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Masoud Hashemi, Editor:

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

For further information
Phone: 413-545-5221
Email:
cdle@umext.umass.edu
Web Address:
www.extension.umass.edu/cdle

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The Real Dirt on Flooding and How to get Assistance

The weather this summer has brought many Massachusetts farms challenges to overcome, and some have experienced more devastation than others. From mini earthquakes and tornadoes, to the severe flooding from Tropical Storm Irene, many farms and communities are now faced with the aftermath of the storm. Land, crops, buildings, among other farm entities have been severely damaged and/or lost. In response to this tragedy, there have been many initiatives to assist those in need. UMass Extension would like to extend our expertise during this time of agricultural disaster. As farmers are concerned with issues such as managing flooded damaged crops, contamination of soil and crops, among other problems, UMass Extension is able to answer most questions and can help guide you. For a complete listing of each Extension Program and its staff, please visit "The Green Directory". This newsletter issue will feature several factsheets that address such issues mentioned above. Also, the Massachusetts Association of Conservation Districts (MACD) has established the Massachusetts Farm Disaster Recovery Fund, a charitable non-profit initiative to assist farms and families in need. Your support is greatly needed to help farm families and communities. Contributions can be sent to: MACD, MA Farm Disaster Recovery Fund, 319 Littleton Road, Suite 205, Westford, MA 01886. If you or your organization would like to join this disaster recovery campaign, contact Don Lewis, MACD Executive Director by email at don_lewis@post.harvard.edu or by phone at 508-748-2130. *Continued on page 10.*

New Director of West Experiment Station

The West Experiment Station, home to the UMass Soil and Tissue Testing Lab, which offers soil, plant tissue, and compost analysis, is under new leadership. Dr. John T. Spargo is a soil scientist whose research is focused on soil fertility and nutrient management. He earned both his Masters and Ph.D. from Virginia Polytechnic Institute and State University; his master's work examined phosphorus surface runoff from compost amended Mid-Atlantic soils, and his doctoral studies focused on soil quality, carbon sequestration, and nitrogen cycling in continuous no-till grain cropping systems. . While at Virginia Tech, Dr. Spargo received several awards and grants, such as the "No-Till Innovator Research Team Award", which supported his creative research for nutrient cycling in agroecosystems.

In 2009 Dr. Spargo joined the USDA-ARS Sustainable Agricultural Systems Lab in Maryland as a Post-Doctoral Research Associate. As *Research Soil Scientist*, his primary appointment involved contributing his expertise of nutrient cycling to the project "Principles and Practices for Improving Organic Farming in the Mid-Atlantic Region". Dr. Spargo also collaborated with other scientists at USDA-ARS, and farmers throughout the region, to explore other issues related sustainability and economic viability, including research on small grains and organic grain for feed. As the UMass CDLE Team is beginning research on small grains for malting quality, and examining best agronomic practices affiliated with each species, we are excited to welcome Dr. Spargo's expertise.

When not immersed in laboratory analysis and field research, Dr. Spargo enjoys the outdoors with his family; from hiking to take in the beautiful views of the fall foliage to white water canoeing (which he'll find on the Deerfield River). Being a cyclist, Dr. Spargo was glad to find a large cycling community in the Pioneer Valley.

The UMass community is pleased to welcome Dr. Spargo to our team of experts.

A New Website for CDLE

The CDLE Team is pleased to announce the launching of our new website in the month of October. It will feature an array of useful information; "Best Management Practices" for both livestock and dairy, newsletters with the option to sign up for our mailing list, research publications, videos, news and events, and current research. We hope to address current issues that our agricultural community is faced with. Please visit our website at www.extension.umass.edu/cdle

Managing Flood Damaged Crops and Forage from Tropical Storm Irene

Written by UVM Extension Specialists Sid Bosworth, Jeff Carter, Heather Darby, Dan Hudson, and Dennis Kauppila with contributions by Al Gotlieb (UVM retired)

Tropical storm Irene has caused some of the most massive flood damage to crops in over fifty years. Many crop fields were completely destroyed, while others were left with varying degrees of damage. Before making any decisions about your fields, you should document and report any crop damage to your local U.S. Department of Agriculture Farm Service Agency (USDA FSA) office, your crop insurance agent and the Vermont Agency of Agriculture, Food and Markets. You are strongly encouraged to take 'time-dated' photos of any damage. Such information may be critical in federal emergency determinations and your eligibility for these programs.

Below are best management guidelines for harvesting, storing, and feeding flooded field and forage crops including corn, hay crops and pasture.

