Malting Barley Quality Analysis

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Understanding analysis factors

* Barley quality analysis
  * Testing for malt potential
  * Variety and management factors impact
* Malt quality analysis
  * Testing for ability to produce a quality beverage
  * Variety, management and malting factors impact

Quality Basics

* Lot of pure variety
* Free of foreign matter
* Free of disease
* Acceptable protein level
* High germination potential
* Plump and uniform

Good quality malt only comes from good quality barley.

Sampling

* Obtain a representative sample
* Consider a composite sample

Damaged kernels

Heated

Damaged kernels

Peeled

Damaged kernels

Smut

Damaged kernels

Fusarium

Damaged kernels

Frost

Damaged kernels

Sprouted

Moisture

* Target < 13.5% for good storage
* High moisture promotes microbial growth and germination loss
* When drying grain, use caution with heat

Protein

* Preferred levels determined by type and use
* Many factors impact
* High protein limits extract potential
* Typical method requires near infrared technology

Germination

* **Germinative energy** – Will the barley germinate now?
* **Germinative capacity** – Is it dead or just dormant?
* **Water sensitivity** – Is special care required for steeping?
* **Sprouting/pre-germination** – What is the long-term storability of the barley?

Germination energy

* 100 kernels germinated under controlled conditions
* Kernels inspected for visible signs of germination
* Confidence levels increase with replicated testing

Germinative capacity

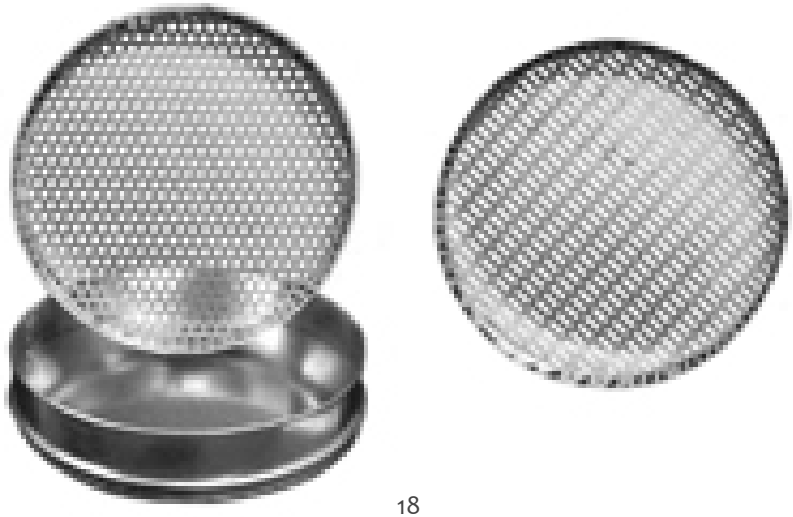
* 100 kernels in 100 ml 0.75% hydrogen peroxide
* 48 hour test at room temperature
* Drain, remove, and count germinated kernels

Sprout damage

* Excessive moisture prior to harvest
* May be detectable at severe levels
* Use Falling Number or Rapid Visco Analysis (RVA) to determine
* Heavy impacts to storability

Uniformity

* Various sized screens are used
* Plump barley is desirable > 85% over 6/64” screen



Deoxynivalenol (DON)

* Mycotoxin produced by *Fusarium*
* Can survive the brewing process – gushing
* Most maltsters reject > 0.5 ppm
* Various technologies exist
* Rapid tests are available

Take home messages

* In-house grain analysis very expensive, equipment > $100,000
* Quality peace of mind = priceless
* Limited fee for service labs

Thank you!

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