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Summer 2013
Masoud Hashemi,
Editor

Center for Agriculture
University of Massachusetts
Amherst, MA. 01003-9294

For further information:
(413) 545-5221

cdle@umext.umass.edu

www.extension.umass.edu/cdle

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University Announcements....

Dear CDLE Subscribers,

With the rising costs of printing and shipping, we will be discontinuing the printed version of this newsletter starting with this year's fall issue. Fortunately, the CDLE newsletter is available to you online. Every newsletter can be viewed and downloaded at: <http://extension.umass.edu/cdle/publications-resources/newsletters>. We also send the newsletter out through our electronic mailing list. If you are not already on this list and would like to be added please contact me at cdle@umext.umass.edu.

I would also like to bring to your attention that since this newsletter is only published quarterly, not every news item or event makes it into an issue. In order to stay current on all CDLE happenings check our website at: <http://extension.umass.edu/cdle/>

Thank you, we appreciate your interest and support as we move forward.

-CDLE Team

Dairy Farmers Annual Twilight Meeting

The annual twilight meeting will be held on Thursday, August 15th from 5:30 to 9:00 PM at Carter and Stevens Farm located at 500 West St. in Barre. Join us for this great event and barbecue. You will get a tour of the new developments at Carter and Stevens Dairy farm, including: a sliding bedded pack, double 10 parallel parlor, covered manure pit, renewable energy sources (solar and wind), and value added products. We will also hear updates from the Massachusetts Farm Energy Program, Massachusetts Farm Bureau Federation, UMass research projects, and the USDA state agency.

For more information go to: <http://extension.umass.edu/cdle/events/twilight-barn-meeting-and-bbq/>, or contact Masoud Hashemi at (413) 545-1843 masoud@umass.edu or Madeline Magin at (413)545-5221 cdle@umext.umass.edu

The UMass Hadley Farm welcomes their new IEA team!

The Interscholastic Equestrian Association offers students an affordable opportunity to ride, show, and develop as horseman. The mission of the IEA is, "to introduce students in private and public middle and secondary schools to equestrian sports and to promote and improve the quality of equestrian competition and instruction."

Continued...

How the UMass IEA works:

- You do not need to have your own horse to participate!
- Students practice and lesson at the Hadley Farm every Friday (once per week)
- There are 5 horse shows in the regular season; students ride horses provided to them by the hosting team.
- Levels range from beginner (walk/trot/canter) to open (advanced)
- We host one show at the Hadley Farm in which every team member is responsible to help coordinate and prepare for.
- The team will have multiple fundraisers during the year both for individuals and for the team.
- The season is from September through May.

For more information: contact Jill Smith at:
Jillianne.r.s@gmail.com

Innovative Best Management Practices at Blue Star Equiculture

Madeline Magin and Paul Moshimer

Blue Star Equiculture, located in Palmer MA, was established in 2009 to function as a sanctuary for retired workhorses. At any given time there are about 32 draft horses residing at Blue Star in a 12-14 acre lot that they lease from Burgundy Brook Farm. Although Blue Star's commitment to rescuing horses is a very honorable and just cause, the housing of 32 draft horses on a 12-14 acre lot was causing an unacceptable amount of damage to the land and the surrounding waterways. One tier of Blue Star's mission statement describes their goal of helping mother earth; therefore, executive director Pamela Rickenbach and operations manager Paul Moshimer were eager to implement more effective management strategies to reduce their impact on the surrounding landscape.

Through the combined efforts of UMass professors Stephen Purdy and Masoud Hashemi and UMass farm manager Kyle Bostrom, along with BSE staff; the main management issues at the farm were identified. The most obvious problems identified were over-grazing and, non- point and point source water contamination. With so many horses on this smaller sized lot, the land was quickly overgrazed and as the horses needed to continue exercising it was impossible to keep them of the land to

allow it to recover. The issue of the land being overgrazed was exacerbated by the geography of the surrounding area. The main pasture is positioned on a slope near the confluence of the Ware and Swift Rivers with a small stream running directly through the property. The storm water run-off makes its way through the pasture by way of a brook, which had no buffer zone and was therefore exposed to point source manure contamination.

