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## Corn survival in wet conditions

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# Corn survival in wet conditions

## **Abstract**

No one knows the unpredictability of Iowa weather better than Iowa's own corn and soybean producers. Previous thoughts of early-season drought quickly have turned to concerns about flooding and saturated fields. Most of the corn acreage across the state has been planted and recent rains have raised questions regarding the survivability of small corn plants exposed to saturated or flooded conditions.

## **Keywords**

Agronomy

## **Disciplines**

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# INTEGRATED CROP MANAGEMENT

## Corn survival in wet conditions

No one knows the unpredictability of Iowa weather better than Iowa's own corn and soybean producers. Previous thoughts of early-season drought quickly have turned to concerns about flooding and saturated fields. Most of the corn acreage across the state has been planted and recent rains have raised questions regarding the survivability of small corn plants exposed to saturated or flooded conditions.

Flooding does reduce corn yields, either by decimating stands, slowing dry matter accumulation, or both. Corn has been shown to be more susceptible to flooding injury than either soybeans or sorghum. The most obvious effect of flooding would be the lack of oxygen (O<sub>2</sub>) for the roots, which is necessary for respiration. The timing of the flooding (growth stage of plants) as well as the duration of the flooded period both impact the growth and development of the corn plant. Small corn plants (<V2 stage of development) are sensitive to flooding and can be severely injured if subjected to a zero-O<sub>2</sub> atmosphere for 24 hours or more. Warm temperatures exacerbate the injury. As the plants increase in size, their susceptibility to flooding lessens, but there still can be yield reductions as a result of the flooding.

Other problems also may arise, such as fungal pathogen infection. Excess moisture and flooding provide ideal conditions for the development of seedling pathogens, especially *Pythium* species. Flooding probably reduces the half-life of the fungicidal seed treatments, too, although there are no hard data to quantify this effect. Plants subjected to saturated soil also are more susceptible to infection, so the conditions are good for the fungi and bad for the plants--a deadly combination. After the flooding subsides, you can expect some surviving plants to collapse later due to fungal infection. The most likely suspect for this result would be *Pythium*, but a precise diagnosis usually requires laboratory identification.

There is no exact method for predicting crop losses (either stand or yield) from flooding. The best suggestion would be to monitor the areas closely, watch the calendar, and replant if needed. There may be a temptation to use an additional seed treatment in the planter box when replanting, but usually the conditions have improved and the soil is warm at this time, so a planter-box fungicide is of questionable value. Keep in mind that the profitability of trying to produce a corn crop when planting is delayed beyond June 10 diminishes rather quickly. After June 10, replanting flooded areas to an alternate crop, such as soybean, would be more favorable.

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