- ❖ Protect yourself from the harmful effects of silt dust on your health. If you do harvest your flooded crop, use a dust mask (N-95 or higher) or filtered cab to avoid breathing in dust.
- ❖ Flooded crops should be stored separately from the rest of your feed. In cases of production problems, this allows for feeding or disposal options without affecting your good feed.
- ❖ Flood water from streams and silt can be a source of pathogens. Farmers are strongly encouraged to work closely with their veterinarian and animal nutritionist when determining which vaccination and feeding protocol to use to further protect the herd from possible health issues associated with feeding flooded crop material.

Considerations for Harvesting Corn for Silage

- No matter how bad the field looks take the time to properly assess the damage in each field and determine harvestbility. Because each field and/or farm is affected differently, no one prescription fits all situations.
- If possible it is best to avoid chopping corn with large amounts of dirt or silt on it. Soil contamination is the primary source of Clostridium bacteria which increases the risk of poor fermented silage. Clostridial fermentation can also increase the risk of botulism toxins.
- It is generally recommended to not harvest corn with significant moldy ears. Mold lowers feed value and increases the risk of mycotoxins. However, do not assume that all flooded corn will have moldy ears. We have observed that ears with tight husks show no or few signs of mold. It is important to monitor the corn regularly to assess mold growth and development. You may consider an early harvest if the mold worsens.
- Silt is abrasive, so it will be very hard on machinery. Operators will need to take extra care to ensure knives are sharp. Be prepared for extra repairs.
- Try to cut the corn above the silt line or at least above any heavy silt line. In areas where plants are heavily silted it may be more advantageous to harvest the corn as high moisture ear or snaplage. This process requires only the ear to be removed and leaves the remainder of the plant in the field.
- Good silage fermentation kills or inhibits the growth of many pathogens; therefore, follow all best management practices to promote good fermentation by harvesting at the correct moisture content (62 - 68% Moisture content, 32 - 38% DM), proper chop length, high filling rate, extra packing, and a tight seal to exclude oxygen. In addition, silage inoculants properly applied can help promote good fermentation by assuring adequate populations of lactic acid bacteria (LAB) and silage preservatives such as buffered acids can help prevent mold and yeast growth.
- If possible the field should be left to reach the proper harvest moisture for silage. Do not chop immature corn unless necessary. Chopping immature corn can lead to other fermentation issues. If fungal growth seems imminent or increasing on the ears or in the stalk and you still intend to harvest, harvesting slightly earlier that you typically would can reduce the chances of an unacceptable mycotoxin load.
- Crop dry down rate may be faster than normal, so monitor plant maturity and whole plant moisture content routinely and be prepared to harvest when ready.
- Because of relationship between packing density and oxygen exclusion, it may be better to err on the side of harvesting at slightly higher moisture levels

than usual. Chopping corn at excessively high dry matter content will reduce lactic acid bacterial growth and likely inhibit proper fermentation allowing more spoilage.

- It is advisable to inoculate with lactic acid bacteria from a reputable company. It may cost a little more for a good inoculant, but do not skimp on rate or quality. If harvested at the proper moisture content, it is generally recommended to inoculate with a combination of homolactic LAB (to lower and stabilize the pH of the silage) and L. buchneri (to increase acetic acid formation which extends bunk life and reduces feed out losses). Growth of molds and fungi are inhibited by acetic acid. Including L. buchneri in the inoculant can cause excessive production of acetic acid if the corn is harvested below 32% DM. However, for specific products, talk to your inoculant dealer about any modifications in inoculant rate and type. Distribution of inoculants within the forage is also critical so talk to your dealer about applicators. For more information, refer to www.extension.org/pages/11767.
- Acetic acid and buffered propionic acid products are also effective to limit mold and yeast growth, but should not be mixed with bacterial inoculants in the same applicator tank. Follow specific product recommendations.
- Remember to store flood damaged corn separately from undamaged corn. If production problems are detected from this forage then there are options to either feed it to other livestock or plan to spread it on your fields as you would manure.
- Avoid feeding for 4 to 6 weeks to allow adequate time for good fermentation. Some mycotoxin levels can actually decline over time in the silo.
- Before feeding, collect a representative sample and have it tested for mycotoxins.

Considerations for Harvesting Hay Crops

- Avoid harvesting heavily silted haycrops for the same reasons as corn.
- If you do harvest, keep all flood damaged hay and haylage separated from uncontaminated forage.
- There is a very high risk of poor fermentation from flood damaged haylage, therefore, making dry hay may be a better option than haycrop silage.
- If you do harvest as haylage, follow all best management practices to promote good fermentation.
- Monitor your moisture content and harvest at a moisture content of 60 to 65% moisture for bunks and uprights. If you are making baleage, harvest at 50 to 60% moisture.
- Fine chopping, quick fill rate, extra packing and quick sealing with a tight cover are all critical.
- Silage inoculants can help improve fermentation by providing adequate populations of lactic acid bacteria. Inoculate silage with a reputable brand appropriate for haycrop silage. For information about appropriate inoculation rates consult with product representatives.
- Avoid feeding for 4 to 6 weeks to allow adequate time for good fermentation.
- Before feeding, collect a representative sample and have it tested for mycotoxins.
- Monitor your animals closely and consult with your veterinarian if there is a problem.

