SCHEDULE CORN HARVEST TO MAXIMIZE PROFITABILITY

Deciding when to start harvest depends on several factors, including total acres, relative maturities (RMs) planted, access to grain drying and harvest capacity. Harvesting at lower moistures can reduce drying costs, but often increases harvest losses from dropped ears, stalk lodging and header loss. Allowing corn acres to field dry can be costly, depending on the weather. A good balance between minimizing harvest losses and keeping grain drying costs down is to start harvesting at higher levels, such as 23–25% grain moisture.

Forecasting days to harvest

Predict days to harvest in 3 steps:

1. Calculate how many days remain to kernel maturity.
2. Determine days required to reach desirable moisture after maturity.
3. Add days to maturity and days to desired moisture for total days to harvest.

Based on which stage the crop is in, the number of days to maturity can be estimated (see table below for reference).

Reproductive Stage	Kernel Description	Days to Black Layer
R1: Silk	Not yet formed	55–60
R2: Blister	White and resemble blister	45–50
R3: Late milk dough	Yellow, milky inner fluid	35–40
R5: Early Dent	Pasty, doughy consistency	25–30
R5.5-5.75: Fully Dented	Milk line visible, starting to dry	13–17
R6: Physiological Maturity	Black layer visible, about 33% H^2O	0

Source: University of Wisconsin

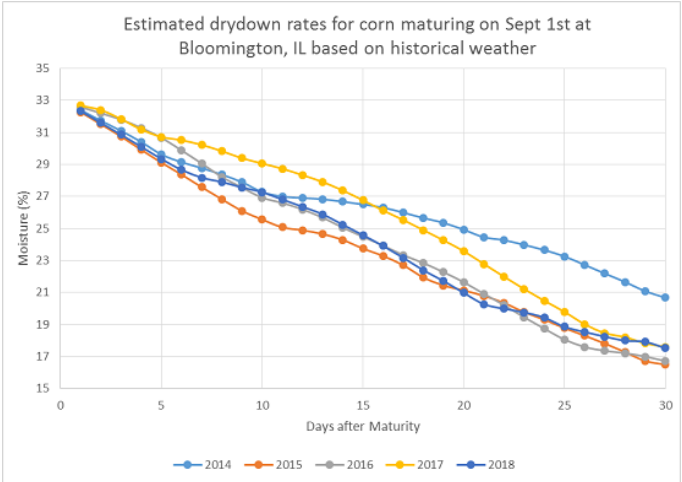
As a rule of thumb, it takes roughly 10 days to advance to the next reproductive stage. From silking, it typically takes 55–60 days to reach maturity. At physiological maturity, a black layer forms at the base of the kernel, indicating it has achieved maximum dry matter accumulation. The kernel black layer moisture content can range from 25–40%, but often averages around 30%.

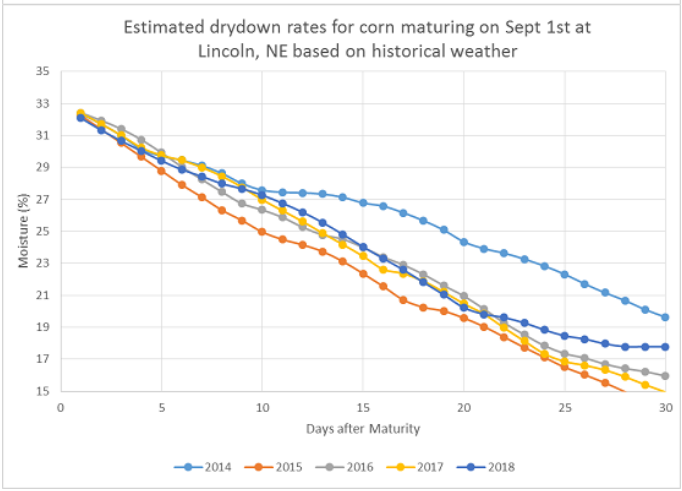
The image above shows a mature black layer, found at the kernel base.

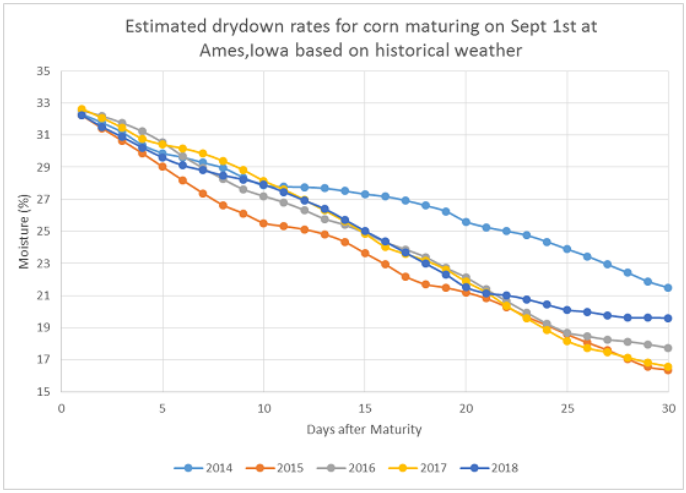
Once a maturity timeline is calculated, the second step is to estimate days to desired grain moisture. The corn dry down rate is

