UMass Extension

CROP, DAIRY, LIVESTOCK, & EQUINE NEWSLETTER

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Editor,

Masoud Hashemi

Extension Professor

Announcements

Umass Amherst Field Day: Soil Health Demos

Date: Tuesday, June 21, 2022

Time: 1:00pm—4:30pm

Location: Umass Research Farm

89 River Rd, South Deerfield, Ma

More info pg 14

Southern New England Soil Health Trailer Tour

By UConn College of Agriculture, Health & Natural Sciences

Dates of Workshops

- Monday, June 20th @Afternoon (TBD)
- Tuesday, June 21st @1:00pm

  Focus: Livestock & Poultry
- Wednesday, June 22nd @1:00pm

  Focus: Veg & Corn, Livestock & Poultry
- Thursday, June 23rd @2:00pm

  Focus: Pasture & Grazing Livestock
- Friday, June 24th @9:30am

  Focus: Pasture & Grazing Beef Cattle

More info pg 15

2022 Massachusetts Outstanding Dairy Farmer Award Winner

The University of Massachusetts Crops, Dairy, Livestock, and Equine team would like to congratulate Clessons River Farm for receiving the 2022 Outstanding Dairy Farm Award. Clessons River Farm is a five-generation dairy farm. The farm transitioned to robotics in 2019. Currently, Melissa and Paul Griffin are milking around 60 cows on roughly 330 acres of land.

Selection process was based on the following criteria:

1) Farm is operated by a full –time farmer with an efficient dairy operation
2) Quality of dairy herd (milk production/cow, breeding program and herd health)
3) Farm Efficiency (milk production/worker, other productivity considerations)
4) The forage program (quality of forage as a well-balanced feeding program)
5) Is the farm operation economically sound?
6) Leadership ability (contributions at the local, regional, state, or national level)
7) Contribution to environmental improvement (management, visibility, appearance, scenic aspects)

For more information, questions, or comments, please contact:

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The Agronomic "F" words: Fertilizer, Feed, and Fuel

Ideas for resiliency for the season ahead, and planning for the future

Sam Corcoran, Ph.D., UMass Agronomist
Masoud Hashemi, Ph.D., UMass Crop, Dairy, Livestock, and Equine Extension Team Leader

The Long Range Weather Forecast for Atlantic Corridor predicts a warm spring and a hot, slightly drier than average summer for 2022. The forecast is encouraging for timely spring plantings, and the slightly dry summer is likely to be a welcome change for those who contended with slow growth last year due to the overcast and soggy season. While the weather forecast for this year is sunny, the fertilizer, feed, and fuel forecast is a stormy one. Ongoing supply chain struggles are expected to affect agriculture in many parts of the world. Many have already noted the increased fertilizer prices and are bracing for high grain costs. Of course, no one has missed the rising prices of fuel. This leaves many asking, what can we do to weather the storm?

First and foremost, farms should have contingency plans. Just as farms (hopefully) have plans for wet years or dry years, livestock farmers should have plans for feed shortages and high costs, and all farms should have a fuel and fertility plan. In most cases, we are all already trying to move to operations that reduce fuel and fertility inputs to enhance economic and environmental sustainability, even in the absence of high input costs. Below are some ideas about how to adapt this year, and how to start building in risk mitigation for the future. These suggestions also carry the benefit of contributing to on-farm sustainability.

Before reading on, note that not all ideas work for all farms. Start by determining what you are willing to try. If some ideas seem too much of a stretch for you to commit to, but you find yourself curious, consider trialing new approaches on just one field – or even half a field – to make your assessment. Or, if the tenants of soil health seem too demanding to meet, try just one improvement. It all adds up.

Feed

At the time of this publication, your overwintered cover crop might still be standing and might even be in the boot stage. If so, do not let this forage pass you by. Years of research at our farm facility and on-farm with local dairies have found that rye, wheat, and triticale cover crops are excellent forage and regularly generate 1.5-2 tons of dry matter per acre in Massachusetts – that is when crops are harvested to leave 3 inches of residue behind so you can avoid soil contamination in your feed and leave residue to contribute to soil organic matter. When harvested at the right time, these crops also offer relative feed values around 115, and crude protein values from 9-12%. Of course, you do not have to harvest all of your cover crop fields in the spring rush. On a dry matter basis, one small, 5-acre field could add as much as 10 tons to your forage inventory.