Considerations for Pasture

- Be cautious. Soil disrupted by the flood along with decaying organic matter can expose your animals to clostridia organisms and other pathogens that may cause diseases, abortion, or even death. Handle any dead or aborted animals with care. Listeriosis which can be fatal to humans. Call your veterinarian immediately.
- Depending on the silt load, the safest approach may be to clip the contaminated pastures and then wait until next spring to graze the pasture.
- If you do graze regrowth this fall, don't graze it too closely. Avoid letting your livestock get down into the old dead material.
- Watch your livestock closely. If any animals appear sick, stop grazing and call your veterinarian immediately.

Considerations for Flooded Stored Forages

- Before feeding the flooded crop, collect a representative sample and have it tested for mycotoxins.
- For stored silage, haylage or wrapped round bales that were exposed to flood waters, it is important to dig into the silage (or open up a few bales) and assess the damage. Check the smell and color. If it looks and smells good, then it may be fine. Watch for mold growth.
- Discard forage that is visibly contaminated with silt or mold. In some cases, silt will even be found inside wrapped bales with the plastic still intact.
- For round bale silage, re-wrap or patch torn bales to avoid heating and spoilage and plan to feed these out soon. Flooded wrapped bales are apt to spoil; even if your bales look fine right after the flood, check a few in about a month to look for changes.
- Limit the amount of this feed in the ration mixing it with other good feeds. Monitor your animals closely.

Considerations When Feeding Flooded Forage

- Flooded forage should be analyzed for nutritional value and mycotoxins. With added silt, you may find a higher dry matter and ash content and a lower protein and energy concentration.
- Frequency of testing will be determined by field risk assessment as well as by evaluation of the feed's visual appearance and smell.
- Blending or diluting flooded feed with uncontaminated forage may be one means to reducing impact on herd health. However, check with your nutritionist and veterinarian to interpret mycotoxin test results before mixing feeds.
- Once you start feeding any flooded material, watch your animals closely. Mycotoxins and other potential pathogens may cause health problems immediately or over time.
- Sampling and Testing for Mycotoxins
- The risk of mycotoxin development may increase in crops that have been flooded and covered in silt. Mycotoxins are poisons that are produced by fungi These toxins can be detrimental to both animal and human health. Mycotoxins can cause problems in production, reproduction and intake problems, as well as possible irreversible damage to cows' organs, including the liver and kidneys.
- Fungi in the 'Fusarium' family produce many of the mycotoxins common in the Northeast. The fungi itself is ubiquitous and found in the soil, plant residue and even blown around through air currents. Mycotoxins associated with 'Fusarium' are zearalenone, T-2 toxin, fumonisin, and deoxynivalenol, also called DON or vomitoxin.
- The following are mycotoxin risk levels for dairy cattle, expressed on a total ration, dry-matter basis.
- DON (vomitoxin); less than 5 to 6 parts per million
- Fumonisin; less than 25 parts per million
- T-2 toxin; less than 100 to 200 parts per billion
- Zearalenone; less than 300 parts per billion

Aflatoxin produced by the fungi Aspergillus, the most serious carcinogen, has been found in high levels in peanuts, corn, cotton seed, and grain and can contaminate milk. This toxin is a serious problem for human and animal health and can contaminate corn in warmer growing regions. Aflatoxin requires warm (85°F) and moist conditions. Where fall conditions are cool, aflatoxin is rarely found. For example, in Vermont, our fall conditions are often wet but temperatures normally average between 50 and 60 degrees.

All flooded forages should be tested for mycotoxin after complete fermentation but soon enough so you have time to obtain feed if it has unacceptable levels. Samples should be taken from the storage facility and the TMR if available. The sampling strategy and frequency will depend on herd health monitoring. Mycotoxin analysis can be completed at UVM Grain Quality Testing Laboratory as well as other commercial labs.

Forage Inventory and Farm Decisions

Take an accurate inventory of your volume and quality of stored forage. Estimate how much feed you will need this winter and whether it is possible to avoid using the flooded forage. Talk to your feed consultant about cost-effective options for replacing lost feed. Right now is the time to make the calculations. If you find you will have to borrow money to buy feed, talk to a banker early. It will show that you are planning ahead.

The information in this document reflects our best effort to interpret federal food safety guidance and related scientific research, and to translate this into practical management options. However, growers are fully responsible for their own management decisions, for the quality of the food they sell, and for compliance with all applicable laws and regulations.