Identifying the management issues at Blue Star was the first step in implementing change and after securing funds through the Massachusetts Department of Environmental Protection and generous contributions from the Center for Agriculture at the University of Massachusetts at Amherst; a plan for remediation could be devised. Pamela Rickenbach proposed the implementation of a best-management strategy she had been researching known as "Paddock Paradise." This innovative approach to horse pasture management was developed by hoof care professional Jaime Jackson to imitate the natural movements of wild horses. Jackson's research revealed that wild horses travel in bands along familiar routes to attain forage, water, and essential vitamins and minerals. He also found that domestic horses can be encouraged to behave similarly if they are kept in enclosures that are modeled after natural routes.

The "Paddock Paradise" model of pasture management provided Blue Star with a very effective solution to their problems. A track could be fenced out around the perimeter of their pasture with feed and water at either side to encourage movement while allowing the pasture in the center to recover. Additionally, fencing could be set up around the brook to create a buffer zone so that water can be adequately filtered before it feeds into the Ware and Swift Rivers. Paul Moshimer drew up a fence plan of where to install the fences to meet their goals. The fences were put in place in the fall of 2012 and in the spring of 2013 the land was limed, disked and seeded with custom horse pasture mix. Although the main pasture was just reworked and seeded this spring there has already been an improvement in the condition of the field and the amount of mud has been significantly reduced. Paul and Pamela have both also noticed considerable improvements in the health of the horses since the installation of the fencing. The track system relies on natural herd pressures to force the horses to move around the track, and a significant increase in mobility in the herd has been noted. Round-bale feeders have been installed in the upper area of the track, reducing hay waste, and watering troughs near the barn resulting in movement between the feeders and the water.

Additionally, manure pickup and removal has been simplified since over 80% of the previously available turnout is now protected from overgrazing.



The main field at Blue Star before implementing the Paddock Paradise system. The entire pasture has been overgrazed and is muddy in areas.



The main pasture after the fences were installed. You can see the track to the far right. The large middle area has been fenced off to allow the pasture to recover.



The brook that runs through the pasture before the system was installed. As you can see there is no buffer zone and the water is exposed to point source contamination from the surrounding horse manure.



This is the same brook after the track has been laid out. Fences were set up 15' to either side of the brook and grasses have recovered to form a riparian zone.



Hay waste before round-bale feeders were in place



Waste is reduced when the feeders are put in place.

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On June 2nd 2013, Blue Star Equiculture invited the public to come to the farm to learn about the innovative best management practiced that they have recently implemented. The event attracted several horse owners who were either thinking about or had already begun implementing a similar system. This event was the first of several opportunities when Blue Star will invite the public to the farm in order to discuss their management practices. The next open house event will be on Saturday, October 19th where new storm water run-off strategies and an innovative manure composting system will be demonstrated in addition to the Paddock Paradise system.

The farm is open to the public most days, for more information go to:

<http://www.equiculture.org> or contact: info@equiculture.org

Current Research Projects Summer 2013

Enhancing Switchgrass Establishment through Seedbed Compaction

*Amir Sadeghpour, Masoud Hashemi, and
Stephen Herbert*

Switchgrass is a crop native to North America that has been used throughout history for soil conservation, forage production, game cover, ornamental grass, and more recently as a biomass crop for ethanol and butanol. Over the past seven years UMass has been involved in ongoing experiments to assess different characteristics that could accelerate switchgrass establishment.

The characteristic studied most recently is the influence that seedbed preparation can have on switchgrass establishment. The hypothesis of this project was that if the soil is slightly compacted then the better seed-soil contact may enhance seed establishment. In addition, the moderate compaction could reduce water loss caused by evaporation which would prevent the soil from around the seed from drying out.