If you are concerned about returning the residue to build soil health, there is no need to fret. The remaining 3 inches of cover crop residue after harvest can return as much as a whopping 1.6 tons of dry matter. You could terminate the cover crop after harvest or try planting green and then use a labeled herbicide to terminate the living cover crop residue. If you do plant green, do not make the mistake of banding or broadcasting fertilizer at planting. We have made that mistake for you at the research farm and can assure you that if your cover crop is alive, it will beat your corn to capturing that fertility. Also, note that cover crop regrowth – especially rye – is often rapid after harvest.

If your operation has a not yet planted field come late June/early July when the soils are warm, consider planting summer annuals. Our co-researcher Dr. Heather Darby and her technician Sarah Ziegler and the University of Vermont have conducted extensive trials of summer annuals. Their work with millets, vetch, chicory, sudangrass, clovers, and ryegrass – among others – has shown that summer annuals can produce an extra 1.5 – 2.75 tons of dry matter per acre. We recommend checking their work for seeding rates, planting combinations, and expected yields. Some mixtures are suitable for silage, while others are more conducive to grazing. The summer annuals can be great remedies for overgrazed and trampled fields near the barn, and their close proximity makes grazing more feasible for those without a current grazing program.

Last but not least, consider your grazing program. If you do not have one, you may wish to start one. While the logistics can be daunting at first, a grazing program can supplement or reduce the need for corn, hay, and grain. Moreover, grazing can drastically reduce fuel inputs due to far less tractor work, and pastures with 30% or more legumes present require no additional nitrogen fertility. If you are already grazing, consider shortening your rotation period. If animals are stocked for 5-7 days, try a 3-day or shorter rotation. More frequent moves and smaller paddocks result in increased utilization efficiency, reduce the land required to support a herd, and can increase animal productivity.

Fertility

There is no reason to guess when it comes to fertility. A soil test is your ally when deciding what amendments your land needs. You may find you do not need to apply some nutrients at all, and you may find the lack of other nutrients are limiting your yield production. Soil tests should be conducted at least every three years. However, a soil test is only as good as the quality of the sample. The investment of time to get a good sample across a field provides immediate payoff via the accuracy of the recommendations that are generated. For phosphorus and potassium, if your soil is in the optimum or above optimum range, you could skip adding these fertilities this year. For those who still wish to follow the principles of “build and maintain”, emphasis on “maintain”, if your soils are in the optimum range you can apply nitrogen and phosphorus at only crop removal rates.

When submitting your soil samples, we recommend that you spend the few extra dollars to have soil organic matter analyzed. For every percentage of soil organic matter, 20-40 lbs. of nitrogen are released per acre during the growing season. An additional 1-2 lbs. of phosphorus are also released. If you have 4% soil organic matter, that is 80-160 lbs. of nitrogen and 4-8 pounds of phosphorus stored in your field.

What to do based on your soil organic matter levels? You can use your soil organic matter as a credit in your nitrogen and phosphorus fertility planning. However, soil organic matter is not a significant source of potassium. Note that, again, the analysis is only as good as your sample collection and preparation. Samples submitted with high organic matter residues, like roots or leaves will return artificially high results. If your field has a history of tillage on sandy or loamy soils, high soil organic matter levels are unlikely at a sufficient level, but even 2% or 3% soil organic matter helps.

If applying manure, either have your manure analyzed if you can prepare a well-mixed samples or use book values to estimate the nutrient content. The nitrogen, phosphorus, and potassium in your manure supply a further fertility credit in your fertility program.

For those willing to try something new, consider intercropping corn and soybean for silage. The soybean provides a crude protein boost to the silage, can fix its own nitrogen if you inoculate the seeds, and will also help to provide nitrogen fertility to the corn silage. The harvest time is the same for these crops when making silage and the required equipment is the same. Plant the crops in alternating strips comprised of multiple rows.