Soil Quality Reclamation for Flood Damaged Fields

Written by the United States Department of Agriculture Natural Resources Conservation Services: Indiana - Aug 2008 (ver. 1.1)

Catastrophic rain fall and flooding can leave many fields in a state of ruin that few have ever encountered. Not only may the current year's crops and nutrients be lost, but fields may have widespread damage. They may have lost soil chemical and biological function that may take time and significant changes in management to regain productivity. The following are suggested steps to reclaim fields to a farmable state and rebuild the soil health, function and productivity.

In most cases, cover crops and/or perennial cover will offer the soil the quickest and best opportunity to regain its biological properties. A growing cover through as much of the year as possible will re-establish the mycorrhizae and enhance the other biological properties of the soil, add organic material and nutrients back to the soil, as well as provide protection against erosion.

What to do first!

1. **Assess, inventory and map (preferably with GPS) the damage types and locations.**
   a. Damages to identify include: Debris, deep sand deposits (greater than 6”), silt deposits, scour erosion (loss of topsoil), deep scour erosion (>1’), standing water, gulley erosion, broken or damaged levees, plugged surface inlets, damaged practices, and unstable dams.
   b. By mapping the areas, better decisions can be made, repairs will be far more efficient, and priority decisions more clear.
2. **Prioritize Repairs**
   a. Address safety concerns first.
   b. Pick the “low hanging fruit”. The overall damage may be overwhelming. Make the quick and easy repairs which allow large blocks of land back into production. This will facilitate better, less emotional decisions to address the more severe damage.
   c. Repairs to isolated areas (i.e. – smaller sand deposits) surrounded by larger areas with minimal damages (i.e. – areas needing only a tillage pass or replant) can gain the largest return for the effort. Replant all cropland that is feasible as soon as possible (check replant guidelines for crop insurance).
   d. Repairs to areas that are likely to have recurring damage may be in vain until more permanent repairs to levees or drainage systems can be made.
3. **Identify a cover crop seed source**
   a. Since cover crops will be essential in most cases toward restoring the lost soil functions, obtaining seed as early as possible will maximize the choices available and ensure that the soil re-building process can start as soon as possible.

Floodplains with damage from headwater:

Short Term - spring through summer

1. **Debris removal.**
   a. Where possible remove debris from the floodplain.
   b. Anchoring or burning may be an option.
2. **Inspect drainage systems.**
   a. Check for plugged risers and breathers.
   b. Check outlets for obstructions or damage.
   c. Check for holes.
   d. Make sure scour erosion hasn’t exposed or reduced cover over tile.
3. **Evaluate the crop stand** in those areas where crops were flooded, but field damage was minimal to see if replanting is immediately necessary or possible.
   a. If replanting is not possible, establish a **summer annual cover crop** such as Sorghum-Sudangrass, Millet, or Buckwheat as soon as possible.
   b. Water will likely be the most limiting factor for late planting. Use a no-till system to preserve remaining moisture.
   c. Saturation sufficient to kill a crop will also kill soil organisms and microbes. Soybeans and other legumes should be inoculated.
4. **Spread or haul sand.** Some areas may have suffered broad loss of top soil. Asses the condition of the remaining soil for compaction and sealing. This may require an operation with a chisel plow or a rotary harrow prior to sand spreading.
   a. Thick sand deposits will need to be hauled (with a pan or trucked) and spread in scour areas or off site.
   b. Remaining sand should be spread to less than 6” depths to make incorporation more feasible.
5. **Incorporate sand with underlying soil.** If sand can be spread to a layer of less than 3”, incorporation may not be needed.
   a. An offset disc or disc plow with large diameter (>24” discs) may be the preferred tool for incorporating sand with existing soil.
   b. A chisel plow with twisted shanks, run as deep as possible, should be adequate for shallow incorporation.
6. **Level and prepare seedbed**
   a. In most cases a field cultivator or multi-purpose finishing tool will adequately level the field
7. **Replant if possible**
   a. See #3 a-c above
8. **Fill and/or seed scoured areas with a temporary cover.**
   a. Sand should be stockpiled if these areas still hold water or are too wet.
   b. A permanent sod cover should be seeded (after August 1) to areas which will have reoccurring flow.
9. **Drowned out permanent vegetation.**
   a. Remove excess sediment from permanent vegetation areas (levee toes, buffers, etc.) and re-establish during the next acceptable planting dates.
10. **Scout the crop and field regularly**
    a. Mark trouble spots with GPS for fall inspection and treatment.

Fall and post harvest:

1. **Conduct a fall soil test and evaluate yield maps.**
   a. Apply nutrients **(P & K only, <u>Nitrogen applications in the fall/winter are not recommended due to potential losses</u>)**
   b. Deep banding or incorporating is preferable to avoid nutrient losses and placement below the poorly structured surface.

