UMass Extension

Crops, Dairy, Livestock & Equine Newsletter

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Editor,

Masoud Hashemi

Upcoming Events:

March 19, 2016 - MA 4-H Blue Ribbon Calf Sale - Big E, Mallary Arena, West Springfield, MA Clinics 10am Sale starts at noon. www.blueribboncalfsale.com and on Facebook

Save the Date!

Health Care Practices for our Food Animals

SARE Professional Development Program

2016 Workshop for Agricultural Service Providers and Farmers

April 22, 2016 10am-1pm. UMass Crop and Animal Research and Education Center, 89-91 River Rd., S. Deerfield, MA

Maintaining and Enhancing Protocols to Treat Sick Animals
Katherine Beltaire, DVM, DACT
Case Study: Management of Anthelmintic Resistance on the Farm
Craig Jones, Field Representative Agrimark
FARM (Farmers Assuring Responsible Management)

Contact Jean King for further questions or to register.
jean.king@uconn.edu 860-916-7367

Upcoming March 15th Deadline

March 15th is the sales closing deadline to purchase Federal Crop Insurance coverage for grain and silage corn or to make changes to an existing grain or silage corn policy. To purchase a new policy contact an authorized Federal Crop Insurance agent at http://www.rma.usda.gov/tools/ agent.html. To make changes to an existing policy contact your agent. Soybeans or other spring-seeded forage crops are not covered by Federal Crop Insurance however different levels of coverage are available under the Noninsured Crop Disaster Assistance (NAP) administered by the USDA-Farm Service Agency (FSA). Please contact your local FSA Office for more information. The deadline for obtaining NAP coverage for spring seeded crops is also March 15th. UMass Extension works in partnership with the USDA Risk Management Agency (RMA) and various agricultural organizations to educate and inform Massachusetts producers about Federal Crop Insurance and Risk Management Programs. For more information, please visitwww.rma.usda.gov or contact UMass Extension Risk Management Specialists Paul Russell at pmrrussell@umext.umass.edu or Tom Smiarowski at tsmiarowski@umext.umass.edu or check out our website: https://ag.umass.edu/risk-management

Manure Happens
Here's What to Do About It

By: Alessandra Mele

You may not realize it yet, but the manure that's piling up all around you has value. "Black gold," as you may hear an old farmer call it, composted horse manure is some of the best fertilizer nature has to offer. There are many farmers and gardeners out there who will pay good money for the stuff, or, if you keep it for yourself, you'll harvest the benefits in the form of exquisite homegrown veggies.

Composting is a simple, time-honored practice that turns manure piles into usable fertilizer. "Based on the number of phone calls and emails I receive from people who want to learn more about composting, I believe it's becoming quite popular," says Masoud Hashemi, Extension associate professor at the Stockbridge School of Agriculture at the University of Massachusetts Amherst. Masoud focuses on sustainable farming and specializes in plant and soil sciences. He has published various studies on composting, and regards raw horse manure as some of the best fertilizer there is. "The problem with using horse manure as a fertilizer isn't the manure itself; it's the bedding that's mixed in with it," he says. "Horse manure mixed with bedding must be composted before it's added to a garden or field."

Carbon-based bedding materials, usually wood shavings and sawdust, upset the formula microorganisms need to break down the organic matter. "Microorganisms require carbon as a source of energy and nitrogen as a source of protein. It's important to maintain a balanced ration of carbon and nitrogen, ideally about twenty carbons to one nitrogen," Masoud says. "Manure mixed with bedding contains too much carbon: a ratio of about five hundred to one. This causes the microorganisms to draw far too much nitrogen from the soil in an effort to balance — and they're very competitive! They'll leave no nitrogen behind for plants, which will likely die from the deficiency, so we need to compost as a means of balancing the ratio of carbon to nitrogen."

The ingredients essential for successful composting are food, water, air, and proper temperature.

