

On timing malting barley harvest:



Figure 1. Barley heads of increasing maturity, left to right, in the picture. Notice the peduncle color change at maturity.

it's green color, the grain has essentially stopped filling and had begun the process of drying down. At this point the grain will likely have a ~25-30% moisture content. Since most growers don't have the capacity to dry grain down from moisture levels > 25%, it is important to observe the progress of the drydown process, so that you know when to moisture test and to harvest according to how much drying capacity you have.

Watching the grain heads gradually nod downward is one of the easiest ways to observe the progress of grain drying down. Visually, grain heads will go from an angle approximately perpendicular to the stem downward as the plant loses its inherent (internal) moisture. Tinges of green will also continue to dissipate. When the grain heads have nodded completely downward parallel to the stem, the plant has essentially lost as much inherent moisture as it is going to in the field, *but*, many growers should choose to harvest *before* this point because once grain reaches this stage it becomes critically vulnerable to quality decline following influxes of moisture from rain and dews. Nonetheless, grain fields often do not mature completely uniformly (Figure 2), and the appearance of *some* plants or minor patches of plants beginning to show completely nodded heads is an ultimatum that the rest of the field is soon to follow and should be

Cornell Cooperative Extension often receives inquiries on timing malting barley harvest. Several points will help you increase your chances of timing harvest for a quality malting barley crop.

Grain moisture content is often the factor used to affirm that grain harvest timing is on target, but it is important to remember that *grain moisture content is dependent on 1) crop maturity, and 2) ambient moisture conditions in the field*. Learning to factor in the latter two components will help you better understand the in-field grain drying dynamics and best target your barley harvest. Otherwise moisture readings can sometimes be confusing and misleading.

Grain maturity can be assessed through sensory means. First, learn to watch for visual signs of maturity. All small grains, including barley, will gradually lose their green color, in accordance with when the plant is finished allocating its resources to the seed. Leaves will lose color first, followed by stems. When the peduncle, the stem just below the head (Figure 1) has lost



Figure 2. *Uneven ripening, different stages of maturity. Completely nodded, mature heads are in the foreground, and slightly less mature heads are in the background. The different maturity levels in this had a 2-3% difference in moisture content.*

moisture tested ASAP for confirmation. At this point, a slight amount of green may still remain in the mid-stem, and the field may approximately test on average between ~15-18% moisture.

You can also walk into the field and grab random grain heads, pick out some seeds, and assess their hardness. Mature grains are hard to dent with a thumbnail, and will crack between the teeth. Nearly mature grains will dent slightly with a thumbnail, and may shear (rather than crack) between the teeth. Immature grains dent easily with the thumbnail and squish/mangle between the teeth. Depending on your assessment, you may choose to moisture test, keeping in mind that grain in the middle to upper twenty percent moisture is in the upper limits of moisture meters (i.e. overtly immature grain isn't worth testing).

The second factor is coupling sensory signs of grain maturity with ambient moisture conditions.

Temperature and all sources of field moisture should be considered. Besides rainfall, a grain crop that has otherwise most, or all of its inherent moisture will commonly take on humidity in the morning hours (dews) and on days with high

relative humidity, and/or from moist soils. Plants with heads that are completely nodded may reach $\leq 13\%$ moisture in dry weather conditions, but grain moisture readings at any stage of maturity may commonly vary by $\sim 2-3\%$ in a given day. Afternoon heat, sun, and/or breezes often help drop the extra moisture gained from various sources, but keep in mind that afternoon can also be prime time for thunderstorms. If the risk of rain is negligible in the afternoon, it can be beneficial to allow the grain to reach its daily drying potential in the field and avoid having to do it after harvest. Nonetheless, drying equipment is always a key component of helping assure that you can bring in a quality crop when it is at a good maturity stage for maintaining quality, despite ambient moisture conditions and the threat of rain in the forecast.

Additional information on malting barley harvest and drying can be found at:
<http://nmsp.cals.cornell.edu/publications/factsheets/factsheet82.pdf>

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