2. **Address additional identified soil quality problems** such as sand deposition, compaction, loss of organic matter, and/or loss of biological organisms.
   a. A subsoiler or large offset disc plow may be needed break hard pans and further incorporate deposits.
   b. Adding 1-2 tons (3000-5000gal.) manure or compost may help build organic matter, nutrients, and feed biological growth.
3. **A final leveling** with a land leveler or finishing tool may be needed.
4. **Seed a winter cover crop** to further address compaction, rebuild soil structure, enhance the repopulation of beneficial organisms (i.e. mycorrhizea, earthworms etc.) and provide protection for the loosened soil condition. Inoculate legumes.

Following season(s):

1. **Use a No-Till or Mulch-Till cropping system** to offer continued soil protection and structure building.
2. **Starter fertilizer** containing phosphorus may be more advantageous than normal to help offset mycorrhizal loss - particularly in long duration saturated and flooded soils.
3. **Inoculate soybeans and legumes**.
4. **Scout for pests**. Catastrophic flooding and erosion can introduce new threats and/or remove natural defense organisms. (i.e. Soybean may be more subject to Sudden Death Syndrome)
5. **Continue a close monitoring of nutrient needs and placement**.
   a. Banding below the sandy surface will increase season long availability.
6. **Continue monitoring and inspecting the drainage systems**.
7. **An additional year(s) of cover crops** will be very beneficial to restoring the soil's function and productivity along with trapping crop residues and protecting the soil from erosion.

Floodplains damaged from backwater:

Follow many of the steps from above in addition to:

1. **Silt and clay deposits** may need to have an aeration tool or a rotary harrow ran to break and incorporate the surface crust.
2. **Drifted crop residues** may need to be removed from culvert risers or field edges and burned or spread.

Upland fields with damage from excessive runoff:

Short Term - now through summer:

Follow many of the steps from above in addition to:

1. **Inspect Conservation Practices**. Some of the most common occurrences are:
   a. WASCOBS, Terraces, Ponds, Dams, and Diversions may have over topped or undermined.
   b. Grassed Waterways and other concentrated flow areas may need to be re-graded and seeded.
   c. Grade Stabilization Structures need to have wing walls and weirs checked for scouring.
   d. Pipe structures should be cleared of drift and debris.
   e. Rock chutes may need to be re-graded or shaped.
   f. Remove sediment from permanently-vegetated areas and replant if needed.
   g. Check pond and dam spillways for debris and vegetation for scour.
2. **Extensive rills and ephemeral gullies** may have occurred following planting tracks, planter markers, nitrogen knives or other tillage operations.
   a. If rills/gullies are so severe and widely present, the entire field will need to be treated by grading and leveling with a field cultivator or finishing tool.
      i. If these are HEL check with the local NRCS office to see if they may fall under a state or area wide variance.
   b. Some gullied areas may require a **permanent erosion control practice.**
      i. Grade so they can be crossed for harvesting.
      ii. Seed to a temporary cover crop or double seed it with the replant operation.
   c. Some areas may experience erosion in need of **temporary repair** for replanting or so fields can be harvested.
      i. Grade to a flat bottom to spread future runoff and reduce velocity.
      ii. Seed to a temporary cover crop or double seed it with the replant operation.
3. **Cover Crops** will be essential for any areas that cannot be replanted due to damages or time of year.

Fall and post harvest:

Follow many of the steps from above in addition to:

1. **Seed a winter cover crop** to further address compaction, rebuild soil structure, enhance the repopulation of beneficial organisms (i.e. mycorrhizea, earthworms etc.) and provide protection for the loosened soil condition. Inoculate legumes.
2. **Make final repairs to conservation practices.**

Following season(s):

Follow many of the steps from above in addition to:

1. **Additional years of cover crops integrated with a no-till cropping system** will be very beneficial to restoring the soils function and productivity along with trapping crop residues and protecting the soil from erosion.
2. **Continue to monitor and maintain conservation practices.**

Severely damaged areas or areas with frequent damage:

1. **Identify those parts of the field that have been damaged beyond affordable repair and/or that have had recurrent damages from past flood events**.
   a. Consider permanently retiring these parts of fields by establishing to permanent vegetation.
   b. Focus the money and time that would have been spent to improve other, more-productive lands on the farm.

Through each step, follow a defined path to improving the soil quality and function. As with most important decisions, following a basic planning process will serve you well!

Checklist for Livestock on Flooded Pastures

Written by: Carrie Chickering-Sear, UMass Extension

1) Make sure all animals have a source of clean, uncontaminated water. Animals on pasture may need a different source of water until ponds or creeks clean up.
2) Check all sources of feeds and forages for spoiling and contamination. Flood waters can contaminate feeds, forages and fields. Watch for molds in the field and in stored feed and forages. Feeding of moldy feeds is risky and unhealthy for all animals.
3) Standing water may have ruined some pastures or parts of pastures. This may have isolated animals and limited forage supply. Hungry animals may then eat contaminated or poisonous plants.
4) Make sure all animals are up to date with vaccinations. Pastured animals may need to receive booster vaccinations. Younger animals that were on flooded pastures may benefit from a therapeutic dose of penicillin. Consult with your veterinarian.
5) Animals have been stressed. You may want to supplement additional feed or vitamins. Watch closely for signs of illness such as pneumonia and lameness. Make sure all animals all animals are accounted for and are eating.
6) Consider having the Natural Resources Conservation Service (NRCS) check your manure storage for any evidence of weakening or leaking.
7) Have your water tested if any part of your farmyard is flooded.

