2022 Northeast Cover Crops Council Conference
Virtual Meeting—March 10 and 11, 2022

The Northeast Cover Crops Council, the Pennsylvania Association for Sustainable Agriculture (PASA), and University of Vermont Extension invite you to join us for the fifth annual Northeast Cover Crops Council Conference. The conference will be held virtually on Thursday, March 10, 9:00 a.m. to 12:30 p.m. and Friday, March 11, 9:00 a.m. to 12:30 p.m.

Each day of the conference will include a morning plenary session and graduate student lightning talks that all can access. Concurrent sessions you choose to attend follow, as well as networking opportunities!

Registration gives you access to the conference platform a week before and two weeks following the conference. Enjoy presentations and resources at your leisure.

Plenary speakers include sustainable agriculture and climate resilience expert Dr. Mitch Hunter from American Farmland Trust, and Dr. Victoria Ackroyd with the University of Maryland sharing information on cover crop tools.

Topic highlights include weed control, pest management, planting green, and tarping in cover crops, corn, soybean and on-farm research, precision agriculture, and more.

Please register by noon, March 7, 2022.
Cost is $75 per registrant. Registration is online through UVM at http://go.uvm.edu/registration-2022neccc or call 802-656-5665, ext. 3. You will receive a confirmation email with direction prior to the conference.

Graduate student lightning talks - We will have a total of six (6) lightning talks, three (3) on each date. View page eight (8) for information on the talks and the graduate student speakers.

CREDITS—Certified Crop Adviser (CCA CEUs) and Pesticide Applicator Training (PAT) credits available as noted in Agenda (pages 2 & 3). CCAs available by Track. You will need to attend 2 PAT sessions for 1 credit.

DISCLAIMER: Changes may be made to this agenda.

If you require an accommodation related to a disability, please contact the Pennsylvania Association for Sustainable Agriculture at events@pasafarming.org.
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<td>[2 PAT credits can be earned if attend 9-11am sessions]</td>
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<td><em>Dr. Heather Darby, NECCC Chair</em></td>
<td><em>Advancing cover crop planning in the NRCS</em> with <em>Dr. Brandon Smith</em>, Acting Director, USDA-NRCS Soil Health Division*</td>
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<td><em>Sarah Bay Nawa</em>, Research Coordinator, Pennsylvania Association for Sustainable Agriculture SU credit</td>
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Certified Crop Adviser (CCA) CEU categories – CM, Crop Management; IPM, Integrated Pest Management; PD, Professional Development; SU, Sustainability; and PA, Precision Ag. PAT is Pesticide Applicator Training credit.
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<td><em>Dr. Toni DiTommaso</em>, Prof. of Weed Ecology, Cornell University</td>
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<td><em>Dr. Rich Smith</em>, Associate Professor of Agricultural Ecology, University of New Hampshire</td>
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<td>Farm experiences with planting green</td>
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Conference web site will remain accessible for 2 weeks to view presentation videos.

Certified Crop Adviser (CCA) CEU categories — CM, Crop Management; IPM, Integrated Pest Management; PD, Professional Development; SU, Sustainability; and PA, Precision Ag. PAT is Pesticide Applicator Training credit.
Day 1, March 10, 2022

9:00 — 9:30 am: Opening remarks and NECCC updates. **Heather Darby**, Chair, **Victoria Ackroyd**, Program Manager, NECCC, and **Brandon Smith**, USDA-NRCS Soil Health Division.

9:30—10:30 am: Plenary session (1 CCA CEU), All the C’s: Congress, Cover Crops, Climate, Carbon, and Conservation. **Dr. Mitch Hunter**, American Farmland Trust.

10:30—11:00 am: Graduate Student Lightning Talks

**Breakout Sessions, 11:00—12:30 pm**

**Cover Crops and IPM**

11:00 am: New perspectives on white mold control in beans using rolled-crimped cereal rye mulch. **Sarah Pethybridge**, Associate Professor at Cornell AgriTech.

11:30 am: Combining cover crops and IPM to manage insect and slug pests in no-till fields. **John Tooker**, Entomology Professor at PennState.

12:00 pm: Assessing the efficacy of using a perennial and self-reseeded cover crop for pest suppression in a sweet corn soybean rotation system. **Cerutti RR Hooks**, Professor at University of Maryland.

