

Directive

9180.77

12-29-03

OFFICIAL CRITERIA FACTOR FOR MALTING BARLEY

1. PURPOSE

This directive establishes uniform procedures for the analysis of malting barley for the presence of “injured-by-sprout” kernels. This testing service is available, upon request of an interested person, as official criteria for malting barley, under the authority of the United States Grain Standards Act (USGSA), as amended.

2. EFFECTIVE DATE

This procedure is effective upon receipt.

3. BACKGROUND

Sprouting occurred in barley in the U.S. Northern Plains region during 2002, that prevented malting barley production contracts from being honored. Further, barley producers’ insurance claims, based on obtaining official grades, were denied because official procedures to assess barley sprout damage differ from those used by the malting industry.

Current official inspection procedures pertaining to the evaluation of sprout-damaged kernels in barley only address the obvious, visually detectable sprouting that occurs. Even before the sprout breaks through the germ covering, biochemical changes occur that may affect kernel viability and the malting process. Thus, any degree of “pre-germination” is of concern to the malting industry.

To better facilitate the marketing of malting barley, the Federal Grain Inspection Service (FGIS) is establishing a new official criteria, available upon request, to determine the percentage of kernels “injured-by-sprout.” The results, reported in the “Remarks” section of the certificate, are intended to provide additional informational only and will have no bearing on the assigned grade.

4. EQUIPMENT STANDARDIZATION AND PEARLING PROCEDURES

a. Equipment.

The “injured-by-sprout” analysis shall be performed on the basis of a representative portion of approximately 55 grams (dockage-free) of barley that has been pearled with a “standardized” pearler.

Standardized pearlers must be used in this procedure in order to achieve the appropriate amount of hull removal. Official agencies or other interested parties wishing to obtain samples, comparison data, and other instructional materials necessary to standardize a pearler with FGIS's "master" pearler should contact the Board of Appeals and Review (BAR) at the Technical Services Division. If a pearler has already been approved for official use, it is not necessary to re-standardize it. However, it is necessary to establish the "injured-by-sprout" pearling time for that particular pearler.

b. Determining "Injured-by-Sprout" Pearling Time.

- (1) To calculate "injured-by-sprout" pearling time, multiply the standardized "full pearl" time by 1/5.

For example: If the established standardized pearling time for a particular FGIS-approved pearler is 90 seconds, the corresponding "injured-by-sprout" pearling time is calculated at 18 seconds ($90 \times 1/5$).

Note: Actual "injured-by-sprout" pearling time may deviate by ± 1 second. Using the example above, the acceptable "injured-by-sprout" pearling time is between 17 and 19 seconds.

- (2) Record the "injured-by-sprout" pearling time on or near the pearler for quick reference.

5. DETERMINATION OF "INJURED-BY-SPROUT" KERNELS

a. Pearling Procedures.

- (1) Use a representative portion of 55 grams (± 1 gram) of dockage-free barley for pearling purposes.
- (2) Pour the sample portion into the pearler, and pearl for the "injured-by-sprout" pearling time, as determined above. The use of a stopwatch is recommended.
- (3) When the "injured-by-sprout" pearling time has elapsed, pull out the slide to allow the pearled kernels to drop into the sample collection drawer. With the sample collection drawer open, continue to run the pearler for a few seconds to purge the system.
- (4) Using an aspirator or comparable device, remove the excess hulls remaining in the pearled portion.

b. Sample Analysis.

From the pearled portion, consider kernels meeting the following criteria as “injured-by-sprout.”

- Whole or broken kernels which contain a sprout or sprout socket.
- Whole and broken kernels with $\frac{2}{3}$ or more of the embryo (germ) missing. Do not include broken kernels in which the germ area has broken off and the remaining kernel is less than $\frac{2}{3}$ of a whole kernel.

A print, B-O.F. 2.4, that illustrates examples of “injured-by-sprout” and “not injured-by-sprout” kernels is available from the BAR.

c. Calculating and Recording Results.

- (1) Determine the percentage of “injured-by-sprout” kernels by weighing the “injured-by-sprout” kernels and dividing by the weight of the analytical portion.

For example, if the pearled sample analytical portion weighed 49.20 grams and the “injured-by-sprout” kernels weighed 2.20 grams, the percentage of “injured-by-sprout” kernels equals 4.5%.

$$(2.20 / 49.20) \times 100 = 4.47\%, \text{ rounded to } 4.5\%.$$

- (2) Record the results on the work record and certificate to the nearest tenth percent.

6. CERTIFYING RESULTS

The factor “injured-by-sprout” is not considered as a grading factor and is provided for informational purposes only. Therefore, it is not included in “total damaged kernels” or scored against “sound barley” determinations.

Results are certified in the “Remarks” section of the certificate with the following statement:

“This barley contains _____ % of injured-by-sprout kernels.”

7. QUESTIONS

Direct any questions concerning the standardization of the barley pearler or the interpretation of injured-by-sprout kernels to the BAR at (816) 891-0401. Other questions may be directed to the Policies and Procedures Branch at (202) 720-0252.

/s/ David Orr

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