2011 Massachusetts Corn Hybrid Evaluation

Corn silage hybrids were evaluated for silage yield performance at the University of Massachusetts Crops Research and Education Center Farm, in South Deerfield, Massachusetts in 2011. Hybrids were grouped in three groups based on relative maturity (RM) provided by the seed companies; Group I, early maturity group (88-94 days), group II mid maturity group (95-100 days), and group III, full season group (101-114 days). In Massachusetts we are encouraging farmers to use shorter season corn hybrids along with earlier planting so when combined can provide the opportunity for early planting of cover crops which maximizes N recovery after corn and fall manure application. Our multi-year research studies have shown that well-established cover crops, planted by September 1 (achieving 1100 GDDs) can accumulate more than 100 lb N per acre.

All hybrids were planted on May 10th. 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 33,000 seeds per acre in 30 inch rows.

Plots consisted of 3 rows with a length of 25 feet and replicated 4 times. The site received 660 lb/acre of 15-8-12 prior to planting. Pre-sidedress nitrate test (PSNT) taken on June 15th indicated a sufficient level of nitrogen existed in research site; therefore no sidedress N was applied. Weeds were controlled by pre-emergence application of 2 quarts of Bicep II Magnum per acre.

Ten feet of the central rows was harvested by hand at 50% milk line for evaluation of silage yield. Groups I and II hybrids were harvested on September 1st. Group III was harvested on September 9th. 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, the 2011 the corn crop experienced an extremely wet growing season. High rainfall and cloudy conditions during grain growth stages in August reduced yield in all maturity groups especially in short-season and mid maturity corn hybrids. In average corn silage yield were about 30% lower than 2010.

Summary of mean comparison of silage and grain yield, ear %, and grain moisture content for three maturity group hybrids is shown in Table 2. Silage and grain yields, as well as ear percentage for all hybrids tested in 2011 are presented in Table 3.

Table 1: Climate data for 2011 in South Deerfield, MA.

	GDD[1]			Rainfall (inches)		
	2011	Norm	Deviation	2011	Norm	Deviation
May (10-31)	258	185	73	4.06	3.79	0.27
Jun	448	483	- 35	6.58	3.75	2.83
Jul	695	645	50	1.66	3.91	- 2.25
Aug	599	595	4	8.21	4.10	4.11
Total	**2000**	**1908**	**92**	**20.51**	**15.55**	**4.96**

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

Table 2: Mean comparisons of silage and earcorn yield, and percent ear, for three maturity group hybrids planted on May 10th, 2011 and harvested at 50% milk line.

Maturity	Silage[1] T/ac	Earcorn[2] T/ac	Pctear %
Group I	24.4 b[†]	5.6 b	57.9 a
Group II	23.4 b	5.2 b	53.1 c
Group III	28.7 a	6.2 a	54.5 b

[1]Silage @70% moisture [2]Earcorn @ 25% moisture

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

Table 3: Mean silage and earcorn yields, with earcorn weight as a percent of total weight at harvest, for each hybrid of the three maturity groups planted on May 10th, 2011.

Brand	Hybrid	Maturity group	Silage[1] T/ac	Earcorn[2] T/ac	Pct ears %
DEKALB	DKC38-89	I	25.4	5.7	57.7
DEKALB	DKC40-22	I	22.8	5.4	58.0
TA Seeds	TA370-11	I	25.3	5.7	56.5
DEKALB	DKC42-72	I	24.5	5.8	59.1
Mean			**24.4**	**5.6**	**57.9**
DEKALB	DKC46-61	II	24.6	5.2	52.9
Pioneer	P98907HR	II	24.1	5.0	52.9
DEKALB	DKC49-94	II	25.0	5.3	53.6
Mean			**24.6**	**5.2**	**53. 1**
DEKALB	DKC52-59	III	27.1	6.6	60.3 a †
DEKALB	DKC53-45	III	26.9	6.3	58.3 ab
Pioneer	P0115AM1	III	26.8	6.2	57.8 abc
Pioneer	P0216HR	III	29.9	6.8	56.7 bcd
DEKALB	DKC62-54	III	26.6	6.4	55.7 bcd
Pioneer	P0210HR	III	27.9	6.1	54.8 bcde
TA Seeds	TA545-20	III	28.5	6.2	54.7 bcde
TA Seeds	TA657-13VP	III	31.8	7.0	54.3 cdef
Pioneer	P0448XR	III	30.0	6.5	54.3 def
DEKALB	DKC63-84	III	27.3	5.9	54.0 def
Pioneer	P0125HR	III	27.8	5.7	51.8 efg
Pioneer	P1498HR	III	29.9	6.2	51.2 fg
Pioneer	P1018AM1	III	27.1	5.4	50.0 g
Pioneer	P0891AM1	III	30.6	6.0	49.2 g
Mean			**28.7**	**6.2**	**54.5**
Overall Mean			**27.3**	**5.9**	**54.9**