"There's plenty of food; don't worry about that," Masoud says. The microorganisms are eating all the abundant organic matter you've provided. "Moisture is usually easy to manage," he says, "but important to monitor. If you take a handful of your material and squeeze it, it should dampen your hand but no water should come out. Temperature should also be monitored": microorganisms operate best in temperatures between 130 and 150 degrees Fahrenheit, he says.

"Oxygen is what makes the process a little bit difficult," Masoud says. Compost must be consistently aerated to accelerate the decomposition process, typically by turning over the pile with a shovel or a tractor. "The more frequently you turn, the quicker the process goes and the better the results," he says. "However, not many people have time to physically turn the pile upwards of two times a week. An alternative method is to install a perforated PVC pipe below the composting matter, which is attached to a small air pump. It's only necessary for the pump to run one minute of each hour to properly aerate." The pipe and pump, for what's called static aeration, are reasonably simple to install and energy efficient — and save a lot of grunt work.

Masoud recommends organizing compost into a system of either piles or bins. Each system can be tailored to the space and equipment available and the number of horses you have. "Piles about ten feet long, four feet wide, and three feet high are an ideal size," he says. "One pile works fine for someone with one or two horses; the pile grows as material is continuously added to the tops and sides."

Adapted and reprinted with permission from *Massachusetts Horse*, mahorse.com

2015 Massachusetts Corn Hybrid Evaluation

Masoud Hashemi and Sarah Weis
University of Massachusetts Amherst

Many hybrids are available for farmers wanting to plant corn for silage. Some will perform better than others and some are better suited to the local climate. This report includes yield data for 20 hybrids which were submitted for trial by Doeblers and DeKalb. The twenty corn hybrids were evaluated for silage and grain yield at the University of Massachusetts Crops Research and Education Center, in South Deerfield, Massachusetts in 2015. Soil was a Hadley very fine sandy loam. Each hybrid was assigned to one of three groups based on relative maturity (RM) provided by the seed companies; Group 1, early maturing (RM 88-94 days), group 2 mid maturity (RM 95-100 days), and group 3, full season (RM 101-112 days). All hybrids were planted on May 12, 2015. A cone type distributor mounted on a double disc opening corn planter was used in a conventionally prepared seed bed. Plots were planted at the rate of 35,000 seeds per acre in 30 inch rows. Weeds were controlled using glyphosate herbicide.

Plots consisted of 3 rows, 25 feet long, replicated 4 times. The site received 80 lb/acre of nitrogen (calcium ammonium nitrate (CAN)) prior to planting, as recommended by an April soil test. Plots were side-dressed with 160 lb N at the beginning of July as recommended by a pre side-dress soil nitrate test.

Ten foot sections of the central rows were harvested by hand for evaluation of silage yield. Early maturing hybrids were harvested September 10 and 11, mid-season hybrids were harvested September 14 and 15, while full-season hybrids were harvested between September 16 and 25. Harvested hybrids were evaluated for silage and ear yield, percentage ears, and moisture content. Silage yield was adjusted to 70% moisture and earcorn yield to 25% moisture.

Climate data for the evaluation site is presented in Table 1. Overall, in 2015 the corn crop experienced a favorable growing season, though May was hotter and drier than the norm. Temperature and rainfall were both above the norm for the experimental location over the growing season.

Table 1: Climate data for 2015 in South Deerfield, MA.

	GDD[1]			Rainfall (inches)		
	2015	Norm[2]	Deviation	2015	Norm[2]	Deviation
May	418	226	192	1.18	3.46	-2.28
Jun	450	485	-35	7.58	4.41	3.17
Jul	659	636	23	5.39	3.65	1.74
Aug	665	589	76	4.33	3.62	0.71
Sept	505	342	163	6.81	4.09	2.72
Total	**2697**	**2278**	**419**	**25.29**	**19.23**	**6.06**

[1] Growing Degree Days was calculated as: $GDD = \Sigma(T_{max} + T_{min})/2 - 50^{o}$ F

[2] Norm is based on average of 18 years, 1997-2014, at nearby Orange airport, Orange, MA

Corn silage yields are given in Table 2. Hybrids are arranged according to reported days to maturity. Silage yield based on 70% moisture averaged 38 tons/acre and ranged from 28 ton/ac to 47 ton/ac in individual plots. Summary of relationships between days to maturity and silage yields are shown in bold. Full season corn out yielded early maturing corn by an average of more than 4 ton/acre. Regardless of maturity group all hybrids tested in 2015 yielded very high compared to previous years. Harvests of ten of the hybrids were repeated on adjacent rows, and results were confirmed.