The hypothesis was tested through the following soil preparations:

- No-till planting
- Disking then planting (DP)
- Disking, cultipacking then planting (DCP)
- Disking, cultipacking, planting, and cultipacking (DCPC)
- Disking, cultipacking, planting, and cultipacking twice (DCPC2)
- Disking, rolling and planting (DRP)
- Disking rolling, planting and rolling (DRPR)
- Disking rolling, planting and rolling twice (DRPR2)
- Disking rolling, planting and rolling three times (DRPR3)

The soil resistance was measured the day after the soil compaction at 10 and 20 cm depth. The number of seedlings were counted a month after planting. At the time of harvest the number of established plants, number of tillers per plant, tiller density, plant height, length of longest leaf, number of leaves per tiller and total biomass were measured.

As expected, the lowest soil resistance was recorded from the field that was just disked and planted. Soil resistance increased with the number of rollings or cultipacking at time of planting. Overall, slight compaction increased the number of emerged seeds and established seedlings. Increasing the soil resistance also resulted in higher tiller density as well as total biomass (Table 1).

Table 1. Tillers per plant, tiller density, aboveground biomass and standing rate of switchgrass as influenced by seedbed preparation methods.

Treatment†	Tillers plant ⁻¹	Tiller density m ⁻²	Biomass kg ha ⁻¹	Stand rating
DP	2.82d	188.8c	453.1d	2.50c
DCP	3.87cd	326.8b	552.2cd	3.00c
DCPC	5.75ab	479.23a	1065.9a	4.25b
DCPC2	6.40a	501.30a	1137.5a	4.75ab
DRP	3.85cd	333.63b	653.4bcd	4.00b
DRPR	4.67bc	389.5ab	825.7abc	4.00b
DRPR2	4.85abc	432.7ab	891.9ab	4.50ab
DRPR3	6.37a	502.38a	1071.1a	5.00a

Means in the same column followed by different letters differ significantly at P<0.05.

†Treatments are: disking-planting (DP), disking-cultipacker-planting (DCP), disking-cultipacker-planting-cultipacker (DCPC), disking-cultipacker-planting-cultipacker (2 times) (DCPC2), disking-rolling-planting (DRP), disking-rolling-planting-rolling (DRPR), disking-rolling-planting-rolling (2 times) (DRPR2), disking-rolling-planting-rolling (3 times) (DRPR3).

Optimizing Hairy Vetch Seeding Rate and Planting Date for the North Eastern Region

John Spargo, Sarah Weis, and Masoud Hashemi

Hairy vetch is a winter hardy, annual legume, and its ability to fix nitrogen makes it very useful in field and vegetable crop rotations. A substantial amount of work has been done in the Northeast to optimize hairy vetch management in the past two decades. Most of earlier works have focused on optimizing planting date, cold tolerance, variety selection, termination date and method, and mixtures with cereal grain cover crops. Very little work has been done to determine optimum seeding rate and its interaction with planting date.

Hairy vetch seed costs are relatively high (>\$2.5/lb for elite accessions). A well-managed hairy vetch crop can produce approximately 5000lbs of biomass per acre with an average fertilizer nitrogen equivalence of 100lbs of nitrogen per acre for the succeeding crop. With a recommended seeding rate of 30lbs per acre the cost of hairy vetch fertilizer nitrogen equivalence is >\$0.75/lb of nitrogen (approximately 50% higher than the current price of most sources of nitrogen fertilizer). If seeding rates can be cut by 25% without influencing maximum biomass the economics of supplementing vetch for nitrogen fertility will be substantially improved.

We are currently conducting research on hairy vetch in order to quantify the economically optimum vetch seeding rate x planting date for corn production system. Additionally, we are monitoring the decomposition rate of hairy vetch and measuring the amount of nitrate that becomes available in the soil. In the fall of 2012 we planted vetch at eight seeding rates (0, 2, 5, 10, 15, 20, 40 and 50 lbs. per acre) on three different dates (September 13th, September 25th and October 1st). Samples collected were taken from soil and vetch in Spring 2013 to calculate nitrate accumulation and relative biomass yields for the different seeding rates and dates of planting. Preliminary results indicated that higher yields resulted from earlier date of planting (September 13th) and 15lbs. per acre of hairy vetch seeds was the optimal seeding rate (figure 1).