**Cover Crops and Tarping in Vegetable Systems**

11:00 am: Using precious growing degree days: tradeoffs between cover crop growth, termination date, and tarping duration in small-scale organic no-till. **Natalie Lounsbury**, post-doctoral scholar at University of New Hampshire.

11:30 am: Trials and tales of tarping with reduced tillage. **Ryan Maher**, Research and Extension Specialist with the Cornell Small Farms Program.

12:00 pm: Tarping for no-till vegetable production at Colfax Farm. **Molly Comstock**, Owner and operator of Colfax Farm.

**On-Farm Research**

11:00 am: Collaborating with Vermont farmers to modify corn practices for better cover crops. **Heather Darby**, Agro-nomic and Soil Specialist, University of Vermont Extension.

11:30 am: Evaluating winter cover crop mixture performance across the Northeast. **Helen Boniface**, M.S. Student at University of Maryland.

12:00 pm: Unearthing soil health trends: insights from community science on 100+ farms. **Sarah Bay Nawa**, Research Coordinator, PASA.

Day 2, March 11, 2022

9:00 — 9:30 am: Opening remarks and Policy Updates. **Heather Darby**, NECCC Chair.

9:30—10:30 am: Plenary session (1 CCA CEU) Cover Crop Tools—Seeding Rate and Cover Crop Selector Tool, **Victoria Ackroyd**, University of Maryland.

10:30—11:00 am: Graduate Student Lightning Talks

**Breakout Sessions, 11:00—12:30 pm**

**Precision Sustainable Agriculture**

11:00 am: From the field to space: remote sensing technologies for winter cover crops. **Jyoti Jennewein**, USDA ARS.

11:30 am: Precision Sustainable Agriculture (PSA) National On-Farm Network: common research to build predictive tools for growers. **Sarah Seehaver Eagen**, Research Specialist, North Carolina State University.

12:00 pm: Farmer experiences with technology. **Scott Magnan**, Scott Magnan’s Custom Service, and **Savanna Crossman**, Certified Crop Advisor and UVM Extension.

**Planting Green—Corn and Soybean Research**


11:30 am: Risks associated with planting corn into green cereal rye. **Alison Robertson**, Professor at Iowa State University.

12:00 pm: Farm experiences with planting green. **Jay Baxter**, from DE and **Mark Rohrbach** from PA will share their experiences and planter set ups when “planting green”.

**Cover Cropping Strategies for Weed Management**

11:00 am: Employing ecological strategies to manage weeds with cover crops. **Toni DiTomaso**, Professor of Weed Ecology, Cornell University.

11:30 am: Designing cover crop mixtures for weed suppression. **Rich Smith**, Associate Professor, University of New Hampshire.

12:00 pm: Roll-crimped cover crops: weeds we control and weeds that get away. **Uriel Menalled**, PhD Student, Cornell University.
Presenter Bios

Dr. Victoria Ackroyd is an Assistant Research Scientist at the University of Maryland, a Visiting Scientist with USDA ARS in Beltsville, MD, and Program Manager for the Northeast Cover Crops Council. She earned her Ph.D. in Crop and Soil Science from Michigan State University. Her current work focuses on the development and dissemination of tools and resources to promote and support cover crop use.

Helen Boniface is an M.S. student at the University of Maryland in the lab of Dr. Kate Tully; she is co-advised by Dr. Steven Mirsky. Her thesis work includes research on cover crop mixture dynamics throughout the northeastern US in which she is assessing the performance of cover crop treatments under a range of climate and soil conditions. This research will ultimately contribute to the growing knowledge on site-specific species selection and seeding rate recommendations for the successful adoption of winter cover crop mixtures.

Molly Comstock is the owner and operator of Colfax Farm, located in the southern Berkshire Mountains of Massachusetts. The farm produces organic vegetables, herbs, flowers and berries on approximately three acres of leased land in Alford, MA. Molly spent ten years as a nomadic farmer, managing farms and growing food throughout the Hudson Valley and Berkshire regions prior to finding her farm home. She has been utilizing tarps for opening new fields, and preparing established beds for 4 seasons now.