Earcorn, as measured separately from silage, yielded higher in the full-season hybrids than in the other two categories. Percent ears (weight of ears as a percent of total plant biomass) is sometimes given as an indicator of quality, with a higher ear percentage connoting a higher quality. The early-and mid- season hybrids had higher ear percentages even though they had lower total earcorn yields.

Table 2. Silage corn yield 2015.

Harv Date	Days to Maturity	Harvest Moisture[z]	Silage Ton/ac[y]	Earcorn Ton/ac[x]	Pct Ears[w]	Hybrid	
9/9	93	61 %	35	9	67	DeKalb	DKC43-48RIB
9/9	94	60	35	10	71	DeKalb	DKC44-13RIB
9/15	96	60	36	10	69	DeKalb	DKC46-20RIB
9/15	99	61	33	9	69	DeKalb	DKC49-72RIB
9/15	99	62	38	10	66	Doebler	Doebler® 3916GRQ
9/15	100	63	36	10	68	DeKalb	DKC50-82RIB
9/17	101	61	39	11	69	Doebler	RPM® 4115AM™
9/17	102	62	39	10	66	DeKalb	DKC52-30RIB
9/17	103	61	39	10	67	Doebler	RPM® 4315 AMT™
9/17	104	59	38	10	68	DeKalb	DKC54-38RIB
9/17	105	64	41	11	68	Doebler	RPM® 563HXR™
9/17	105	60	35	9	64	Doebler	Doebler® 554GRQ[v]
9/17	107	64	39	10	67	DeKalb	DKC57-75RIB
9/17	107	62	37	10	66	DeKalb	DKC57-92RIB
9/25	108	61	45	11	61	Doebler	RPM® 604HRQ™
9/25	110	60	40	10	65	DeKalb	DKC60-67RIB
9/25	110	62	35	9	67	Doebler	RPM® 5015AM™
9/25	111	60	45	12	65	DeKalb	DKC61-88RIB
9/25	111	64	41	11	66	Doebler	RPM® 5125AM™
9/25	112	58	41	11	67	DeKalb	DKC62-08RIB
LSD[u]		2.6	5	2	2		
Early-maturing (<95 days)			**35.1 b[t]**	**9.7 b**	**69 a**		
Mid-maturity (95-100 days)			**35.4 b**	**9.6 b**	**68 a**		
Full-Season (>101 days)			**39.5 a**	**10.5 a**	**66 b**		

[z] Harvest moisture percent was not different among the different harvest dates; the timing of the harvests was consistent for the three maturity categories.

[y] Silage yield is reported as US tons per acre of 70% moisture plant material at harvest .

[x] Earcorn is reported as US tons per acre of ears in the husk at 25% moisture.

[w] Percent ears is reported on a dry weight basis.

[v] 2014 Seed. This hybrid was a top performer in 2014. Plant population using the year old seed was the lowest of the hybrids planted.

[u] LSD , least significant difference is the smallest difference between any two values in the above column in which a difference is considered to be of statistical significance at odds of 19 in 20.

[t] Means in bold with the same letter within each column are not significantly different at $P \leq 0.05$.