Another goal of this study was to measure the decomposition pattern of hairy vetch so that it can be compared to nitrogen uptake by corn. In order to measure the decomposition rate, we collected tissue samples at the time of incorporation and placed them in 10"x10" bags made

of 2mm nylon mesh. Half of these samples were buried to mimic a traditional tillage system and the other half were left above ground to study the decomposition rate that would occur in a no-till system. It is important to note that if you use vetch as a cover crop in a no-till system you should be sure to cut it and apply herbicide before it goes to seed. After taking tissue samples to measure decomposition, we chose to flail mow the entire research plot before disking; therefore, the rest of our experiment will be based on a conventional system.

We planted corn in the field where the vetch was incorporated into the soil. We will take pre-side-dress soil nitrate tests (PSNT) at the stage of growth when we would usually side-dress in order to measure how much nitrate the vetch has made available to the corn. In the fall we will also measure corn yield and relate it back to the seeding rate of the vetch. The results of the PSNT tests and the relative corn yields will allow us to determine how effective the vetch was at fixing nitrogen.

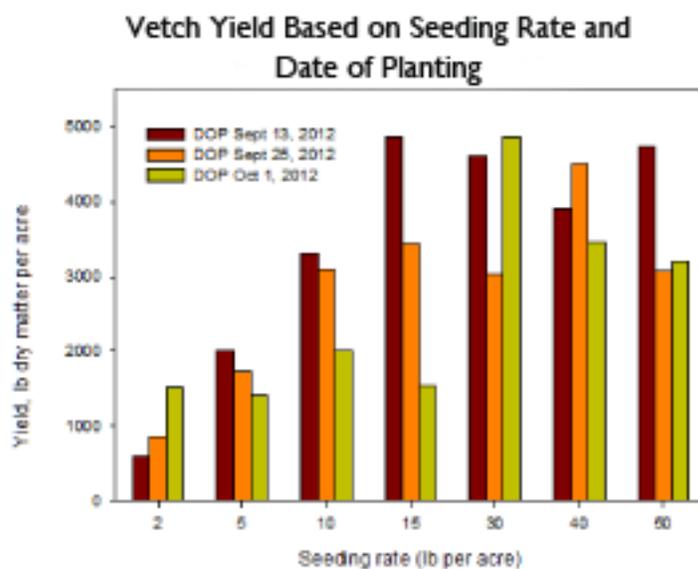


figure 1

Biochar for Improved Nutrient Retention, and Agronomic Yields of Sweet Corn

Emily Cole, Masoud Hashemi, Baoshan Xing, and Stephen Herbert

Charcoal has been identified as a useful soil amendment to reduce nitrous oxide emissions, improve water holding capacity, reduce nutrient leaching, and reduce fertilizer requirements. These characteristics can lead to many positive benefits in terms of reducing cost

of production and promoting environmental health and protecting natural resources. To assess some of the possible benefits of using biochar as a soil amendment, a long-term study has been implemented to investigate how effective biochar is at augmenting soil nutrient retention over time. This experiment began in the summer of 2012. Biochar was incorporated in the topsoil of research plots at rates of 2, 4, 6, and 8 percent. Over the next several years sweet corn will be planted in these plots and the relative yield and quantity will be measured and compared to control plots where no biochar was applied. A minor increase in the yield of corn was observed in the first year's harvest (2012); however, there was no effect on quality. More significant increases in both yield quantity and soil nutrient retention from this year's harvest is expected now that the biochar has established. Soil samples will be taken periodically to track soil nutrient availability.

Fertility Tests on Organic Heritage Wheat

John Spargo, Reza Keshavarz, Ruth Hazzard, Sarah Weis, and Masoud Hashemi

Due to the growing interest of bringing organically grown heritage wheat back to the valley we are currently conducting fertility tests on two heritage varieties, zorro and red lamas. Interestingly, red lamas has been identified as the earliest wheat grown in colonial Massachusetts before wheat production was shifted to the Midwest.

