



## ***Handling Flood Damaged Crops***

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***We urge you to document damage to fields and contact the Farm Service Agency or your local Cooperative Extension office to report crop damage. You are strongly encouraged to take photos of damage. Such information may be critical in federal emergency determinations and eligibility for such programs.***

Silt deposited on forage poses several concerns for use of this feed as silage. We have researched these concerns and have detailed them below, in addition to options for handling this feed.

### **Stored Forage:**

The primary concern is forage (primarily chopped silage and round bale silage that may have been exposed to flood waters (contamination with silt and bacteria) and torn bale wrap. For silage that has undergone fermentation already, dig into the silage or open bales up. Assess smell and color. If it looks and smells good it may be OK to feed. Experience has shown that some of this feed may be salvageable. Discard forage that is visibly contaminated with silt. Consider re-wrapping torn bales as soon as possible to avoid heating and spoilage. Feed torn bales up soon. Limiting the amount in the ration (mix with other good feeds) to lower the risk of causing animal health problems.

### **Standing Forage:**

There is very little research regarding harvesting silt contaminated corn and haycrop for silage. The following concerns are potential scenarios based on what we know about fermentation of silages.

Corn and/or haycrop containing moderate to excessive amounts of silt is at higher risk for clostridial fermentation. Soil contamination is the primary source of clostridium bacteria. Silage that undergoes clostridial fermentation (as opposed the desired lactate fermentation):

- ◆ Is usually wet (usually less than 30% DM)
- ◆ Has a distinctly rank odor,
- ◆ Has a higher pH (over 5.0)
- ◆ May contain potentially deadly botulism toxins.

Such silage may also be at increased risk for mycotoxin contamination due to poor fermentation, and may also contain higher levels of coliform bacteria. Soil contaminated silage may also contain listeria bacteria (listeriosis).

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## Options:

The following are several options for dealing with silt contaminated crops based on discussions with Dr. and Larry Chase of Cornell University and Dr. Limin Kung, world renown silage fermentation specialist at the University of Delaware:

- ◆ Bush hog. May still need to remove chopped forage if it will leave too much trash for successive cuttings
  - Note: Silt and sand will cause excessive wear in a field chopper. Bush hogging maybe better option or cut and round bale to remove
- ◆ Till under and replant emergency crop if the season permits. Contact your Cooperative Extension office.
- ◆ Harvest as dry hay
- ◆ **WE DO NOT RECOMMEND HARVESTING SILTED HAYCROP AS SILAGE!!**
  - This crop will be at high risk for failed fermentation and in the worst case scenario can kill cows or make them severely sick.
- ◆ While we do not recommend harvesting as silage, for those that do:
  - Harvest at a Dry Matter content between 35-40% DM (40-50% for baleage). This will limit chances for a clostridial fermentation. **DO NOT HARVEST TOO WET OR TOO DRY!!!** Check DM content!
  - If forage is drier, chop finer (shorter length of cut).
  - **Store silt contaminated silage separately** (ag bag, separate silo, baleage)
  - Inoculate silage with a reputable lactic acid bacteria inoculant (guideline: the inoculant should provide at least  $10^5$  (100,000) colony forming units, or cfu's, per gram of forage). Consider using an inoculant that contains *Lactobacillus buchneri* in addition to another *Lactobacillus* bacterium, especially if forage is drier, which will reduce heating of the silage at feedout.
  - Buffered propionic acid preservatives may also be useful to limit mold and yeast growth, especially in drier silage, but may not reduce risk clostridial fermentation. Apply at rate of 3-4 lbs acid per ton of forage.
  - Addition of molasses at the 40-80 lbs per ton of forage will aid fermentation, but may not be practical.
  - If forage must be harvested on the wet side (<30% DM) consider adding an absorbent like dried beet pulp, citrus pulp, soyhulls or wheat midds. Stay away from straw or poor quality haycrop. Determine how much to add to get the forage up to 30%+ DM content. Call Cooperative Extension if you need help. Be sure to get a good distribution in the harvested forage for best results.
  - Follow good harvest management; harvest quickly and pack well.
- ◆ Sample contaminated forage before feeding. For silages, perform a fermentation analysis. Consider a wet chemistry analysis for the mineral portion of the feed. Silages can also be analyzed for mycotoxins.
- ◆ If contaminated feeds must be fed, introduce them slowly in ration. Feed at a low rate.
- ◆ Feeding contaminated feed to smaller animals (heifers) may not be advisable as their bodyweight is less relative to toxin load.
- ◆ Consider feed additives to bind or adsorb toxins. Talk with your feed rep.





## **Flooded Corn Crop: Will it grow? Can it be harvested?**

Farms have asked whether their corn crops that were flooded, but not destroyed, will be salvageable for silage.

### **Will it grow?**

If the corn plants were not knocked completely over, washed away or appearing yellowed, withered and dead, then there is a good chance that it will recover (although it may yield less). By now if the plant is going to die, you will probably be able to tell, and it is not likely that any plants that are currently green and upright are going to suddenly die. If corn that is heavily coated with silt is not going to make it, it should be showing symptoms (yellowing, withering etc) by now.

### **Can I harvest it?**

There is time yet before corn would be harvested. Much silt may be washed off in future rains. Not all silt will be however, especially that which lodges where the leaves attach to the stalk.

Corn and/or haycrop containing moderate to excessive amounts of silt is at higher risk for clostridial fermentation. Soil contamination is the primary source of clostridium bacteria. Silage that undergoes clostridial fermentation (as opposed the desired lactate fermentation) may contain potentially deadly botulism toxins. Such silage may also be at increased risk for mycotoxin contamination due to poor fermentation, and may also contain higher levels of coliform bacteria. Soil contaminated silage may also contain listeria bacteria (listeriosis).

For any corn crop that has survived we suggest allowing it to go to maturity and harvesting. If silt deposits are on the lower portion of the stalk, increase the harvest (stubble) height. Harvest corn at the proper moisture content (30-33% bunk silo; 35-38% tower silo), and use a proven inoculant (providing at least  $10^5$  (100,000) colony forming units, or cfu's, per gram of forage). Consider using an inoculant that contains *Lactobacillus buchneri* in addition to another *Lactobacillus* bacterium, especially if forage is drier, which will reduce heating of the silage at feedout.

Segregate flooded (silted) corn so that it can be handled separately. Feeding silt contaminated silage out at a low rate will limit risk.

Alternatively, flooded corn crop can be harvested for dry grain as opposed to silage, with less risk.