The number of rows is up to your equipment, time, and patience. Fewer rows in each strip increases the nitrogen benefit from soybean to corn but increases the precision required at planting.

As already noted, summer annuals can provide high-value feed. They can also cut down on your nitrogen inputs. Planting legumes such as vetch, clover, or sunn hemp will fix their own nitrogen and provide plants that fix their own nitrogen and subsequently contribute nitrogen to the companion crops. while sharing their nitrogen with their neighbors. When planting legumes, be aware that all inoculants do not work with all legumes. The inoculant used for sunn hemp is not the same inoculant used for clover. Make sure you request an inoculant compatible with your plants when ordering seeds and be weary of inoculant stored and room temperature before it is sold to you. Inoculant is living bacteria that should be kept cool and is best refrigerated.

If you do not want to wait for summer annuals, a "pop up pasture" mix that we recommend to meet spring feed and fertility needs is as follows: 8-10 lbs./A mammoth red clover, 35 lbs./A spring oat and 6-8 lbs./A pearl millet. Plant this mix now through the first week of June.

Finally, if you are growing corn, band nitrogen instead of broadcasting, and make pre-sidedress nitrate tests (PSNT) a priority. Banding fertilizer delivers it nitrogen close to plant roots and increases fertilizer use efficiency while making the fertility less available to weeds between the rows. PSNT tests are taken when corn is about 10-12 inches high and to a depth of one foot. However, if you have broadcast nitrogen at planting, PSNT samples will not be accurate and should be skipped. If you banded fertility at start-up, PSNT samples are also unlikely to provide accurate guidance. Be sure to dry soils before submitting them. Warm, moist soils in plastic bags will encourage mineralization to occur and will artificially inflate your nitrate levels. For further information about PSNT please use the following link:

https://ag.umass.edu/sites/ag.umass.edu/files/fact-sheets/pdf/pre_sidedress_nitrate_n_test_psnt_21-2019_0.pdf

Fuel

Anything that reduces distance and duration in the field will help reduce fuel requirements. If you have been thinking about transitioning to a no-till system, the time is ripe to make the move. Reduced tillage or outright no-till systems can save substantial time in the tractor and therefore, fuel, too. No-till systems are also a sure-fire way to help build your soil health.

For those thinking about trying out more pasture, it is one of the best ways to reduce fuel costs. Well-managed perennial pastures require only fertility inputs. No tilling, spraying, annual planting, or mechanical harvesting is needed.

Our feed, fertilizer, and fuel problems are not going away this summer, if ever. To avoid saying the "f words" contingency planning and shifts to long-term sustainability are critical for both economic and environmental resiliency. For a long-term, across the board recommendation, focus on your soil health. Reduced tillage, dutiful cover cropping, and good grazing management all contribute to soil health. The soil will pay you back in enhanced fertility, microbial activity that supports your plants, water holding capacity, and increased ease of rooting so plants can go deep to seek nutrients and moisture in lean years.

Evaluating yield and quality of new upright crabgrass varieties as summer forage in the Northeast

Arthur Siller, Ph.D. candidate, UMass Amherst
Masoud Hashemi, Ph.D., UMass Crop, Dairy, Livestock, and Equine Extension Team Leader

Crabgrass has been grown as a summer forage in the southern United States since its introduction more than a century ago. In recent years, high-yielding, semi-upright varieties that are suitable for modern mechanized haying operations have been introduced coming primarily out of the southern Great Plains. Climate change conditions in the United States Northeast are leading to hotter and dryer summers, thus, animal operations in the northeast greatly benefit from new high-yielding high-quality warm-season forage during the summer slump. Southern and hairy crabgrasses (*Digitaria ciliaris* and *Digitaria sanguinalis*) are versatile grasses, which can be grown quickly in the summer and be used as pasture, hay, or haylage. Unlike other common summer annual grasses, including sudangrass and pearl millet, crabgrass can be easily managed and used with multiple harvests or in managed grazing systems and does not contain prussic acid. However, local trials are needed to overcome crabgrass's 'weedy' reputation. Non-forage crabgrass species are common weeds in agricultural lands and farmers may be reluctant to grow them in their fields without solid research recommendations.