For our experiment we conducted a randomized split block design with four replications. We split the planting over two days in the fall of 2012 to see if there is an advantage in planting earlier or later into the season. After planting we applied nitrogen to half of the plots at 30 or 90 lbs. per acre. This spring we added additional fertilizer to selected plots when the wheat was at growth stage 25 and 30 at rates of 45 and 90 lbs. per acre. After the spreading of fertilizer was complete the total amounts on plots ranged from 0 to 165 lbs. per acre.

At the time of harvest lodging had occurred in the plots where large amounts of nitrogen had been applied. We also noticed a certain degree of rust and scabbing in both varieties and will be sending samples to the lab at the University of Vermont in order to identify the disease. We harvested four; ten-foot rows from each plot and are in the process of threshing these samples in order to find the relative grain yields.

We hope to continue our research in heritage wheat varieties beyond this study in conjunction with extension services in Maine and Vermont. We would like this study to serve as a platform for a grain outreach program in the Northeast.



Wheat harvest July 2013

Fava Beans; A new cash crop for Massachusetts

Fatemeh Etemadi, Masoud Hashemi, and Frank Mangan



Mature fava bean pod

Fava beans (*Vicia faba*), are among the most ancient plants in cultivation and are also among the easiest plants to grow. As a result, fava beans are commonly grown in North Africa, Asia and the Middle East; however, although fava beans have such an extensive history around the globe, they have never had a strong presence in North America. Fava beans are a cool season legume crop with high nutrition values and could have the potential to replace imports of soybean meal to the Northeastern United States. Additionally, fava beans fix nitrogen and can be seeded as early as early march; therefore, they can be harvested in time for a second crop and harvested in the same season. UMass is involved in research to demonstrate the feasibility of growing fava beans in a double cropping system as well as to determine the basic agronomic practices suitable to the growing conditions, including: time of planting, seeding rate, row spacing, fertility requirement, and weed control.

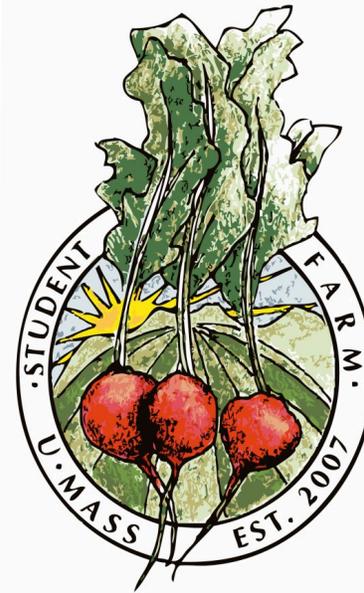


Fava bean plant

A two-year replicated research project has been conducted in spring (2013). Fava beans were planted as direct seeding as well as transplanting. The direct seeding took place on the first of April, and the transplants were planted over three dates: the 16th and 23rd of April and the first of May. Within the different dates of planting we used a randomized spilt block design and applied different amounts of nitrogen and water to the plants to identify the best growing practices. Fresh pod yield and yield components including the number of pods per plant, the number of seeds per pod, and the weight of the seeds will be measured. The contribution of fava beans to the nitrogen needs of the succeeding crop will also be assessed and an expense/income report will be generated to determine the economic feasibility of this new crop.

The Student Farming Enterprise

Madeline Magin



As UMass student farmers, we commit to providing our campus community with nutritious, organically grown, local produce. We cultivate student empowerment through hands-on agricultural production and by educating our peers about the importance of creating a healthier food system.”

The Student Farming Enterprise was founded in 2007 by two students who were interested in growing kale and broccoli to sell directly to the on campus student run cooperative Earthfoods. The success of their project led vegetable specialists Ruth Hazzard and Amanda Brown to develop a yearlong class curriculum to promote the continuation of the enterprise in order to provide future students with an opportunity to combine their scientific backgrounds with experiential learning. Seven seasons later, The Student Farming Enterprise is continuing to grow. This season they plan to grow food to provide for 50 ten-week CSA shares. Each share includes over 15 pounds of fresh organic produce on a weekly basis from September to November. Additionally the student farm still meets its original goal of selling directly to on-campus businesses as well as filling a wholesale order to the local BigY.