[1]Silage @70% moisture [2]Earcorn @ 25% moisture

† Means with the same letter within each column are not significantly different at $P \leq 0.05$.

For Silage, Ear corn, and Percent ears parameters, values without letters indicate that there is no significant difference.

Flooding Assistance *Continued from page 1.*

To further the efforts of assisting those in need from the aftermath of Hurricane Irene, The CISA Emergency Farm Fund was launched this week of November 1st, by Community Involved in Sustaining Agriculture (CISA) in partnership with Whole Foods Market, Equity Trust and individual donors in response to the damage suffered by farms in western Massachusetts due to Hurricane Irene. The fund is a revolving fund that will provide an additional safety net for farmers impacted by future emergencies, including natural disasters resulting from more frequent severe weather events.

The outpouring of community concern for affected farm businesses made possible the creation of the loan fund, catalyzed by a $50,000 matching grant provided by an anonymous donor. Thanks to this generous grant, all donations to the fund up to $50,000 will be fully matched, and the fund could reach $100,000 or more. With a commitment from Whole Foods Market to donate $15,000 towards the match, the fund is on its way to raising the $100,000 or more that will ensure that emergency funds are available to farmers when they need them.

The CISA Emergency Farm Fund will offer quick, zero-interest loans to assist farmers and farm businesses that are struggling to meet their immediate needs in the aftermath of the storm and flooding. The fund will be available immediately following future disasters to help farmers affected by unexpected events continue farming.

In an effort to further enhance this effort and simplify the delivery of support, funds collected by the Massachusetts Association of Conservation Districts (MACD) from generous vendors from the Massachusetts Building at the Big E and matched by the Eastern States Exposition will be directed to the CISA Emergency Farm Fund.

The CISA Emergency Farm Fund will be managed by CISA with the assistance of Equity Trust. The Loan Review Committee includes a team of people with a variety of agricultural backgrounds and will include representatives from CISA staff and board, Whole Foods Market, Equity Trust, Massachusetts Department of Agricultural Resources, and farmers.

Donations to match the $50,000 are now being accepted and can be made at www.buylocalfood.org .

CISA is a nationally recognized organization comprised of farmers, consumers, and professionals working together to strengthen local agriculture by building connections between farmers and the community. Founded in 1993, CISA runs a number of innovative programs, including Senior FarmShare and the "Be a Local Hero, Buy Locally Grown" public awareness campaign. Learn more about CISA at www.buylocalfood.org or call 413-665-7100.

Listing of Analytical Labs that will Test Tissue and Soil:

UMass Soil and Plant Testing Laboratory currently is able to test soils for regulatory soil test, as well as contamination, however, at this time does not have the capacity to analyze *tissue (forage)* for contamination. For a complete listing of their services, please visit: www.umass.edu/soiltest
Phone: 413-545-2311

West Experiment Station
682 North Pleasant Street
University of Massachusetts
Amherst, MA 01003

Analytical Laboratory and Maine Soil Testing Services located at the University of Maine Orono campus can analyze soil, plant tissue, compost, manure, irrigation water, wood ash, fertilizers, organic residuals and other materials for nutrient content, organic matter, lead and other trace elements. For a complete listing of their services please visit:http://anlab.umesci.maine.edu
Phone: 207-581-3591.

Analytical Laboratory and Maine Soil Testing Services
5722 Deering Hall
Orono, ME 04469-5722

Dairy One Cooperative Inc., located in Ithica NY, can analyze feed and forages, as well as soil, water, and manure for regulatory and contaminated analysis. For a complete listing of their services please visit: www.dairyone.com/default.htm
Phone: 1-800-496-3344 or 607-257-1272

Dairy One Cooperative Inc.
730 Warren Road
Ithaca, New York 14850

2011 Outstanding Dairy Farmer of the Year:
Green Pastures Award Winner
Chase Hill Farm, Warwick, MA
Mark and Jeannette Fellows

Chase Hill Farm, which is owned and operated by Mark and Jeannette Fellows, was established by Mark's parents, Oliver and Virginia in 1957. After purchasing 200 acres from Oliver's mother, his parents built the house and barn on the property. They fed their small herd of Holstein cows with continuous grazing and hay and sold the milk to Snows Dairy, H. P. Hood, and then to Garelick Farms. In the late 1970's their oldest son Steven returned to the farm. With Steven's help they intensified the management, fed more haylage and corn silage and raised production levels.