Experiments in North Carolina and Wisconsin have shown that improved crabgrass varieties can produce single-harvest yields of 3,500 pounds per acre of high-quality forage with as high as 15% crude protein and 60% total digestible nutrients if harvested at the heading stage. Total yield and quality can potentially be higher if crabgrass is harvested multiple times or earlier in its vegetative growth. Grazing trials in Oklahoma and Arkansas also found that stocker cattle could gain 2 pounds per day on crabgrass pasture. In the Northeast, initial studies have shown that crabgrass could be effectively grown as horse pasture in Maine. Current reports indicated that crabgrass demonstrated high adaptability and exceptional palatability. The low sugar content of crabgrass also makes it attractive as forage for insulin-resistant horses. Based on a conservative value of $60 per 800 pound dry round hay bale, only one cut of crabgrass could be worth $260 of forage per acre.

Furthermore, the self-reseeding nature of crabgrass may open interesting cropping system possibilities. Farmers in the South have had luck with no-till crabgrass and wheat rotations by drilling wheat directly into crabgrass fields each fall and allowing the crabgrass to resprout under the wheat as it is grazed or cut in the late spring. Depending on the vigor, crabgrass may also be suitable as an annual component of perennial pastures, where its growth could complement cool-season grasses during the summer slump.

As a new crop to the Northeast, farmers require local information on optimum planting dates, varieties, fertilization, and overall growth to successfully grow this innovative crop. Additionally, the quality of crabgrass at various stages of growth has not been well documented. This information is especially important in multiple-cut systems. Ongoing research at the University of Massachusetts Amherst will study the relationship between crabgrass developmental growth stages and forage yield and quality, assess the performance of available varieties, explore nitrogen management for multi-cut production, and examine the fermentation profile of crabgrass haylage.

This research will be used to develop local crabgrass management recommendations. In the meantime, farmers who want to try out this exciting crop could try the following management based on the production of other summer grasses and crabgrass production in other parts of the country.

Crabgrass forage production:

Seeding rate: 6 pounds per acre. The seeds are small so make sure they don't go too deep. Crabgrass often contains some hard seeds so aged seeds should be used to improve germination and avoid volunteers in future years.

Seeding date: Early June. Crabgrass likes warm soil and is ready to graze in 6 to 8 weeks. This allows one harvest in late July with a second harvest in late August, if desired.

Fertilization: 50 pounds N per acre at planting and another 50 pounds after the first harvest, if continued production is planned.

Varieties: Quick-N-Big has been the best performer in more northern regions but Mojo is also widely available. Red River was the first improved variety released but the seed stock can be less consistent than more recent releases.

Microplastics in agroecosystems: How they affect crop growth and soil health

Anahita Khosravi, Ph.D. candidate, UMass Amherst
Baoshan Xing, Ph.D. UMass Amherst
Masoud Hashemi, Ph.D., UMass Amherst

Plastics are defined as high molecular weight polymers which contain various chemicals to improve their performance. Due to the low cost, high flexibility, high strength, ease of manufacture, and broad use, plastic materials are ubiquitous throughout the environment. Once plastic derivative materials enter the environment, they are often degraded by various factors, including ultraviolet (UV) irradiation from the sun, heat, and microbial communities, and eventually, turn into small particles with sizes smaller than 5 mm. These size plastics are defined as microplastics. Microplastics (MPs) can easily adsorb toxic and harmful chemicals, including herbicide residues and heavy metals that may be present in the environment. Also, plastic polymers are often made of hydrocarbon chains and aromatic compounds which make them highly hydrophobic and water-resistant, thus contributing to their high adsorption of hydrophobic compounds. Due to all these reasons, MPs contamination in the water bodies and agricultural lands has raised concerns globally.