The yearlong class cycle that was established to make all of this possible begins every spring and runs through the fall. The majority of the spring semester is devoted to planning and preparing for the upcoming season. Each student is responsible for the planning of two to three crops, which requires them to choose suitable varieties, calculate the desired yields, and plan the management strategies that they would like to implement.

When the planning is completed, planting can begin. Students stay throughout the summer to work part-time on the farm to ensure that all the crops are seeded and transplanted at the right time to be ready for harvest in the fall. When September rolls around and classes start back up, students hold the incredible responsibility of running a CSA on top of their other coursework. An additional challenge is presented in the fact that the farm is handed over to an entirely new crew every year, which makes it difficult to keep records and learn from previous mistakes. The advantage to this system is that new and fresh ideas come to the farm every year.

This spring was the first year that students completed a final project on a special area of interest that they felt could help the farm. Some of the topics chosen were record keeping, season extension, integrated pest management, seed saving, pollinator studies, and cooperative management techniques. These projects can effectively build upon a network of knowledge that will be passed down to the next group of students so that every generation of student farmers is open to new and unique opportunities.

Some of these topics of special interest have already influenced the farm. A hoop house was installed last season and this year's crew hopes to use it to grow kale further into the season to meet the needs of Earthfoods throughout the fall semester. A more developed system of record keeping is being implemented so that next year's crew has a better idea of the quantity they will need to grow when planning in spring 2014. Interests in increasing the presence of pollinators led to the planting of herbs such as catnip and borage around the perimeter of the fields to attract native pollinators, and some students are going to put efforts towards saving seed to lessen next year's costs and decrease the farm's reliance on seed companies.

All of these projects have allowed students to directly apply their special interests to this experience, which is more than an internship or apprenticeship at a preexisting farm could offer. This program offers an extremely unique opportunity to students and every year students have stepped up to the challenge, which has allowed it to be a continued success.

If you would like to purchase a share or make a contribution to the student farm visit: <http://extension.umass.edu/vegetable/projects/student-farming-enterprise>



The 2013 Student Farmers (clockwise from upper-left corner): Chloe Rombach, Molly Bajgot, Jacob Harness, Andrew Hamilton, Eric Wheeler (teaching assistant), Neev Blume, Natan Theise, Lilly Israel, Cate Elliott, Cole Lanier, Kaylee Brow, Kathryn Post, Margaret Nakayama, and Matt Harbutt.

Fencing for Horses

Cassandra Uricchio, Mallory Ottariano

When choosing fencing options for horses, there are many characteristics that make up an ideal fencing product. We are all looking for something strong and durable that will be suitable for our needs and finances but we must also take into account the safety of our animals. Electric fencing is the most effective type of fencing both in terms of cost and performance while non-electric fencing can have a much greater decorative appeal and can definitely add a sense of elegance to an enclosure. Here we will examine the various types of electric and non-electric fencing and the advantages and disadvantages to each.



Electric Fencing:

Here are some characteristics to look for when choosing your fencing:

Visibility

How easy is it for your horses to see your fencing material? The size and diameter of the fencing line are key factors in the visibility as is the contrast of colors within the materials. Remember, horses do not see color so choose fencing with colors that translate into stark black and white contrast.

Conductivity

This characteristic has to do with how well your fencing material will carry an electric charge. This ability depends on the material doing the conducting and the number of filaments in the fence; the more filaments, the greater the conductivity. Copper is the best material for conducting electricity yet it can corrode easily reducing its effectiveness. To avoid corrosion purchase tinned copper wire. Steel is also a suitable material and is incredibly strong.

Durability

Fencing materials will break down over time due to weather conditions and UV sunlight. Plastics such as polypropylene break down quite quickly and are not as resistant to sunlight as polyester which is the ideal material as is it most resistant to sunlight. The construction of the fencing material, (for example if it is braided, twisted, etc) and its width are other factors to consider when striving for durability.