Comparisons of grain yields are given in Table 3. Hybrids are arranged according to reported days to maturity for silage. Summary of relationships between days to maturity and grain yields are shown at the bottom of the table in bold. Note that any effects of "days to maturity" may be related to choice of seed the companies opted to send for trials. Grain yields averaged between 213 bu/ac and 303 bu/ac, with full season hybrids out yielding short and mid-season hybrids overall. There was considerable yield variability among the 4 plots of each hybrid. For two hybrids to show statistically significant yield differences, the average difference must exceed 42 bushels/ acre. Hybrids "9" and "20" are the same hybrid, but the 2014 seed appeared to out-yield the 2015 seed by 23 bu/ acre (not statistically significant given the variation among replicates). Moisture content of the grain at harvest was related to "days to maturity", with the short season hybrids averaging lowest moisture and the full season hybrids averaging highest moisture. Half the plots were harvested December 16 and half were harvested December 21. Overall, average moisture content dropped from 17.9% on December 16 to 17.4% on December 21. Moisture percentages shown are averages of the two harvest dates.

Table 3. Grain corn yield, 2015 season, as harvested December 16 and 21, 2015.

Hybrid Number	Days to maturity	bu/ac @ 15.5% moist.	moisture Percent[z]	Hybrid	
1	93	217	16.5	DeKalb	DKC43-48RIB
2	94	212	17.1	DeKalb	DKC44-13RIB
3	96	236	17.3	DeKalb	DKC46-20RIB
4	99	220	16.9	DeKalb	DKC49-72RIB
13	99	265	17.3	Doebler®	554GRQ
5	100	249	17.3	DeKalb	DKC50-82RIB
14	101	268	17.6	DeKalb	DKC54-38RIB
6	102	261	17.3	DeKalb	DKC57-75RIB
15	103	281	17.2	Doebler	RPM® 4315AMT™
7	104	275	17.7	DeKalb	DKC54-38RIB
16	105	297	18.3	Doebler	RPM® 563HXR™
8	107	246	18.5	DeKalb	DKC57-75RIB
9	107	272	17.6	DeKalb	DKC57-92RIB
20	107	295	17.7	DeKalb	DKC57-92RIB- 2014 seed
17	108	300	17.9	Doebler	RPM® 604HRQ™
10	110	270	17.6	DeKalb	DKC50-82RIB
18	110	242	18.6	Doebler	RPM® 5015AM™
11	111	303	17.6	DeKalb	DKC61-88RIB
19	111	278	18.7	Doebler	RPM® 5125AM™
12	112	270	18.6	DeKalb	DKC62-08RIB
LSD[y]		42	0.7		
Short Season (<95 days)		**217**	**16.8**		
Mid-Season (95-100 days)		**243**	**17.2**		
FullSeason (>100 days)		**275**	**17.9**		

[z] Moisture was measured at the time of harvest using a Dickey-john® mini GAC® moisture tester.

[y] LSD , least significant difference is the smallest difference between any two values in the column above it which is considered to be of statistical significance at odds of 19 in 20.

On February 24, 2015 the University of Massachusetts, Amherst, held its bi-annual dairy event at the Crop and Animal Research Education Center in South Deerfield. With approximately 50 people in attendance, it was a great turnout considering the uncertain nature of the weather that day.

It was a full day event focusing on farmers and industry perspectives on robotic milking. A panel of dairy farmers including Onan Whitcomb (*Whitcomb's Farm*, Williston, VT) Steve Barstow (*Barstow's Farm*, Hadley, MA), and Tim Ooms (*A. Ooms & Sons Dairy*, Valatie, NY) were able to discuss their personal experiences with robotic milking systems and how they work for their respective operations.

A representative from Lely, a robotic systems retailer, was on hand to answer any technical questions regarding the operation.

The second portion of the day included presenters from a multi-state collaboration that discussed options for improving productivity and profitability of forage production on the farm. Speakers included Dr. Rick Kersbergen from the University of Maine, Dr. Heather Darby from the University of Vermont, Dan Hudson from UVM Extension, Sam Corcoran from UMass, and Kate Parsons from NRCS.

Overall, the day was a great success. We would like to extend a big thank you to all of our sponsors, especially Casella Organics for providing lunch, faculty, staff, and student researchers, and especially to farm superintendent, Neal Woodard, as well as Zak Zenk and Keith Lilly; their hard work and commitment made this day possible. For more information, contact CDLE Team Leader, Dr. Masoud Hashemi at masoud@umass.edu.