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Flooded Corn

SITUATION

In some areas, rain has been a welcome situation, but in other areas, heavy rains have caused ponding or flooding in fields. All this rain has caused concerns regarding the possible effects it could have on the corn crop.

FACTORS TO CONSIDER

The extent of damage that flooding/ponding will cause to your crop will depend on several factors:

- The growth stage of the corn
  - Germinating to V6
  - V7 to V10
  - Pre-tassel to silking
- The frequency and duration of the flooding/ponding
- The air-soil temperature during flooding/ponding

ACTION PLAN

1. Consider plant growth stage: Overall plant respiration is the most important impact of flooding and ponding. When fields are flooded there is a reduction in oxygen exchange between the soil and the air. This situation leads to decreased root volume, reduced water and nutrient uptake from the roots to the shoots, and an accumulation of toxins in the plant.

- Plants that are V6 or smaller can only survive up to four days under flooding. If the air temperatures are greater than 77 degrees Fahrenheit, plants may not survive for more than 24 hours.

- Plants in the V7 to V10 stages can handle standing water better than earlier stages, but they can not live forever. The corn can tolerate standing water for up to 10 days, depending on the temperature. If temperatures are above 85 degrees Fahrenheit, plant stress will occur, and the plant's ability to tolerate the standing water will decrease.

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7/18

- Corn that is pre-tassel to silking (VT to R1) is considered sensitive to flooding. This is a critical stage of development, and during this stage, corn has a low tolerance to excessive soil moisture or standing water. This is due to the lack of nutrient uptake in the plant, which can lead to pollination failure, causing a severe reduction in yield potential. Typically, corn can only tolerate two to four days of standing water before yield loss becomes severe.

2. Nitrogen management: Anytime there is flooding or ponding, there should be concerns about denitrification, nitrogen leaching, and decreased nutrient availability. Nitrogen (N) loss is often a result of prolonged ponding or saturated fields. It is important that Nitrogen-deficient areas are detected early so supplemental N can be side-dressed as soon as possible.

3. Monitor for diseases: Corn that survives flooding is at a higher risk of diseases such as Pythium (early season), crazy top, and stalk rot. The best disease prevention is to scout fields that have been affected by flooding closely, as they may need to be harvested early and at higher moisture levels to reduce yield losses.

SUMMARY

It is important to scout fields regularly, especially when flooding or ponding is an issue. Scout for diseases, nitrogen loss, overall plant health, and closely monitor corn that has been fully submerged. After flooding, split the stalks and visually examine the lower portion of the stem. It should be white to cream-colored. A darkening or softening of the tissue often precedes the plant's death. For more information, contact your local Legend Seeds agronomist.

RESOURCES

Information and Resources for Flooded Fields - UNL Crop Watch

Common Stalk Rot Diseases of Corn (EC1898). http://extensionpubs.unl.edu/publication/9000016366986/common-stalk-rot-diseases-of-corn/

Crazy top picture: Purdue University. https://ag.purdue.edu/btny/Extension/CropDiseasePictures/CCrazyTop2.jpg

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