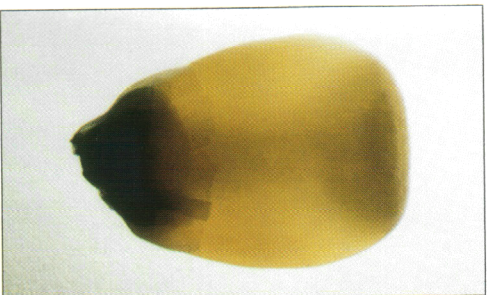


Stress cracks are an undesirable physical attribute in corn. Stress cracks in corn are internal narrow cracks in the endosperm of the kernel. Typically, stress cracks are induced by excessive heat during drying. Kernels of corn having stress cracks are more susceptible to breakage and quality degradation during handling and also indicate potential processing problems to corn millers.

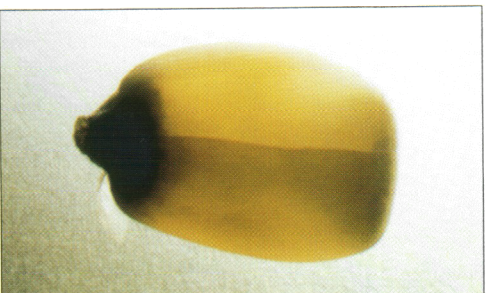
Knowing the level of stress cracks in corn is important to corn wet millers because stress cracks directly affect the wet milling process. High-temperature drying, which results in an increased incidence of stress cracks, affects the millers' ability to separate the starch and protein fractions of the corn kernel. Therefore, stress cracks generally indicate a negative effect on starch yield and total oil recovery.

Dry millers are also concerned with processing corn with stress cracks because stressed corn affects the grit's ability to withstand mechanical force without breaking. Kernels of corn with stress cracks generally result in a reduced yield of large flaking grits -- a primary product.

Stress cracks are also important to grain handlers and the feed industry because corn is more susceptible to breakage during handling when stress cracks are present. This breakage could result in additional grain losses and increased storage risk due to cracked corn's vulnerability to microorganisms and insect infestations. Cracked corn can also contribute to increased elevator dust, and, thus, negatively impact elevator safety and the environment.

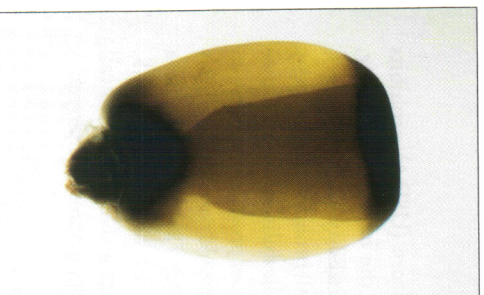


None

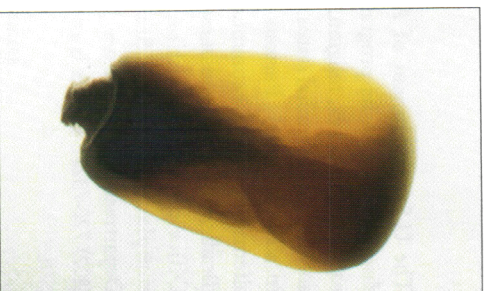


Single

Stress Cracks



Double



Multiple

The USDA Grain Inspection, Packers and Stockyards Administration's Federal Grain Inspection Service (FGIS) adopted the stress crack analysis method as an official service on January 1, 1996.

The test involves a visual inspection of whole corn kernels on a backlighted lightboard. The "candling" inspection process transmits light through the kernel, which makes the internal narrow cracks in the endosperm visible for detection.

Kernels are separated into two basic categories during the analysis:

- * no stress cracks or
- * stress cracked.

The total percentage of stress-cracked kernels is reported based on the analysis.

Upon request, the analysis will separate and report stress-cracked kernels in three different categories:

- * single crack,
- * double cracks, and
- * multiple cracks.

For more information about the availability of stress crack analysis service near you, contact your local FGIS field office.

Photographs provided by the Illinois Crop Improvement Association, Identity Preserved Grain Laboratory, Champaign, Illinois.

Stress Crack Analysis Service

For official stress crack analysis service, contact one of the following FGIS field offices:

Field Office	Telephone	FAX
Baltimore	410-962-3968	410-766-8604
California	916-654-0743	916-653-2409
Cedar Rapids	319-364-0047	319-364-3193
Grand Forks	701-772-3371	701-772-0362
Kansas City	816-241-4031	816-241-4071
League City	713-338-2787	713-338-2788
Minneapolis	612-335-4095	612-335-4094
Montreal	514-288-6239	514-288-2449
Moscow	208-882-4833	208-883-4239
New Orleans	504-764-2324	504-764-2084
Portland	503-326-7887	503-326-7896
Stuttgart	501-673-2508	501-673-2500
Toledo	419-259-6276	419-259-7464
Washington	360-753-6964	360-586-5257
Wichita	316-269-7171	316-269-6163

For additional information about the official United States grain standards or official grain inspection services, contact:

USDA, GIPSA, FGIS

Standards and Procedures Branch

P. O. Box 96454

Washington, D.C. 20090-6454

Phone: (202) 720-0252

Fax: (202) 720-1015

Internet: igiler@fgis.usda.gov

U.S. Department of Agriculture
Grain Inspection, Packers and Stockyards Administration
Federal Grain Inspection Service

Stress Crack Analysis in Corn

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January 1996