

# **CROP SERVICES** DROUGHT AND HEAT STRESS EFFECTS ON CORN FOR GRAIN AND SILAGE



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#### **ANALYTICAL SERVICES**

Prolonged dryness in the Midwest has many growers concerned about drought stress in corn grain and silage. Several days of severe heat (above 95°F) prior to pollination may reduce ear length and the number of kernels. Drought stress is most severe when it occurs within two weeks prior to and following silking. Leaf rolling in corn is a way for the corn plant to respond when it is stressed. The rolling of the leaves causes a reduction of photosynthesis within the plant.

#### **DROUGHT AND HEAT STRESS EFFECTS**

Nitrate poisoning is the primary concern when feeding drought stressed corn plants to livestock. If the decision to harvest the crop for silage is made, farmers should consider the following strategies to minimize nitrate levels in stressed corn.

 Drought stressed corn may be salvageable as usable feed if the concentration of nitrate nitrogen level is lower than 1100 parts per million (ppm).

- Properly sample and test green silage for nitrate nitrogen and feed value before animal consumption.
  Sample at least 10 whole plants to get a representative sample.
- Leave at least 6 to 12 inch stubble at harvest in the field. Nitrate concentration is highest in the lower part of the stalk and may decrease as you move up toward the ear. Leaves and tassels are usually within acceptable levels for feeding.
- Ensiling drought stressed corn is preferred to baling because it may reduce nitrate levels by about 1/5 to 2/3. Fermentation takes 14 to 21 days for comp letion and drought stressed corn should not be feed for at least three weeks after the silo has been filled. The moisture in the plant influences the length of fermentation. The optimum range in 60%-65% moisture and the minimum for ensiling corn with nitrate nitrogen is 55% moisture. Moisture above 75% will result in seepage losses and production.

 Adjust the ratio to keep nitrate nitrogen below the toxicity level (1100 ppm) by blending high nitrate corn with low nitrate feed.

With proper harvesting, storage and testing for nitrates prior to feeding livestock, drought-stressed corn may still offer up to 65-85% of nutrients as normal corn and can serve as a viable feed source.

For more information, please contact: **SGS Brookings** 241 34th Avenue Brookings, SD 57006 (877) 692-7611 analytical.brookings@sqs.com

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