The presence of MPs in aquatic environments including oceans, seashores, rivers, lakes, and even deep-sea sediments has been well documented. Other than aquatic ecosystems, terrestrial environments are also receiving tremendous attention regarding MPs pollution. Agroecosystems are presumably the most plastic-contaminated terrestrial ecosystem in addition to landfills, urban spaces, and beaches. Some agricultural practices, such as the application of composts and various forms of biosolids, plastic wraps and mulches, and irrigation discharge a significant quantity of MPs into agricultural lands that remain in the soil and continuously enter the food chain and cause toxicity to organisms. Also, dairy farmers traditionally cover their corn silage and haylage bunks with one or more black plastic tarps to ensure proper fermentation and prevent spoilage by rain and snow. These plastics are placed for more than six months and due to continuously receiving UV light, they can increase the release of MPs into the silage. MPs also may exist in sewage sludge and other biosolids and more importantly, in composts, which are commonly applied in large quantities to agricultural soils, more specifically in organic operations. MPs may persist in the soil over the long term since the light and oxygen density in the soil is not as high as the ocean surface. Contamination of agricultural lands due to the presence of MPs may directly expose humans and biota to harmful pollutants through water, soil, and agricultural products. In addition to high adsorption capacities, MPs can be ingested by various organisms and subsequently induce various harmful impacts including feeding disruption, reproductive reduction, intestinal damage, and metabolic disturbances. MPs contamination in agroecosystems disturbs interaction between plant and soil by inhibiting microorganisms' vital activities, decreasing natural soil fertility, delaying seed germination, and flowering plant growth, and adversely affecting crop yield and food production. Therefore, the presence of MPs in agricultural lands should be considered as a serious threat to terrestrial life and food security.

Considering the concerning rate of MPs contamination in agroecosystems, several research is currently undergoing with the aim to identify, quantify, and evaluate the presence of MPs in different sources, including composts made from different biosolids and methods, soils under plastic mulch, and tarps used for weed control, corn silage, and haylage covered with layers of plastics. We have found several types of MPs in composts collected from different sources.

This comprehensive study also investigates the negative impact of MPs on soil health and plant growth. The effects of weathered microplastic particles will be assessed on the growth and yield of lettuce grown in hydroponics and soils. In our preliminary study, we observed that polyethylene and polypropylene MPs significantly decreased the fresh weight of lettuce shoots and roots grown in the soil. In this study, the impact of MPs on the microbial community in the soil will be investigated.

Entomopathogenic efficiency and plant-nematode relationship is improved in healthy soils

