

**Volume 16:1
Spring 2013**

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Editor**

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In this issue...

- Announcements
- January Workshop Recap
- Local Profile - Shepherd's Gate Dairy Goat Farm
- Cultivation with Manure Application Affects Ammonia Volatilization and Corn Silage Yield
- Blue Star Equiculture Pasture Management

Announcements...

2013 Massachusetts Livestock and Poultry Workshops

This month, UMass Extension will be holding two workshops:

March 16 - Poultry and Livestock Workshop.

9:00-3:00 Holland Elementary School, Holland MA

Topics for the poultry and livestock workshop include, dairy goat operations, livestock slaughtering, grass-fed beef, production and marketing of meat, poultry management, and biosecurity of backyard flocks.

March 30 - Poultry Workshop

9:00-3:00 Hopkins Academy, Hadley MA

Topics for the poultry workshop include basic poultry management, biosecurity, processing chickens, nutrition, and local regulations for flocks.

Registration is \$15 for adults, \$10 for students and 4-H. Lunch will be provided. Due to limited space, please pre-register .

To register, contact Mallory Ottariano:

mottaria@psis.umass.edu (413) 545-5221

Save the Date - Equine Field Day!

Join us for the first annual UMass Extension Equine Field Day on April 20th. The event will run a full day, 8:00 - 4:00, and will feature sessions on mare and stallion reproduction, pasture management, barefoot trimming, various horsemanship topics and how to become riding instructor certified among others. Registration will be \$20 for adults and \$10 for students and 4-H members. Food will not be included in registration price, but there will be food vendors on the premises. The Field Day will take place at the UMass Hadley Farm located at 111 North Maple St, Hadley MA. Visit the CDLE website for more information (www.extension.umass.edu/cdle) or contact Mallory Ottariano: mottaria@psis.umass.edu, (413) 545-5221

January livestock workshop draws quite a crowd!

On January 17th, dairy and livestock producers from across New England, eager to advance their operations and learn how to apply efficient practices to their farms, gathered for a workshop at the UMass Research Farm in South Deerfield Massachusetts. The workshop, entitled "Cost-Reducing Strategies for Dairy and Livestock Operations", was aimed at providing attendees with the necessary information to streamline their operations and cut costs. In the current economic situation, this topical focus seemed to resonate with many, drawing an enthusiastic crowd.

During the days leading up to the event, I received many excited phone and email inquiries from commercial producers, hobby farmers, and state agencies alike, all expressing interest in a workshop of this kind. As an extension of a similar workshop series organized and hosted by the University of Vermont, this event was made possible by the UMass Center for Agriculture, the University of Vermont Extension, University of New Hampshire Extension and University of Maine Extension making it a regionally collaborative event. There were over sixty people in attendance who traveled from as far as Rhode Island, the south shore of Massachusetts, and Vermont and as close as right down the road from the Research Farm!

As everyone crowded into the Farm's garage workspace, which had been set up for presentations, a very knowledgeable and eloquent cast of speakers offered their words; Daniel Hudson and Dennis Kauppila of UVM spoke about beating high feed costs and introduced alternative nutrient sources and nutrient management practices. Rick Kersbergen (UMaine) presented information on high forage diets and reducing shrink on the farm. He was joined by Masoud Hashemi (UMass) to discuss profitable corn hybrid selection. Carl Majewski (UNH) shared a presentation on maximizing forage quality while Fred Hess (veterinarian out of Amherst MA) closed out the day with a talk regarding modern vaccination programs and administering vaccines.

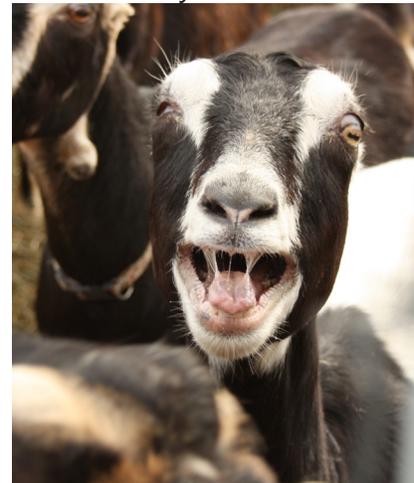
We all enjoyed a fabulous lunch, courtesy of Casella Organics, that featured delicious grass-fed beef burgers from Double-J farms in Brookfield, and were able to socialize over lunch. It was inspiring to see such a range of folks in attendance; there were a number of experienced farmers producing on a commercial scale who came to learn something new, but there were also plenty of backyard livestock owners, attempting to potentially grow their hobby into something more. It was heartwarming to see old and new faces connecting and sharing ideas and tips, multiple generations of farmers, and agency and university employees who came to educate themselves to they can better serve their constituents.