Savanna Crossman is a native of Northwest Vermont where she has worked extensively with crop and dairy farmers. She holds a Master’s Degree in Agronomy from Kansas State University, and a Bachelor’s Degree in Agronomy and Soils from the University of Vermont. She has been a certified crop advisor (CCA) through the American Society of Agronomy since 2014.

Dr. Heather Darby is an Agronomic and Soils Specialist for University of Vermont Extension. She has expertise in soil quality and nutrient management, water quality, grain production, organic farming, forages, hops, hemp, and participatory research. Being raised on a dairy farm in Northwest Vermont has allowed her to play an active role in all aspects of dairy farming and gain knowledge of the land; creating an awareness for the hard work and dedication required to operate a farm. These practical experiences, complemented by her education, including her PhD in Crops and Soils at Oregon State University, have focused her attention towards sustainable agriculture and promotion of environmental stewardship. Heather is involved with research and outreach programs in the areas of soil, forage, and grain production systems in New England.

David DeGolyer is the executive managing consultant of the Western New York Crop Management Association (WNYCMA), a grower-owned cooperative that specializes in crop consulting and environmental planning. He is a CCA (certified crop advisor) and the first certified CAFO (Concentrated Animal Feeding Operations) planner in New York State. David has been a crop consultant for thirty-two years and has been managing the cooperative since 1995. He holds a Bachelors of Science in Agronomy from Cornell University.

Dr. Toni DiTommaso is a Professor of Weed Ecology at Cornell University. His research program aims to gain in-depth understanding of ecological principles governing agricultural and environmental weed population dynamics that lead to sustainable and economically viable weed management strategies.
**Presenter Bios, cont.**

**Sarah Seehaver Eagen** is a Research Specialist at North Carolina State University and Program Manager for the Southern Cover Crops Council. She earned her M.S. degree in Soil Sciences from NCSU. She currently directs the on-farm effort as part of the Precision Sustainable Agriculture team and is heavily involved in sensor and data flow work.

**Dr. Cerruti RR Hooks** is a Professor & Extension Specialist at the University of Maryland. He has a MS degree in Weed Science from NC State University and a PhD in Entomology from the University of Hawaii at Manoa.

**Dr. Mitch Hunter** is the Research Director at American Farmland Trust (AFT), where he leads research on land use change and climate mitigation in agriculture. He previously worked on improving conservation programs in the 2014 Farm Bill as Federal Policy Manager for AFT. In the meantime, Mitch studied diverse cover crop mixtures and their effects on climate resilience in his Ph.D. at Penn State University. He then did a postdoc at the University of Minnesota, working to develop management strategies for the novel perennial grain Kernza®. Mitch received a B.A. in Government from Harvard University following two years of liberal arts study, self-governance, and student labor at Deep Springs College.

**Dr. Jyoti Jennewein** is a Research Physical Scientist/Post-doctoral Researcher with USDA ARS in Beltsville, Maryland. She completed her Ph.D. in Natural Resources at the University of Idaho, with a specialty in remote sensing forage quality. Her current work focuses on the use of remote sensing to quantify cover crop use and performance in the mid-Atlantic US.

**Dr. Natalie Lounsberry** is a postdoctoral scholar in the Agroecology lab at the University of New Hampshire. For her dissertation, she addressed the tradeoffs farmers face when trying to implement cover crop-based no-till on a small-scale. Prior to her tenure at UNH, Natalie managed an organic vegetable farm, worked as an organic inspector, and earned her M.S. in Soil Science from the University of Maryland where she studied winter killed cover crops. Natalie’s focus is on using cover crops to reduce tillage, and ultimately aid farms in nutrient cycling, water management, weed management, and soil health.

**Scott Magnan** operates, Scott Magnan’s Custom Service in St. Albans, Vermont where he has become proficient in installing and providing education to farmers on precision ag equipment and software to enable his customers to get the biggest return on their investment. In addition he offers custom manure spreading, crop planting and harvesting services to farms in northern Vermont.

**Ryan Maher** is a Research and Extension Specialist with the Cornell Small Farms Program. He works in vegetable cropping systems and supports farmers in adopting scale-appropriate practices to reduce tillage, integrate cover crops, and improve soil health. Prior to joining the Small Farms Program in 2013, Ryan earned his M.S. in Sustainable Agriculture from Iowa State University where he studied soil processes in native grassland restorations and spent 5 years with USDA-ARS working with perennial legumes to improve nitrogen management in field crops.

