



Drought-Stressed Corn Silage Decisions

Drought-stressed corn creates many challenges for forage and grain growers. This article addresses the questions and concerns that growers have when faced with harvesting corn for silage under moderate to severe drought stress.

Call Your Crop Insurance Agent

- You must notify your crop insurance agent before harvesting for silage to file a notice of loss.
- Indicate that you plan to chop for silage and request an appraisal.
- Indicate the date that you plan to begin chopping.
- Include a phone number where you can be reached so that the adjuster can contact you in a timely manner.
- If a crop insurance adjuster does not contact you in a timely manner, notify your crop insurance agent immediately.
- Go to the field with the crop insurance adjuster.
- Ask questions to make sure that you understand how the loss was determined.
- Because it is difficult to make an accurate appraisal on immature corn, you may be required to leave representative samples or check strips in the field to be appraised later.
- If you suspect mycotoxins, collect a sample prior to storage or any loss claim for mycotoxins will be denied.
- Receive a signed Representative Sample Agreement form from the adjuster.
- After you have received the Representative Sample Agreement form, you can chop or bale the plants in the field with the exception of the check strips.
- You must leave the check strips required by the adjuster intact and care for them until they are appraised and released by the adjuster.

Harvesting for Silage

- For proper ensiling, you still need to target whole plant moisture of 68-63% (32-37% DM). Even if leaves are completely dead there can be significant moisture retained in the stalks. Testing with a Koster Moisture Tester, microwave oven or other proven technique is critical. Chopping too wet is a real risk that not only puts feed at risk of clostridial fermentation (very bad thing), but may produce silage leachate (effluent) that must be contained as it has an extremely high biochemical oxygen demand (BOD). Silage leachate kills vegetation in barn yard areas and can cause a fish kill if it reaches surface water.

- High chopping to reduce nitrate levels is effective, but yield reduction from high chopping will be significant in these scenarios. Other means (ensiling, testing, and dilution) are normally adequate to manage nitrate risks. (See nitrate poisoning bullet points below.)

Expected Forage Yield

- Grain normally accounts for roughly half of corn silage tonnage. Since stands of corn being considered for emergency forage harvest in mid-July do not have any ears, yield of this immature silage will be less than 50% of full yield potential.
- A rule of thumb that can be applied to earless corn is about 1 ton/acre per foot of plant height.
- The highest yield, energy density, and animal safety will be achieved by ensiling droughted corn.

Nutritional Value of Silage

- Basically, drought stressed immature corn silage is a highly digestible grass silage.
- Zero grain equals zero starch – sugars are not converted to starch and remain in the stalks.
- Sugar content of the forage will be elevated relative to normal corn silage with grain.
- Drought stress increases fiber digestibility, so NDFd should be relatively high.
- In general, immature, drought stressed corn silage will feed at about 70% the energy value of normal corn silage.
- Corn with some grain will be lower in starch and higher in sugar, fat and protein content.



- The probability of yeast, mold and mycotoxin activity in droughted corn is heightened due to the plant stresses that are occurring and the lack of plant defenses.
- Adjust chop length of silage to improve effective fiber in rumen and to reduce runoff potential after ensiling.

Inoculants for Drought Stressed Corn

- Use of an inoculant is more important than ever for drought-stressed silage to retain energy and increase the safety of the feed.
- Moisture/dry matter content will likely be variable. Use of a proven inoculant can help, but not solve, variation in fermentation that can result from moisture variability.
- Yeast levels will be higher than normal, and they consume lactic acid, thus increasing the instability of the ensiled forage.
- High sugar content in immature corn silage makes for increased risk of aerobic stability at feedout and provides an excellent feedstock for yeast to grow.
- Feed inventories are likely to be tight from the yield losses due to drought. Minimizing shrink is paramount as every ton of feed will be needed.
- First preference is an *L. buchneri* product such as Pioneer® inoculant 11C33.

Pricing Drought Stressed Corn

- Use available price calculator worksheets from DuPont Pioneer.
- Prices are adjusted based on corn and soybean meal prices.
- For the seller, the fertilizer removal value is between \$10 to \$15 per ton as fed.
- Buyer must factor in additional risk of feed due to nitrates, molds, yeasts and mycotoxins.

Nitrate Poisoning

- Elevated nitrate levels can be a concern.
- Test silage for nitrate levels prior to harvesting (use Dairyland Labs).
- The worst case scenario for high nitrates is chopping within three to five days after a rain event.
- Ensiling only a few weeks typically reduces nitrate levels by half. It is best to wait at least two months after ensiling before feeding high nitrate feeds.
- Always test feed samples for nitrate levels before feeding!
- Adjust inclusion rates in ration to assure acceptable levels in the complete animal diet – dilution is the solution.
- High nitrate water may contribute to nitrate poisoning in addition to high nitrate feed.

Mycotoxins

- Earless corn will be of minimal concern since most mycotoxins tend to grow on ears.
- Mycotoxins are most prevalent in drought stressed corn with grain molds.
- Test silages for mycotoxins before feeding.
- Use a mycotoxin binder in the feed to reduce its impact on animals.
- Aflatoxin is regulated by the FDA with ration feeding limits of 20 ppb and milk limits of 0.5 ppb.

SAFETY is First Priority around Silos

The reduction in nitrates via ensiling is because the nitrates are converted to **nitrous gas** – which is **EXTREMELY TOXIC!**

This heavy gas kills. Extreme ventilation and breathing apparatus are legitimate considerations when working around this silage early in storage – especially in enclosed areas such as upright silos.

Don't become a statistic! It is common in years like this to lose farmers and/or their family members from nitrous gas poisoning. Warn them!

For more information about silo safety, visit the Penn State Extension website: <http://extension.psu.edu/business/ag-safety>



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