Successful events like this are the goal of Extension work; reaching out to the community with positive results. I think I can speak for us all when I say it is refreshing to be able to gather in person with like-minded individuals to share information and ideas. Given the wonderful feedback we received from this event, and the inspiring attendance, we hope to be offering more workshops in the future.

Local Profile:
The Shepherd's Gate Dairy Goat Farm and Jennifer Poirier
Holland, MA
Mallory Ottariano

I have visited few farms that exude such a contagious sense of nurture as the Shepherd's Gate Dairy Goat Farm. The goats are so well cared for and satisfied that they almost glow with contentedness. Earlier last month, I was fortunate enough to spend an amazing day with Jennifer Poirier who is about as passionate and steadfast a farmer as one can find. Her love for her animals is so infectious that my visit, originally intended to be a sort of working interview, turned into a full day of helping her out on the farm and I left with a relentless smile plastered on my face, enamored with her farm.

Incredibly striking is the amount of dedication Jennifer has to her animals and her operation. She possesses an exceptional will power: for the most part she is the sole operator of the farm and business! Her farm duties are clearly more than just chores to her; everything is a labor of love. Each goat that comes into the milking parlor enjoys copious affection; each is fed, spoken to sweetly, pet and massaged and handled with extreme care and fondness. The goats are individually named, and as we walk to the barn to get the next milkers, she explains to me that they are well aware of their names. "Midnight, Opal, Brown Sugar!" she calls out and the goats' nubby little Lamancha ears perk up. A few come walking toward the gate. "They understand the pattern and know when it's their turn to be milked" Jennifer says. She milks roughly 45 goats, a blend of mostly Lamanchas with some Lamancha/Nubian crosses, twice daily. This time of year, she has an additional duty; babies must be fed up THREE times



Jennifer says what she enjoys most about the farm is the nurturing aspect of it. Now that her children are grown she revels in the motherly care-taking of her animals even more, especially assisting with birthing and raising young goats. "Birthing is very rewarding,"

she says, "I enjoy being able to help them (the mothers) through a difficult time". After the morning milking is done, I am able to witness this gratifying work firsthand as I assist her with feeding the babies. Kidding season is in its height with almost 60 babies currently under her care. The day of my visit, they ranged in age from wobbly and unsteady day-olds to exploratory and adventurous two-week-olds.

During the kidding season, production of marketable products gets put on hold as all of the milk the goats produce must go to feed their babies. And even at that, their daily consumption exceeds what their mothers can produce. Jennifer stores extra milk in the freezer for this purpose. She explains that unlike other farms where the amount of milk fed to babies is more strictly measured, she lets her hungry babies eat until their bellies are full. "People always comment on the size and healthy appearance of my goats" Jennifer says as week-old triplets, sprawled across her lap, eagerly suck warm milk from bottles she is holding. The secret is having an endless supply of milk. The babies are separated from their



mothers until they are about two weeks old. This is to ensure they are getting fed adequately and to prevent injuries that are all too common for young ones amongst the herd. We were joined for feeding by Jennifer's friend Mary who orders Jennifer's dairy products for a CSA distribution she runs. She helps out on the farm whenever she comes to pick up orders. Through her work, she is very active in the central Massachusetts' farming community and says, "I've seen a lot of goat farms, but I've never seen a happier herd than Jennifer's".

When weekly farmers markets and orders demand production, Jennifer is busy preparing delicious items. With some help from her family and volunteers she creates a line of gelato, yogurt, many flavors of chevre, feta, fudge and truffles.

Jennifer, a product of a homesteading childhood and lifestyle has an extreme affinity for the land and a wonderful knowledge of its uses. She explains to me how she has spent many hours in the forest behind her farm teaching her children about edible plants and medicinal remedies. With her animals, she utilizes natural dietary supplements and herbal remedies to the fullest. "If my goats have upset stomachs, I give them witch hazel" She says, alluding to the many benefits of natural remedies.

