How Fast do Soybeans Dry Down in the Field?

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Abstract
Soybean are nearing maturity across Iowa with minimal delay due to cool temperatures compared to 2016. However, soybean sensitivity to day length speeds up crop development towards physiological maturity. During senescence carbohydrates are converted into oils. Soybean seed moisture changes very little, remaining near 60 percent during the de-greening period. As the pods turn to mature color at the beginning of maturity stage (R7), seed dry matter accumulation is complete and seed moisture rapidly decreases.

Disciplines
Agricultural Science | Agriculture
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To quantify the rate of soybean dry down and investigate how planting date and maturity group affect the dry down rate we utilized a field experiment near Ames, IA. The experiment contained four planting dates and four maturity groups over three years. Soybean pods were collected to determine soybean grain moisture from September through October. Dry down rate was affected by maturity group selection, planting date, and year (data not shown).

During the first 12 days after maturity, the average dry down rate was 3.2 percent per day, which is about five times faster than that of corn. After that period, the dry down rate significantly slows down or stops completely, stabilizing at about 13 percent moisture.

Soybean seeds may absorb moisture from the atmosphere under cold and humid conditions, which can delay dry down. Additionally, in conditions where the atmosphere has a high vapor pressure deficit (warm temperatures with low humidity) soybean grain dry down can reach 9-10 percent grain moisture.

Paying attention to when the soybean crop reaches maturity can help farmers schedule harvest activities. Under average weather conditions, soybean will reach 13 percent
moisture in about 12 days following maturity. However, if weather conditions are conducive, grain dry down can be achieved in as early as nine days after maturity.

Figure 1. Average seed moisture dry down (blue line) across four soybean varieties representing a range of maturity groups at four planting dates from 2014 through 2016 near Ames, IA. Horizontal dashed line represents 13% grain moisture, open circles are actual data.

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