Mark and Jeannette assumed management of the farm in 1984 after graduating from college. Steven moved on to another career and Oliver retired. Mark and Jeannette started rotationally grazing the herd and that led to the farm's success today. In 1991 they purchased the farm from Mark's parents and switched the herd to seasonal production. Making all their milk during the green season compounds the benefits of grazing and made the farm more financially secure as well as giving Mark and Jeannette much needed time off from the daily grind. In an effort to have more control of their milk price Mark and Jeannette helped found the Our Family Farms milk marketing coop. This initial step into marketing led Mark and Jeannette to create a business plan and begin processing their own milk. Currently all of the Chase Hill Farm milk is sold either as raw milk on the farm or crafted into cheese. The cheese is marketed in local stores and at farmers markets. They built their cheese plant in 2001 and switched to organic production in 2002. In 2001 Mark and Jeannette sold an APR restriction on their farm to the State and used that money to purchase a neighboring farm of 75 acres that is also now protected from development.

Currently the cow herd of Chase Hill Farm consists of 40 Normande cows and young stock. Not only the raw milk and cheeses from the dual purpose Normande cows is marketed but the beef from the cull cows and whey fed pastured pork is sold as well. The cows get all of their feed from the diverse pastures and hay fields. They are fed no grain or silage. Mark and Jeannette also use 3 draft horses to do an increasing amount of their field work, manure spreading, hay making, logging, and hopefully some day, to power the milking system with a horse treadmill. In 2010 they installed an 8.5 Kw photovoltaic system on the barn which supplies 55%-60% of their electrical needs. They are currently considering a wind mill to meet the rest of their electrical needs.

What is the New England Green Pastures Program?

The New England Green Pastures program emphasizes the importance of a viable dairy industry in New England. Three activities are supported by a very modest budget. First, the program honors the "Outstanding Dairy Farm of the Year" from each of the six New England states; this includes a trip to Eastern States Exposition where a banquet and evening program center around these outstanding farm families. Second, through the "Salute to Agriculture", the New England dairy story is told to the largest assembles group of consumers in New England – namely, at the "Big E". Finally, with the help of the Green Pastures program, prominent teachers and research personnel are brought to New England to conduct special in-service training sessions for Extension, agri-business and dairy leaders on problems facing the dairy industry.

Each year the CDLE Team chooses a Massachusetts Dairy Farm as the recipient of the "Outstanding Dairy Farm of the Year". To nominate a farm for next year, send us an email at cdle@umext.umass.edu describing why and how the dairy farm exemplifies excellence through sustainability and ingenuity.

Crops, Dairy, Livestock, & Equine News
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Outreach Activities and Upcoming Events 2011-2012

Nov. 19: Community Poultry Processing Day. Location: The Tufts Cummings School of Veterinary Medicine, Grafton, MA**.** Deadline for a reservation is November 15. For more information please visit: http://library.constantcontact.com/download/get/file/1101771872446-436/community-processing-flyer_Nov2011.pdf

Dec. 13-15: New England Vegetable and Berry Conference and Trade Show. A GAP Training will be held. Location: The Center of New Hampshire Radisson Hotel, Manchester, NH . Time: 8:00am - 5:00pm. Please visit www.newenglandvfc.org to register for the conference.

Feb-March 2012: "Mass Aggie Seminars" presented by UMass Extensions' CDLE and Fruit Teams. More information TBA, please check the following websites www.extension.umass.edu/cdle and www.umass.edu/fruitadvisor .

March 21: "So You Want to be a Farmer" hosted by SEMAP. Location: UMass Extension Cranberry Station, 1 State Bog Road, East Wareham. This is the first of 5 workshops. Time: Wednesday evenings 6-9PM, March-April 2012. Contact: Katie Cavanagh at KCavanagh@semaponline.org For more information visit:http://events.r20.constantcontact.com/register/event?llr=jp7zj6bab&oeidk=a07e4zun73e9cd61967

March 24: "MA. Blue Ribbon 4-H Calf Sale" Clinics at 10 a.m., Sale at noon. Location: Eastern States Exposition- Mallory Complex, West Springfield. Contact: Carrie Chickering-Sears Phone: 413-549-3257 Email: ccears@umext.umass.edu

April 2012: 2 Workshops- *Dry Hay vs Baleage for Over Wintering Beef-Evaluation of Cattle*. Location: UMass Research Farm and *Live Carcass Evaluation* at Dole & Bailey. Location: Boston More information TBA. Check CDLE website. Contact: Kyle Bostrom at kbostrom@cns.umass.edu Phone: 413-586-9330 Ext. 12