This homesteading nature is what got Shepherd's Gate Farm started. Jennifer grew up with a few dairy goats so was already familiar with the benefits of goat's milk; easy to digest, lactose-free, non-suppressing to the immune system, natural germicides, high in energy....the list goes on! When Jennifer and her husband John's oldest son Josh developed extreme health issues as a baby, including asthma and bronchitis, doctors seemed stumped. The Poirier family purchased a few goats and transitioned to a goat's milk diet on the suspicion of a lactose allergy. Josh's health improved entirely. In 1995, after battling sickness within the herd, the operation finally took off and began to flourish. The farm is Jennifer's full-time job while John works for IPG Photonics, a fiber laser company. Jennifer's three boys, Josh, Jonathan, and Caleb, have undoubtedly learned invaluable life lessons from growing up on the farm; the importance of a strong work ethic, gentleness, and how to take care of others to name a few. They all wish to have goats of their own soon, hopefully continuing the Poirier legacy.

"The community is very important to me", Jennifer says. She is a very active and well-respected 4-H leader whose 4-H groups frequently visit her

farm to volunteer and learn about raising goats. She also teaches a variety of workshops in the surrounding community including cheese-making and backyard farming. Occasionally she teaches career classes at UMass, where she is also a member of our very own CDLE Advisory Committee where she and other members inform our research topics and outreach goals. Additionally she is a member of several councils; Supervisor of the Hampden County Conservation District, Board of Directors for the MA Outdoor Expo, and the 4-H Advisory Council...the list goes on! She is also a Sunday school teacher at her church, Eastford Baptist Church. As she rapidly lists off her involvements, I'm stunned at how she finds the time for all of these things!

At the start of my day, I will have to admit, I was a bit perplexed by Jennifer's seemingly incessant love for the work she does day in and day out, yet by the end of the day it somehow made complete sense. Even if I had wanted to, I could not have erased the smile from my face that day. Jennifer's work, although demanding, is happy, fulfilling work and I'm sure she would not have it any other way.

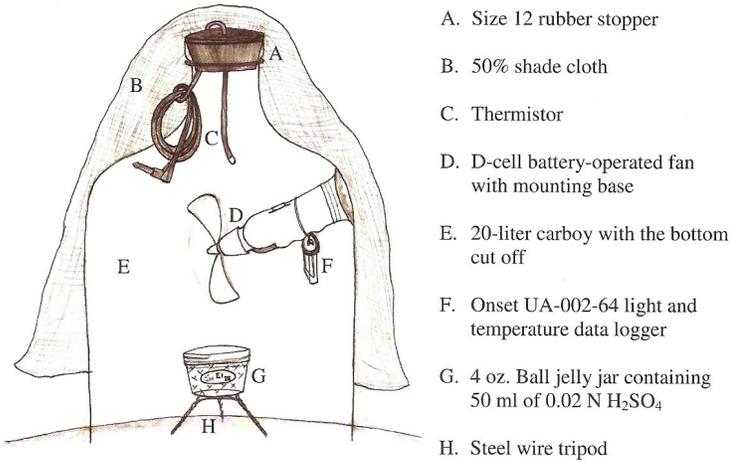


Cultivation with Manure Application Affects Ammonia Volatilization and Corn Silage Yield

Masoud Hashemi, Sarah Weis, Amir Sadeghpour,
Mallory Ottariano

Rationale: Nitrogen management of farm fields is becoming increasingly important as the price of nitrogen fertilizer rises and as the negative effects of agricultural volatiles such as ammonia become better recognized. Manure is an important contributor of nitrogen for crop growth as well as to ammonia volatilization. The time and method of manure incorporation into the soil (or lack of manure incorporation into the soil) will influence both ammonia volatilization and the amount of nitrogen available for uptake by crops. This research investigates the relationships among manure incorporation method, ammonia volatilization, and silage corn yield.