Cost

In many cases, this is the deciding factor in which fencing option to go with. This cost will also depend on the amount of land you are hoping to fence. Fencing can range anywhere from 10 cents per foot to 1 dollar per foot, the latter being a very high quality fence. A decent, mid-range fencing material should cost roughly 40 or 50 cents per foot. In addition to the cost of the material, a generator will need to be purchased to power your fence. AC power produces a potent shock, yet horses are quite sensitive and in many cases the shock produced by AC generated power will be unnecessarily powerful for them. Fences can also be solar powered and the cost for a solar panel is roughly \$200. Depending on the length of fence, more than one panel or power source may be needed.

Non-Electric Fencing

Non-electric fencing has a much greater decorative appeal than electric fencing and can definitely add a sense of elegance to an enclosure.

Wood Board Fencing -while very attractive, wood board is the most expensive type of fencing and also requires a large amount of maintenance as the wood needs to be refinished, protected, and painted quite frequently.

Vinyl Fencing

If you're striving for a picturesque white fence, this might be the way to go. Slightly less expensive than wood, vinyl fencing does not require a lot of maintenance. The downside to vinyl fencing is that the material itself is not very tolerable or flexible causing it to shatter with cold temperatures and making repairs challenging.

Non-Climb Fencing

Another highly effective, yet costly fencing option is non-climb fence, a woven wire fence with grid-like patterning. This fencing comes in a variety of grid sizes but, for horses, the grid size should be no larger than 2"x4". Larger sizes pose a hazard as hooves and legs can easily slip through and get caught which can lead to injury. To increase the effectiveness of this fencing type for foals and high pressure areas, offset an electric wire.



Non-climb fencing with additional wire on the top crossbar to prevent horses from chewing on the wood

High Tensile Wire (coated wire fencing)

Is a mid-priced fence. Because it is such a thin material, as compared to a wooden board, more of it is needed to hold back animals. In order to create a secure fence, use at least 5 strands of coated wire.



High tensile fencing

Finish Line

Is a polyamide plastic strand similar in function to wire. Again, multiple strands are needed for a secure fence just like with coated wire but, unlike wire, this synthetic material is quite elastic so breaking is not much of a concern.

High Tension Wire Rail

A type flexible vinyl board fence, high tension wire rail is another affordable and low maintenance fencing option. This fence is available in both electric and non-electric options. Unlike normal vinyl fencing, this fencing option will not break and crack easily as it is highly flexible.

Safety is incredibly important and your fencing materials should be chosen wisely with the safety of your animals as the highest concern. A few words of caution: Never use non-coated high tensile wire for fencing as the coating protects your animals from the sharp edges, thereby preventing abrasions and injury in the case of breakthrough. Barbed wire is also an unsafe fencing material for obvious reasons. Keep your animals safe by staying away from these materials.

Green Pastures Award

The Green Pastures program highlights the importance of maintaining a viable dairy industry in New England. This program is responsible for bringing prominent educators and researchers to New England to conduct special in-service training sessions for extension, agri-business, and dairy leaders on problems faced by the dairy industry. The Green Pastures Program also honors an "Outstanding Dairy Farm of the Year," the recipient of which is selected by the CDLE team. To nominate a farm for the 2014 award contact Masoud Hashemi at masoud@umass.edu.

Massachusetts Outstanding Dairy Farm 2013: *Hornstra Farm, Hingham MA*

The University of Massachusetts Crops, Dairy, Livestock and Equine team would like to congratulate Hornstra Farm for receiving The 2013 Outstanding Dairy Farm award. Hornstra Farms has been a family owned and operated business for four generations. In 1912, An-ske and Agnes Hornstra, together with their six children, left their native home in Holland and boarded a ship bound for America, the land of opportunity. Eventually, the family made their way to Hingham, Massachusetts and Hornstra Farms was born.