**Uriel Menalled** is a PhD student at Cornell University. Uri’s research interests include understanding the interactions between weed communities and crops to promote ecological weed management. His dissertation research focuses on advancing no-till organic systems by using cover crop based weed management strategies.
**Presenter Bios, cont.**

**Sarah Bay Nawa** is the Research Coordinator for PASA Sustainable Agriculture where she supports farm-based research on issues including soil health and financial viability. She has more than a decade of combined farming and farm-advising experience from New Morning Farm, the Fulton Farm at Wilson College, and Tuscarora Organic Growers Cooperative. Sarah holds a B.S. in Environmental Science.

**Dr. Sarah Pethybridge** is an Associate Professor and Program Leader of Plant Pathology at Cornell AgriTech. Her program works with New York growers to integrate disease management strategies for leguminous crops, with a focus on snap bean and dry bean. She received her Bachelor of Agricultural Science (with Honors) degree and Doctor of Philosophy (Plant Pathology) degrees at the University of Tasmania, Australia. She joined Cornell University after 14 years experience as an extension pathologist, industry research and development manager, and a government Science Group Leader in Australia and New Zealand.

**Dr. Alison Robertson** is a Professor and Extension Field Pathologist at Iowa State University. She leads the Precision Sustainable Agriculture team effort focused on cover crop interactions with weeds, insects, and diseases.

**Dr. Brandon Smith** is the Acting Director for the USDA-NRCS Soil Health Division (SHD). He provides leadership on soil health planning through NRCS programs to other NRCS staff, external partners, and producers across the country. Prior to working with SHD he was State Agronomist and Grazing Specialist for NH NRCS for 7 years. Brandon was a research professor of organic crop production at the University of TN and a research technician at the UNH before he joined NRCS in 2008. Brandon earned a B.S. and M.S. in Horticulture & Agronomy from the UNH, and a Ph.D. in Horticulture & Agronomy from Cornell University.

**Dr. Rich Smith** is an Associate Professor of Agricultural Ecology at the University of New Hampshire. He received his PhD from Michigan State University in 2005. His research and education program centers on ecologically based weed management and the role of crop plant diversity, including cover crop mixtures, plays in agroecosystem function and resilience.

**Dr. John Tooker** is a Professor and Extension Specialist in the Department of Entomology at The Pennsylvania State University. His research group studies relationships among plants, invertebrate herbivores, and natural enemies to understand factors that regulate populations of herbivorous insects and slugs.

### Additional Speakers

**James H (Jay) Baxter IV**, a 2002 graduate of the University of Delaware, owns and operates Baxter Farms, Inc. in Georgetown, Delaware, with his sister and grandmother. He and his wife, Jessica, own a small farm of their own. Both enterprises grow broiler chickens, corn, sweet corn, soybeans, lima beans and edamame utilizing no-till, cover cropping and other soil health practices. Besides conventional farming, Jay and his wife, Jessica, along with their 4 children, have a greenhouse operation growing potted plants for wholesale, and they also have a custom cover crop application business.

**Mark Rohrbach** is the Owner/Operator of Soil-Bound Farms and Green Armor Seed company. Green Armor Seeds sells Pioneer brand seeds and custom cover crop mixes in NE Pennsylvania offering customized field plans for maximum per-acre profitability. By introducing cover crops into his sales portfolio, he has discovered that all his grower-customers are experiencing reduced inputs, consistent yields, and most crucially retained and recycled soil-nutrients.

As owner of Soil-Bound Farms Mark has adopted the moto, “There is no such thing as failure, only opportunities to learn”. Soil-Bound Farms incorporates both cover crops and manure for nutrient sources having implemented no-till and cover crops on all 1000 acres.
**Graduate Student Lightning Talk Speakers**

**Yajun Peng** is a Ph.D. student in Agriculture at the University of Guelph. Her research focuses on the effect of long-term cover cropping on carbon and nitrogen dynamics in a horticulture-grain system.

**Talk Title**: Does soil organic matter accrual increase nitrogen use efficiency? A field study of long-term vs. first-time vs. no cover cropping

**Description**: Using cover crops can build soil organic matter, however, it is unclear how the increase of soil organic matter affects nitrogen availability to grain corn. This talk will introduce what is the hypothesis and how to test it.

