D. student), K. MacCready, and F. Trail</td>
<td>Pathogen associations with crops at the Long Term Ecological Research site</td>
<td></td>
</tr>
<tr>
<td>Sprague, C., E. Hill, and K. Renner</td>
<td>Cover crop sensitivity to herbicides</td>
<td></td>
</tr>
<tr>
<td>Sprague, C. K. Rogers (M.S. Student), and K. Renner</td>
<td>Integrating cultural practices to aid in the management of glyphosate-resistant Palmer amaranth (includes cereal rye)</td>
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### SOIL FERTILITY

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<tr>
<td>Steinke, K.</td>
<td>How to cover crops impact nutrient cycling temporally and spatially</td>
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### SOIL SCIENCE/HEALTH/BIOLOGY

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<tr>
<td>Cassida, K., L. Tiemann, C. Long, N. Rosenzweig</td>
<td>Integrated crop, livestock systems in Michigan’s Upper Peninsula</td>
<td></td>
</tr>
<tr>
<td>Snapp, S. et al.</td>
<td>Long Term Ecological Research with some rotations including cover crops</td>
<td></td>
</tr>
<tr>
<td>Steinke, K., M. Swoish (M.S. student), N. Rosenzweig, and W. Kirk</td>
<td>Impact of cover crops in microbial abundance/biomass and diversity and soil physical properties for corn and soybean production</td>
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### PROJECTS, EXTENSION/OUTREACH

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<tr>
<td>Brainard, D. and B. Werling</td>
<td>Brassica biofumigation for asparagus establishment</td>
<td>Field demonstration</td>
</tr>
<tr>
<td>Doll, J., M. Thelen, C. Curell, D. Baas, and P. Gross</td>
<td>Enhanced teaching resources for educators using the rainfall simulator</td>
<td>Posters, videos, and additional supplied for the rainfall simulator and 1-day educator training at NRCS Rose Lake Plant Material Center</td>
</tr>
</tbody>
</table>
PUBLICATIONS, EXTENSION/OUTREACH


MSU EXTENSION NEWS ARTICLES AVAILABLE @ http://msue.anr.msu.edu/topic/info/agriculture


PUBLICATIONS, REFEREED


**PRESENTATIONS, EXTENSION**

**Grower Field Days**
- Clinton County- “What’s New in Poo?”- Rainfall simulator (M. Thelen and P. Gross)
- Polmsters Fruit Growers- Rainfall simulator (P. Gross and C. Tally)
- St. Joesph County- “Interseeding cover crops field day” (D. Baas, C. Curell, and P. Gross)
- Read Farms, Fenwick, MI- “Herbicide management with cover crops”- Sept. 23, 2015 (E. Hill)
- Read Farms, Fenwick, MI- “Choosing Cover Crops for your Rotation”- Sept. 23, 2015 (C. Curell)
- Urban Farming- 2 day event. Novi and Flint. Using Cover Crops for Soil Fertility, and Cover Crop Selection (C. Curell)
- Forgotten Harvest Farm Field Day- Cover Crop Selection and Rainfall Simulator (C. Curell)
- Hillsdale County Farm Day- Rainfall Simulator (M. Thelen and C. Curell)
- MSU Weed Science Field Day, East Lansing, MI- “Interseeding cover crops into corn- Year 1”- July 1, 2015 (K. Renner, C. Sprague, and E. Hill)

**Grower Meetings**
- Michigan Family Farms Conference in Marshall, MI- Rainfall simulator (P. Gross and C. Curell)
- Branch County Farmers Day (Paul Gross)
- Michigan Christmas Tree Association Summer Meeting in Manton, MI- presentation and hands-on soil health tools demonstration- 2 day event (P. Gross and C. Curell)
- Orchard and Vineyard Expo- Orchard soil health (G. Bird)
- Dry Bean and Sugarbeet Symposium-Cover crops (G. Bird)
- Great Lakes Crop Summit, Mount Pleasant, MI- Nematodes/Cover crops/Soil Health (G. Bird)
- Ontario Fruit and Vegetable Convention, Niagra Fall, ON, Canada- Vegetable soil health (G. Bird)
- Michigan Grape and Wine Conference, Kalamazoo, MI- Vineyard soil health (G. Bird)
- Tomato soil health, Leamington, ON, Canada (G. Bird)
- Smart Soil Master Gardener Training, Gaylord, MI- Soil health (G. Bird)
- Organic Farming Workshop, Bichkek, Kyrgyzstan- Soil health (G. Bird)