Dorna Saadat , Ph.D. candidate, UMass Amherst

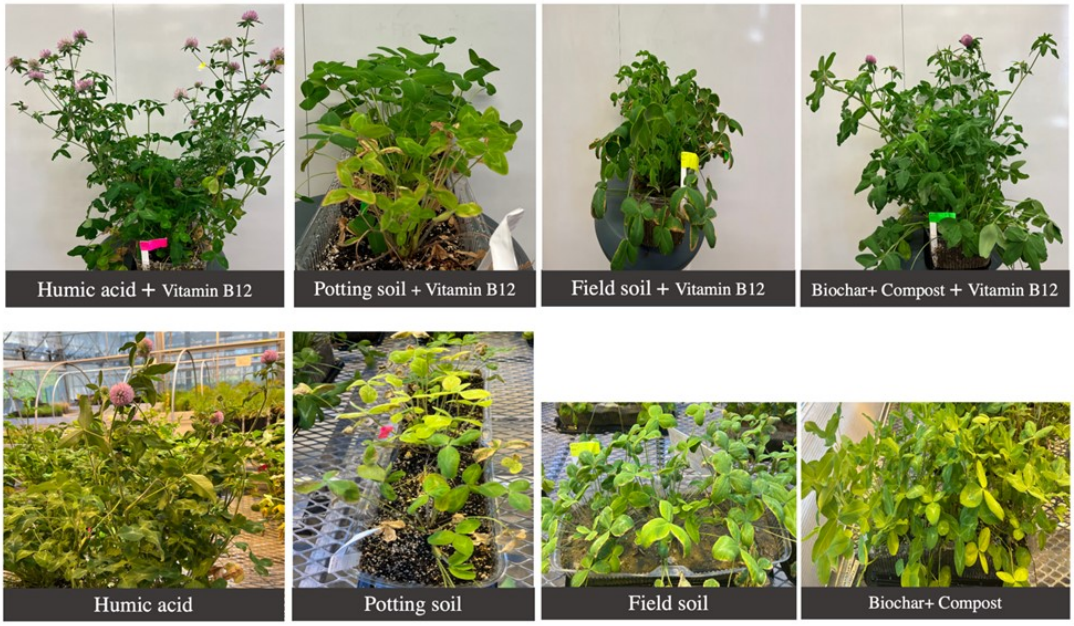
Jaime Pinero , Ph.D. , UMass Amherst

Masoud Hashemi, Ph.D., UMass Amherst

The entomopathogenic nematodes (EPNs) are considered as environmentally friendly and non-chemical biological control agents. They live in various geographical areas excluding Antarctica and can suppress the soil-dwelling stages of insect pests. Active host-seeking behavior and mutualistic relationship with highly virulent bacteria, gives EPNs the ability of killing the target host within 48 hours, primarily due to septicemia and toxemia. Yet, unlike synthetic chemicals, they are safe for plants and animals, with no residual effects on groundwater or pollinators. There is no re-entry time and chemical trespass after application. EPNs activity can greatly influence the structure and sustainability of soil food webs by participating in a phenomenon called 'cry-for-help'. In this phenomenon, when plants are attacked by pests, they respond by excreting volatile chemicals to recruit and attract natural enemies such as EPNs and other beneficial soil microbes. So, the persistence and activity of EPNs in the soil can promote sustainable crop production. In this regard, healthy soil has a potential role in fostering the frequency, diversity, survival, and persistence of soil beneficial nematode community. Organic matter additions emanating from cover crops, crop residues, and organic sources such as manure and compost play a crucial role in nourishing the soil food web, crop yields, and soil multifunctionality. Moreover, soil organic matter can conserve soil moisture which favors the EPNs movement and help to enhance the EPNs efficiency. Our preliminary field research indicated that EPNs, *Steinernema riobrave*, could survive and remain active during the fall.

A greenhouse experiment is currently underway to study the interplay between microorganisms, more specifically EPNs and clover (*Trifolium pretense*) roots, growing in various amendments to improve soil health treatments. The treatments are included addition of Vitamin B12, compost + biochar, and humic acid. Measurements include Plant-related factors such as root, shoot, and flower dry matter, and nitrogen status (using SPAD).

The following photos demonstrate the appearance of clovers under different soil amendments. The relationship between root exudates and EPNs will also be studied.



The effect of different soil amendments (Vitamin B12, compost + biochar, and humic acid) on red clover(*Trifolium pratense*) growth in green house condition (Day temperature 72 ± 2 ^{F}, Night temperature 60 ± 2 ^{F}, 55 ± 5 % RH and L:D 14:10 h)

Stereomicroscopy picture of Entomopathogenic nematode, *Steinernema riobrave*, survival and activity in the field soil during the fall 2020.

Ask the Expert: Questions to Ask When Buying Hay

Krishona Martinson, PhD, University of Minnesota

From: May 2022 UMN Extension Horse e-Newsletter

Question: For the first time in my adult life, I have my horses at home (vs. boarding). I have so much to learn, but first is buying hay. I'm equally excited and terrified to buy my own hay. Can you recommend questions to ask when purchasing hay, how to find a hay supplier, and how best to build a relationship with them?

Photo credit: Krishona Martinson

Response: Building a relationship with a hay supplier takes time. There is no "magic bullet" and most of the time, it comes down to ensuring the locations, product (e.g., hay and bale type), offerings (e.g., deliver and storage options), and personalities mesh. At a minimum, both the hay supplier and horse owner should respect each others time, be clear on forms of payment required or preferred, and be open and willing to communicate.

The UMN does maintain a list of hay suppliers and auctions in Minnesota. This list is not an endorsement, but serves as a resource to horse owners. This list is also not complete and we cannot ensure that hay supplies have inventory.