**Zoelie Rivera-Ocasio** is a second-year Ph.D. student from the Soil Science and Biogeochemistry program with the Department of Ecosystem Science and Management. She is focusing her Ph.D. work on research with sustainable nutrient management for agriculture and evaluating soil dynamics in nutrient cycles and relationships with microbial communities. Her foundation as an undergraduate student was in biology. Zoelie completed her master’s degree in soil science in May 2019 at the University of Puerto Rico-Mayaguez, evaluating cover crops and soil health with microbial and enzyme analysis.

**Talk Title**: Understanding the Effects of Cover Crops and Nutrient Management on Microbial Carbon Use Efficiency and Nitrogen Mineralization

**Description**: When microbial CUE is high, plant residue inputs are more effectively stabilized into soil organic matter. But increasing CUE reduces N-mineralization because microbial retention of C requires retention of N.

**Annika Rowland** is a first-year master’s student in Soil and Crop Sciences at Cornell University. She works in the lab of Dr. Matt Ryan, studying weed management in organic no-till soybean systems. In general, Annika is interested in sustainable food production and community food systems in light of extreme climate events and a changing world. In her free time, she enjoys cooking, exploring the finger lakes region, and reading as many library books as she can.

**Talk Title**: Integrated Weed Management in Organic No-Till Soybean

**Description**: Three cultural and physical weed management practices were implemented alone and in combination in an organic no-till soybean system to determine efficacy of weed suppression and increased yields.

**Melissa Stefun** holds dual B.S. degrees in human nutrition and environmental science with a soil and watershed focus from the University of Maryland. For 2 years she worked for the EPA in their Office of Research and Development improving access and support for its research tools. She is now pursuing a master’s degree in the watershed and soil quality laboratory with advisor Dr. Ray Weil. Her research work focuses on soil nitrogen management in agriculture and enhanced cover cropping practices effects on soil carbon stocks.

**Talk Title**: Enhanced Cover Cropping for Improved Nutrient Management and Carbon Stock Building in Agricultural Soils

**Description**: Enhanced cover crop management (early interseeding, multi-species mixtures, and delayed termination) may impact N uptake and leaching, soil quality and carbon stocks and yields of cash crops. After the third year, the impact of the cover crop treatments on soil quality and carbon stocks will be evaluated.

**Zach Sunuwar** is a graduate student at the University of Massachusetts, Amherst. Her research focus is soil health. She is interested in cover crop and its effect in agriculture, and she is trying to find a way to negate the adverse effect of global warming on agricultural soil using cover crop.

**Talk Title**: Strategies for terminating cover crop

**Description**: The method we choose to terminate the cover crop influences their agro ecological benefit. In this talk, I will discuss my research where I made comparison on efficacy of different cover crop termination methods along with different nutrition treatments.

**Alison Thieme** is a PhD Candidate at the University of Maryland Department of Geographical Sciences with a background in GIS, remote sensing, ecology, and wildlife conservation. She uses remote sensing to better understand cover crop performance at state and county levels. In the past, Alison has worked with farmers in rural Madagascar to increase the adoption of the System of Rice Intensification method. She currently works with USDA-ARS Beltsville, USGS, NASA Land Cover and Land Use Change Program, and TerraPulse.

**Talk Title**: Remote Sensing Evaluation of Maryland Winter Cover Crop Delayed Termination Incentive

**Description**: This study uses remote sensing to estimate the biomass, carbon content, and nitrogen content of cereal cover crops in Maryland from 2019-2021. Fields that enrolled in the delayed termination incentive were more cost effective on a per mass basis and produced more biomass, carbon and nitrogen.
This work is supported by a Sustainable Agricultural Systems (SAS) Coordinated Agricultural Project (CAP) grant (award # 2019-68012-29818) from the USDA National Institute of Food and Agriculture and ongoing funding from NRCS.

Additional funding provided by the University of Minnesota Digital Center for Risk Management Education under USDA/NIFA Award Number 2018-70027-28584. USDA and the University of Vermont are equal opportunity providers and employers.

Additional support received from the Vermont Agency of Agriculture, Food and Markets.

**CONFERENCE SPONSORS**

**VISIONARY**
$1,000

**TILLER**
$500

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$250