Description of the Project: An experimental site at the University of Massachusetts Amherst Crops and Animal Research and Education Center (CAREC) in South Deerfield, MA, approximately 100 ft x 400 ft was selected for research in 2011 and 2012 growing seasons. The fields did not have a history of manure application and had been under rye cultivation in the previous year. In 2011, the field was subdivided into three 400 ft long strips, each approximately 25 ft wide. Rye was killed with glyphosate. One strip was left untilled, one strip was cultivated vertically with an Aerway® to a depth of about 8 inches, and the third untilled strip was cultivated immediately following manure application. On either side was a strip disked before the manure was applied. At approximately 8:00 AM on June 7, 2011, liquid manure was spread uniformly at a rate of about 6,000 gallons per acre. Immediately upon the manure truck's departure, the third strip of the plot was disked. At the same time, 12 ammonia collection units (Figure 1), four replications for each treatment, were set up in the field to measure ammonia volatilization. Each unit remained at its location for one hour, at which time the jar collecting the ammonia was removed for N analysis. Each apparatus was moved to a new location within the plot hourly. This continued for the first 8 hours. After 8 hours, units were placed on the plots in one-hour increments four times over the next three days. In 2012, an Aerway after manure treatment was added to the experiment. Manure was



- A. Size 12 rubber stopper
- B. 50% shade cloth
- C. Thermistor
- D. D-cell battery-operated fan with mounting base
- E. 20-liter carboy with the bottom cut off
- F. Onset UA-002-64 light and temperature data logger
- G. 4 oz. Ball jelly jar containing 50 ml of 0.02 N H₂SO₄
- H. Steel wire tripod

Figure 1. A depiction of the apparatus used to collect ammonia

applied on June 20, 2012. Jars for ammonia collection were left on all the time between samplings when the between-sampling period increased. This was to try to get a more complete picture of total ammonia loss over the 4 days following manure application. In both years corn was planted on the entire plot several days after manure application. In order to more fully assess the effects of the specified treatments, no additional fertilizer was used on the plots.

Ten foot linear sections of each plot were harvested in September for yield analysis. To assess silage quality and total yield, ears and stover were separated.

Results: Analysis of manure used in 2011 showed 27.5 lb N per 1000 gallons, of which 10 lbs was in the form of ammonia. This translates into 60 lbs ammonia N per acre. In 2012 the manure contained only 15.8 lb N per 1000 gallons, 7.5 lb of which was ammonia N, so 45 lb ammonia N was applied per acre in 2012. Figures 2 and 3 show ammonia loss over the first 8 hours or 4 days following manure application. It was very clear that the immediate disking-in of the manure reduced nitrogen loss through volatilization of ammonia. Volatility is increased by many factors including high temperature and wind. The day of application in both years was hot, with temperatures in the ammonia collection chamber ranging from 67oF at the time of manure application in 2011 to over 100oF by the 7th and 8th hours of ammonia collection. Afternoon temperatures also reached the low 90's on days 2 and 3 following the manure application. Overall, the greatest single hour loss of ammonia was during the first hour following manure application, even though the temperature was

always cooler in the later mid-day hours. Ammonia loss continued beyond 3 days, but the rate always dropped to less than 0.5 lb N per acre per day, as estimated by periodic one-hour ammonia collections in 2011. Measured ammonia nitrogen loss was up to almost 11 lbs N (out of 45 lb applied) per acre in the four days following manure application in 2012 on the no-till plots. This was significantly reduced when the field was disked immediately. Pre-application cultivation with the Aerway was better than no-till, but was not nearly as effective in preventing N loss as was immediate post-application disking. The post-manure-application Aerway treatment reduced N loss in 2012 more than did pre-manure-application Aerway treatment.

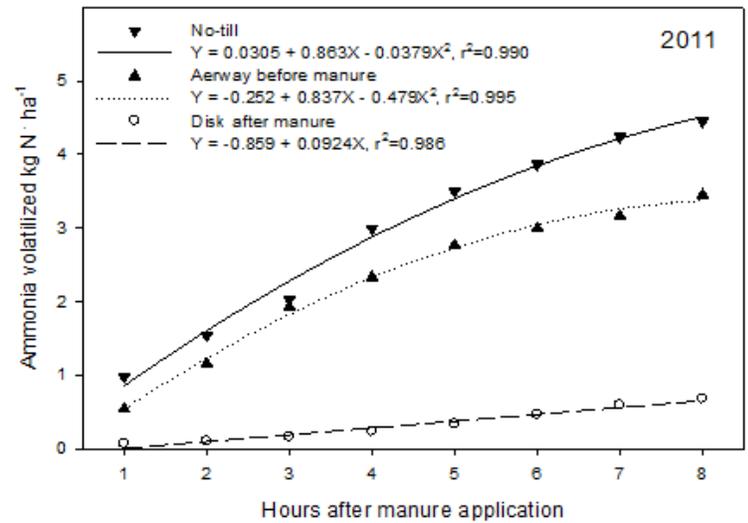


Figure 2. Effect of cultivation on ammonia loss to the atmosphere during the 8 hours following manure application.