The dairy farm business thrived in Hingham for many years and then in the 1980s the Hornstra's farmland was sold for development, like so many other family farms at that time. The family did manage to retain a small piece of the farm where they continued to run their declining dairy home delivery business. A young and energetic John Hornstra took over what was left of that business in 1985. For the next 20 years, he expanded his routes, selling milk in glass bottles that was produced on his cousin's farm in New Hampshire and trucked down to John's Hingham location.

In 2009, when the Loring Farm, an APR farm in nearby Norwell, MA, came up for sale, John and his wife, Lauren, jumped at the chance to purchase the 80 acre former dairy farm. The farm had not been in use for many decades and the barns and fields all required restoration and refurbishing. After restoring the farmhouse John hired recent agricultural school graduates, Ethan and Laura Pratt, to help him build and care for a growing herd of beautiful Red and White Holsteins.

The main priority at Hornstra Farms has always been to offer the highest quality milk and cream, so when the farm's processing plant began production in May of 2013, it was a proud day indeed for the entire Hornstra family. The 46 milking Red and Whites are currently averaging 70 lbs milk, with 3.8% fat and 3.1% protein. The herd's somatic cell count for 2012 averaged a low 130,000, a testament to Ethan and Laura's capable care. Hornstra Farms feeds a high forage ration, with about 65% of the cows' diet coming from corn silage, balage and dry hay. The additional grain feed is free of all animal byproducts and is fairly limited, with an average cow receiving 15 lbs per day.



The Hornstra Family (from left to right): John, Lauren, Alison, John Jr., Cortney, Abby, Lily Hornstra, and Laura and Eaton Pratt.

Hornstra Farms uses artificial insemination, breeding their cows to sires that will improve the herd's genetics, striving for higher production, and milk quality and also increased productive life. They have also started experimenting with embryo transfer by buying frozen embryos and putting them in a few of the farm's recipient cows. The herd's conception rate is 45% and the pregnancy rate is 20%. Cows are bred off of both timed A.I. and natural heats.

The farm has been raising replacement heifers for the past four years. As the herd grows, the Hornstras have begun to outgrow the original 60 cow tie stall barn. They plan to build a barn for heifers and dry cows to support their growing herd. The herd's growth has also proved that they will need more land to grow feed. The farm has reclaimed 40 acres of overgrown fields and they plan to do more of this in the future. Much of the farm's current cropland is rented from the Town of Norwell's open space conservation program.

Semi- solid manure is pumped through a 15 inch underground pipe into a covered manure storage shed. The manure is spread in the spring and fall on the 20 acres of corn ground and the 100 acres of hay fields.

John and Lauren Hornstra, continue to expand their plans for Hornstra Farms. They have begun to experiment with making their own ice cream to better utilize their excess cream. A farm store with adjacent ice cream shop will open in the near future and on scheduled visitation days, the Hornstras plan to share their beautiful property as well as their love of farming with the greater community.

Crops, Dairy, Livestock, & Equine News
Stockbridge School of Agriculture
208 Bowditch Hall
University of Massachusetts
Amherst, MA 01003-9294

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Upcomg Events For Summer and Fall 2013

MA State 4-H Dairy Show

August 2-4, 2013
Cummington Fairgrounds,
Cummington, MA www.mass4h.org

Dairy Farmers Annual Twilight Meeting

Thursday, August 15th from 5:30-9
Carter and Stevens Farm, Barre, MA
Visit: <http://extension.umass.edu/cdle/> for more
information

Hanoverian Inspection

Thursday, September 12th
Hadley Horse Farm, Hadley, MA.
Contact Jenny Gardner (860)230-5378
Jengardner78@gmail.com
or visit: www.hanoverian.org,

Eastern State Exposition

Septemeber 13-29
West Springfield MA
www.thebige.com

Green Pastures Award, Eastern States Exposition

Friday, September 13

Horse Manure Composting and Paddock Paradise

Saturday, October 19
Blue Star Equiculture, Palmer MA
www.equiculture.org or
<http://extension.umass.edu/cdle/>