

Managing Flood Damaged Crops and Forage

Written by UVM Extension Specialists Sid Bosworth, Jeff Carter, Heather Darby, and Dan Hudson.

Updated by Heather Darby 7/11/23.

The recent storm which hit Vermont 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](#) (VAAFAM). 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.



Safety Reminders:

- ⇒ 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.

This document lists best management guidelines for harvesting, storing, and feeding flooded field and forage crops including corn, hay crops and pasture.

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, 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.

Contacts/Resources

References and links for other flood related sites can be found at:

<https://www.uvm.edu/extension/disaster-resources>

If you have additional questions or help, please contact Extension Agronomist, Heather Darby at 802-782-6054 or 802-656-7610 or heather.darby@uvm.edu

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.

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<https://www.uvm.edu/extension/nwcrops>

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