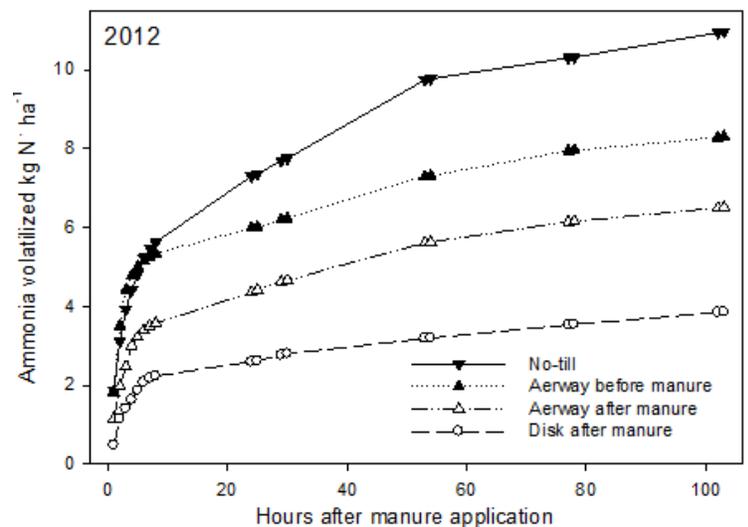


Figure 3. Effect of cultivation on ammonia loss to the atmosphere during the 4 days following manure application.

Table 1. Corn silage yield, ear yield, and percent ear by dry weight as influenced by manure incorporation method.

| Treatment | Silage ^z Ton/ acre | Earcorn ^y Ton/ acre | Percent Ear by dry weight |
|--------------------------|----------------------------------|-----------------------------------|------------------------------|
| Manure→Disk→Plant2011 | 21.7 A ^x | 5.2 A | 59.5 |
| Aerway→Manure→Plant2011 | 20.8 A | 4.9 A | 59.1 |
| Disk→Manure→Plant2011 | 13.6 B | 3.2 B | 56.8 |
| No-till→Manure→Plant2011 | 16.6 AB | 4.0 AB | 58.9 |
| Manure→Disk→Plant2012 | 17.8 | 3.0 | 47.5 |
| Manure→Aerway→Plant2012 | 24.6 | 3.9 | 45.2 |
| Aerway→Manure→Plant2012 | 15.2 | 2.4 | 44.6 |
| Disk→Manure→Plant2012 | 18.1 | 3.1 | 48.7 |
| No-till→Manure→Plant2012 | 24.8 | 3.7 | 43.0 |

^zSilage yield adjusted to 70 percent moisture

^yEarcorn yield adjusted to 25 percent moisture

^x Values followed by a different letter within a column x year are significantly different from one another at odds of 1:20.

Table 1 shows yields of corn grown on the plot in 2011 and 2012. Silage yields were low in both years, as would be expected without any nitrogen other than the June applied manure. Pre-manure disk treatment yields are shown in each year because, while there had been no ammonia collection, there were 4 replications of this treatment alongside the ammonia-measured plots. In 2011, silage yield and quality (defined as percent ear) were best on the post-manure disking treatment. Silage and earcorn yields, as well as percent ear under this treatment were unexcelled.

Immediate disking after manure application significantly reduced ammonia loss to the atmosphere and saved nitrogen for uptake by the corn crop. In 2012, total rainfall in July was under 0.6 inch, and the corn crop suffered as a consequence. Yield was variable, and no significant treatment-related differences were observed. The post-manure disking and the Aerway treatments did significantly reduce ammonia volatilization. Higher recorded yield in no-till and conservation tillage practices (Aerway before and after manure application) could be due to greater moisture conserved in these treatments.

Blue Star Equiculture: Practicing Innovative Pature Management

Paul Moshimer, Pamela Rickenbach

With the help of the UMass Extension Service and the Soil Science Department of the Stockbridge School of Agriculture, we at Blue Star Equiculture, draft horse rescue and sanctuary, located in Palmer, Mass, are bringing cutting edge innovations to our pasture management.

