DUPONT PIONEER

Field Saturation Effects on Soybeans

- **Periods of consistent rainfall can lead to field saturation, resulting in anaerobic conditions (lack of oxygen) in the seed zone.**
- **Soybean seed viability can be impacted by short periods of field saturation, especially in temperatures above 50°F.**

What is field saturation?

- Field saturation occurs when soil airspace is filled with water.
- When soil pores are filled with water, the seed is in an anaerobic condition, resulting in an absence of oxygen for the seed or seedling.
- Conditions that increase field saturation include compaction and heavier soils.
- Field saturation can significantly stress the crop if present for more than 3 to 4 days.
- If conditions persist for more than 6 days, yield will be significantly impacted due to stand loss.

Assessing Damage

- Due to the nature of anaerobic conditions, it will take several days to assess the damage.
- Injury may seem extreme, but plant recovery is possible.
- Wait one week to do field assessments. If temperatures are above 70°F, you may be able to get an accurate stand count in a matter of a few days.
- Take accurate, random, and replicated stand counts across the field or field area that is being considered for replant.
- Seedling diseases such as *Phytophthora, Pythium, Fusarium*, and *Rhizoctonia* can occur under saturated conditions. These pathogens can cause damping off and affect plant health, with symptoms sometimes appearing later in the season.

Table 1. Stand assessment using a hula hoop. Count the number of soybeans within the hoop and multiply by the correlating factor to obtain population (plants/acre) in drilled soybeans.

Hoop Inside Diameter	Multiplication Factor
28 inches	10,200
30 inches	8,900
32 inches	7,800
34 inches	6,900
36 inches	6,200
38 inches	5,500

Table 2. Population (plants/acre) and percent of maximum yield potential for stand counts taken per 10 feet of row.

Row Spacing			Population (Plants/Acre)	Percent Maximum Yield
Drilled	15-inch	30-inch		
Plants per 10 feet of Row				
23	46	92	160,000	100
17	35	69	120,000	100
14	29	57	100,000	94
11	23	46	80,000	86
9	17	34	60,000	76
6	11	23	40,000	64

Seedling Diseases

Early season diseases can cause damping of seedlings. *Pythium*, (left), and *Rhizoctonia*, (right), are examples of seedling disease damage.