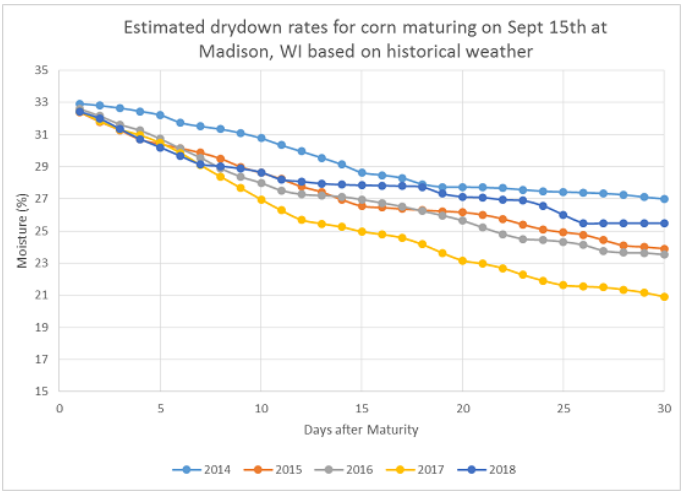
highly dependent on temperature and growing degree units (GDUs) available after maturity. Warm temperatures in late August and September favor earlier maturing hybrids with faster dry down rates because the black layer forms sooner. Dry down rates can range from ½–1% per day in September. Corn maturing later due to delayed planting or full season RMs will typically dry slower, due to fewer GDUs available after reaching maturity. October dry down can easily reduce to ¼–½ point per day or less, although higher rates can be seen in years with favorable weather.

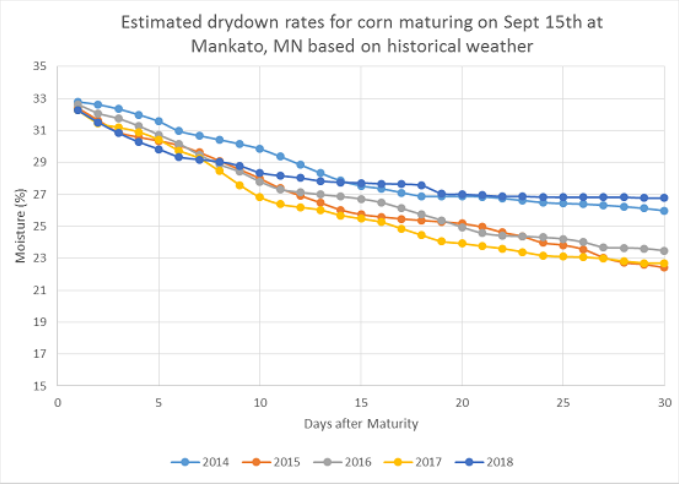
To help illustrate the year-over-year variability in dry down rates by geography, the following charts show historical weather data combined with an estimated 20 GDUs required per point moisture drop:

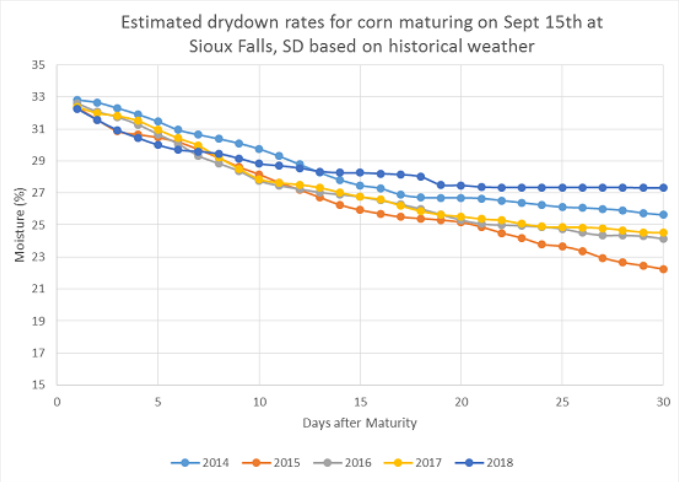












Source: Syngenta

Dry down rate influencers

Product dry down rates are influenced by many product characteristics, such as how tight husk leaves are and pericarp, or thickness, of the seed. With higher temperatures, it's easy to underestimate grain drying rates. Environmental stress such as fall frost or severe drought can cause plants to die early and form a premature black layer, leading to excessively slow grain dry down. Cool weather or delayed planting during the growing season resulting in reduced GDUs can also delay the normal maturation, causing higher moisture content.

Harvest order

Monitor fields for issues that could affect your harvest order. Potential stalk and root lodging, disease pressure and moisture content could adjust your harvest plan. Stalk cannibalization and related lodging issues can be due to nitrogen loss from excessive, early season rainfall. Closely monitor fields to help minimize lodging and harvest loss.

The pinch and push tests are 2 methods to determine stalk integrity. For the pinch test, squeeze the second or third internode above the ground – if it collapses, stalk quality is weak. Alternatively, push a corn stalk at the ear to approximately a 45° angle. If the stalk returns to its upright position, quality is strong. Use either method on 10 consecutive corn plants in several locations to see if the entire field, or just an isolated area, is affected. If more than 10% of the stalks tested show poor stalk quality, or lodge at the root, plan to harvest the field early.

As illustrated above, the pinch test is a useful method for scouting potential corn lodging.

Contact your Golden Harvest Seed Advisor with questions or for additional agronomic insights.

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