Blue Star Equiculture is a non-profit organization dedicated to the working horse. We care for 32 draft horses at any given time. We are advocates and educators, dedicated to the well-being of our horses AND concerned about their impact on our land. One of the great benefits of our association

with UMass, are the resources available to BSE. We approached Professor Masoud Hashemi several years ago regarding the health of the pastures on our leased property. Due to proximity to wetlands and the Ware River, we believed we might be eligible for a EPA grant to fund and demonstrate "best practices" of pasture management for our sizeable herd of predominantly large draft horses. We collaborated with Prof. Hashemi and his staff to design a three phase improvement program and were selected to participate. Our goal is to show that while managing a large herd we can minimize the impact on soil

health and water quality in the impacted ecosystem.

The program, as approved, is designed to show that an innovative approach to pasture management, the "Paradise Pasture," could be adapted to our farm. The Paradise Pasture concept is described by Jaime Jackson in his book "Paddock Paradise®: A Guide to Natural Boarding" (ISBN: 0965800784). We identified sensitive areas of our pastures and using Google Earth tools, laid out a fencing system plan to

exclude our herd from over 75% of the area previously available to them for grazing. In consultation with Kyle Bostrom, UMass Research Farm Manager, and Wellscroft Fence Company we designed and constructed a three strand high tensile aluminum electric fence



protecting the identified sensitive areas and creating a "track" around our largest pasture to encourage herd movement and feeding patterns as described in the Pasture Paradise concept. We finished the fence project in late November 2012 and await the thaw before we aerate, lime and reseed the protected areas.

The next phase of our project as described in our EPA grant will focus on ground water run-off. Our plan is to (a) construct a simple catch basin in our parking lot to collect and direct storm water directly to an adjacent stream, (b) in order to mitigate ponding and mud production, we plan to install



gravel trenches in our clay-lined sacrifice paddocks to collect and distribute storm water run-off, and (c) manage manure collection and composting processes using established best practices.

And finally when completed, BSE will become a demonstration site where awareness of the impact of horse ownership on the local environment can be raised. Horse owners and farmers can come to learn simple and inexpensive strategies for protecting

ground water and mitigating over-grazing with pre-identified sacrificial feeding areas.

Blue Star Equiculture's Mission:

Blue Star Equiculture is a working horse rescue and sanctuary committed to helping horses, humans and Mother Earth.

In concert with the community, we help working horses live out their days in comfort and dignity... and help humans connect with, care for and be better partners to horses and Mother Earth.

- We believe that the draft horse is a national treasure.
- We believe that horses and humans fundamentally belong together.
- We believe that all horses deserve loving homes where their physical and social needs will be met.
- We believe that "work" should not have a pejorative connotation.
- We believe that in these troubled economic and environmental times, working horses offer a sustainable means of equine husbandry.
- We believe that every working horse deserves to have his needs taken care of for the duration of his natural life.

Crops, Dairy, Livestock, & Equine News
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Upcoming Events for Spring 2013

UMass Western Team Regional Show

Saturday March 9, 2013
UMass Hadley Farm
Hadley MA
contact Cassie Uricchio: curicchio@cns.umass.edu

Massachusetts Livestock and Poultry Workshop

Saturday, March 16, 2013 - 9:00am to 3:00pm
Holland Elementary School
Holland MA
contact Mallory Ottariano (413) 545-5221
mottaria@psis.umass.edu

MA Blue Ribbon 4-H Calf Sale

Saturday, March 23, 2013
Eastern States Exposition
W. Springfield MA
<http://www.blueribboncalfsale.com>

Massachusetts Poultry Workshop

Saturday, March 30, 2013 - 9:00am to 3:00pm
Hopkins Academy
Hadley MA
contact Mallory Ottariano (413) 545-5221
mottaria@psis.umass.edu

Livestock Classic

Saturday April 13, 2013
UMass Hadley Farm
Hadley MA
contact John Balise: jbalise@vasci.umass.edu

UMass Equine Field Day

Saturday, April 20, 2013-8:00am to 4:00pm
UMass Hadley Farm
Hadley MA
contact Mallory Ottariano (413) 545-5221
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