**Conservation Districts/ NRCS/DRAIN COMMISSION Field Days/Meetings**
- Gratiot Soil Conservation District (P. Gross)
- Northeast District Drain Commissioners Meeting- Rainfall simulator (P. Gross)
- NRCS and MAEAP at Fife Lake- Rainfall simulator to demonstrate impact of cover crops on host farm (P. Gross and M. Thelen)
- Huron County Soil Conservation District Meeting in Elkton, MI (P. Gross)
- NRCS Rose Lake Plant Materials Center- “Digging Deeper into Soil Health”- Cover crop and soil health training (P. Gross and C. Curell)
- Saginaw Chippewa Indian Tribe Watershed and the Isabella Country Soil Conservation District tour (P. Gross)
- Missaukee County Soil Conservation District- MAPEAP Phase I meeting at the Lake City Ag-Bio Research Station- Rainfall simulator (P. Gross)
- VanBuren County Soil Conservation District annual field day in Paw Paw, MI- Rainfall simulator (P. Gross)
- Isabella County Soil Conservation District- MAPEAP Phase I program- Demonstration plot tour (P. Gross)
• Hillsdale/Monroe Farming in the Lake Erie Watershed. Choosing Cover Crops to Reduce Soil Erosion. 2 Day event. (C. Curell)
• Osceola-Lake Conservation District Summer Soil Health and Cover Crop Series- 6 Twilight Tours throughout the Spring/Summer/Fall (C. Curell)
• Newaygo Conservation District MAEAP Meeting- 2 Day event during the County Fair (C. Curell and B. Werling)
• Mason-Lake Conservation District MAEAP Phase 1 Meetings 2 one in the spring and one in the fall- Cover Crop and Soil Health and Cover Crop Mixes (C. Curell)
• Shiawassee Conservation District MAEAP Phase 1 Field Day- Cover Crops for Water Quality (C. Curell)
• Iosco County Farm Tour – MAEAP Phase I - Building a Better Rotation for Soil Health, Nutrient Utilization and Pest Control (M. Thelen)

**Agribusiness Meetings**

• Michigan Agri-Business Association Winter Meeting- “Biological Limitation of Soil Health” (P. Gross)
• Michigan Agri-Business Association Winter Meeting – “Physical Properties of Soil” (M. Thelen)

**Other Tours/Meetings**

• Baker College Agriculture Program Owosso- Cover Crops and Production Working with the students and instructors to plan and implement a rotation using cover crops to enhance soil and production. (C. Curell)
• Baker College Agriculture Program Cadillac- Cover Crops and Soil Health- Working with the students and instructors to plan and implement a rotation using cover crops to enhance soil and production. (C. Curell)
• Quebec farmers tour of MI, with 3 stops looking at cover crops, no-till and soil health (P. Gross, and O. Menard)
• North Central Grazing Network, Lake City – Rainfall simulator (C. Curell and M. Thelen)

**PRESENTATIONS, SCIENTIFIC/SOCIETY**


Millar N, DG Baas and GP Robertson. The influence of potential biofuel cover crops on nitrous oxide (N2O) emissions from Midwest row-crops. GLBRC 2015 Annual Meeting, South Bend, IN, May 19-21. (Oral)

**MICHIGAN STATE UNIVERSITY COURSES THAT DISCUSS COVER CROPS**

CSS 101- Introduction to Crop Science
CSS101L- Introduction to Crop Science Lab
CSS 201- Forage Crops
CSS 212- Advanced Crop Production
CSS 288- Principles of Weed Management
CSS 360- Soil Biology
CSS/BSE/FOR 467- BioEnergy Feedstock Production
CSS480- Soil Fertility and Nutrient Management
CSS 488- Agricultural Cropping Systems: Integration & Problem Solving
ENT 205H- Pests Society and the Environment
ENT 479- Organic Pest Management
HRT 251- Organic Farming Principles and Practices
HRT 341- Vegetable Production and Management