As for questions to ask, we've compiled a list of 10 commonly asked questions when buying hay, including:

1. Have you sold to horse owners before or do you specialize in horse hay? Horses have different requirements compared to other livestock.
2. What is the average weight of the bales? This is important if buying hay by the bale.
3. How mature is the hay? What species are present in the hay? Maturity is the main driver of forage quality. Legumes and grasses have different nutrient values.
4. Where was the hay harvested? Rules out ditch hay.
5. Was the hay rained on? Rained on hay can be a good choice for horses with metabolic problems as it tends to be lower in nonstructural carbohydrates.

6. Was the hay stored inside or under cover after baling? Hay stored inside or under cover has less storage loss.
7. Was the hay field fertilized and/or sprayed for weeds? Shows good management and likely a better quality product.
8. What are the payment options? What is the price? Is there a price break for volume or cash?
9. Is delivery available and if so, what is the cost? Is assistance available with handling and stacking of hay, and if so, at what cost?
10. How much hay do you have/bale each year? Helps ensure a consistent supply of hay.

Save the Date!

Soil Health Demos

at the UMass Research Farm

Tuesday, June 21, 2022, 1:00pm-4:30pm
89 River Rd, South Deerfield, MA

Check out this summer's demonstration plots, including:

- New York Soil Health Trailer demonstration
- No-till transplanting vegetables into a crimped cover crop
- Cover crop residue management
- Using tarps to terminate cover crops

More details about the event will be sent out in early June!

This event will be made possible by:

UMassAmherst Extension

Northeast SARE Sustainable Agriculture Research & Education

Stockbridge School of Agriculture

American Farmland Trust
Saving the Land That Sustains Us

Graphics created with BioRender.com

UCONN | COLLEGE OF AGRICULTURE, HEALTH AND NATURAL RESOURCES

EXTENSION

SOUTHERN NEW ENGLAND SOIL HEALTH TRAILER TOUR

Featuring Fay Benson, Cornell University

These hands-on field workshops will use practical demonstrations to illustrate the value of healthy soil. Learn about soil health and the management practices you can implement to protect your land

Monday, June 20th ~ Afternoon (Exact Time TBD)

Windham County VT (location TBD)
Sponsored by: American Farmland Trust
Contact: Kristen Irvin at kirvin@farmland.org for more information

Tuesday, June 21st ~ 1:00 pm

UMass Crop & Animal Research & Education Farm - 89 River Rd, South Deerfield, MA 01373
This event will focus on soils for vegetable and corn production as well as pasture and grazing
Sponsored by: Northeast SARE
Contact: Sam Corcoran at sglazecorcor@umass.edu for more information

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Northeast Sustainable Agriculture Research and Education program

Rain or shine

Wednesday, June 22nd ~ 1:00 pm

Walnut Lane Farm - 33 Koebke Rd, Dudley, MA 01571
This event will focus on soils for pasture and grazing livestock and poultry
Sponsored by: American Farmland Trust
Contact: Kristen Irvin at kirvin@farmland.org for more information

Service providers & Farmers welcome

Thursday, June 23rd ~ 2:00 pm

Windmist Farm - 71 Weeden Lane, Jamestown, RI 02835
This event will focus on soils for pasture and grazing livestock
Sponsored by: Rhode Island Farm Bureau
Contact: Heidi Quinn at haquinn@rifb.org for more information

Friday, June 24th ~ 9:30 am

Scantic Valley Farm - 327 9th District Rd, Somers, CT 06071
This event will focus on soils for pasture and grazing beef cattle
Sponsored by: Tri-State SARE Project
Contact: Rachel Bespuda at rachel.bespuda@uconn.edu for more information

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Northeast Sustainable Agriculture Research and Education program under subaward number SNE20-001-CT-34268.

There is no fee to attend but pre-registration is required for all events. Once registered, you'll receive more information as the event approaches

REGISTER HERE - https://forms.gle/YCJVwnnMhcsmWPwY8

A collaborative effort among:

Rhode Island Farm Bureau | Northeast SARE Sustainable Agriculture Research & Education | American Farmland Trust Saving the Land That Sustains Us | UMass Extension | UConn College of Agriculture, Health and Natural Resources Extension | The University of Rhode Island College of the Environment and Life Sciences