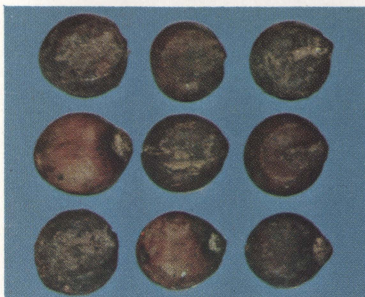


GRAIN SORGHUM KERNEL DAMAGE

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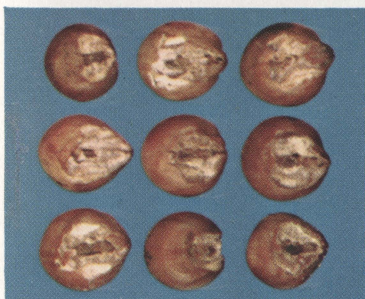
J. E. HUTCHISON, Director, College Station, Texas

PRINCIPAL GRAIN SORGHUM KERNEL DAMAGE



HEAT DAMAGED

Kernels and pieces of kernels of grain sorghums, non-grain sorghums and other grains which have been materially discolored and damaged by external heat or as a result of heating caused by fermentation.



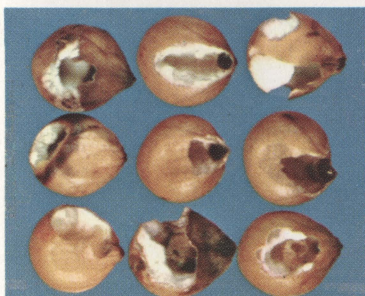
BLACK GERM DAMAGE

Black germ and some mold damage results from grain going out of condition in storage. Damage may be in sufficient quantity to result in a musty or sour odor.



MOLD AND GROUND DAMAGE

Damage as a result of weather or having been on the ground. Care should be taken not to confuse this condition with stains and discolorations resulting from weathering.



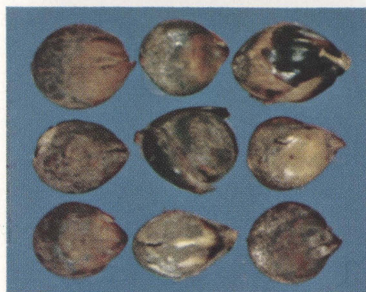
INSECT DAMAGE (Weevil Bored)

Kernels which have been bored by insects are considered damaged.



SPROUT DAMAGED

Sprouted kernels are considered damaged, but the evidence of sprouting must be conclusive.



BADLY WEATHERED

Grain sorghums which are "*badly weathered*" are graded "Sample grade." "*Badly weathered*" is a grading factor for the determination of "Sample grade" and is not shown on the certificate as a special grade but is shown as a reason for applying "Sample grade."

OTHER GRADING FACTORS



DOCKAGE

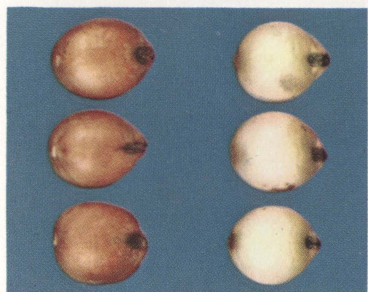
Includes sand, dirt, finely broken kernels, weed seeds, and other foreign material, which can be removed readily from the grain sorghums by use of a metal sieve perforated with round holes $2\frac{1}{2}/64$ -inch in diameter. Dockage is stated in terms of a whole percent. A fraction of a percent is disregarded.



CRACKED KERNELS, FOREIGN MATERIAL AND OTHER GRAINS

Includes kernels and pieces of kernels of grain sorghums, and all matter other than dockage which passes through a triangular sieve with perforations $5/64$ -inch in diameter, and also other grains and other matter except grain sorghums and non-grain sorghums remaining on sieve after screening.

SPECIAL GRADES



BRIGHT GRAIN SORGHUM

Grain sorghums which have good natural color. The word "Bright" is added to and made a part of the grade designation — Example: One Bright Yellow Milo.



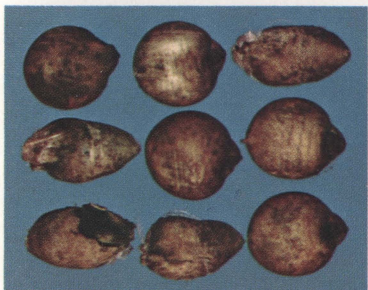
DISCOLORED GRAIN SORGHUM

Discoloration caused by a weather condition, but which are *not badly* weathered. The word "Discolored" is added to and made a part of the grade designation. Example: 2 Yellow Milo, Discolored.



WEEVILY

Grain sorghums which are infested with live weevils or other insects injurious to stored grain. The word "weevily" is added to and made a part of the grade designation.



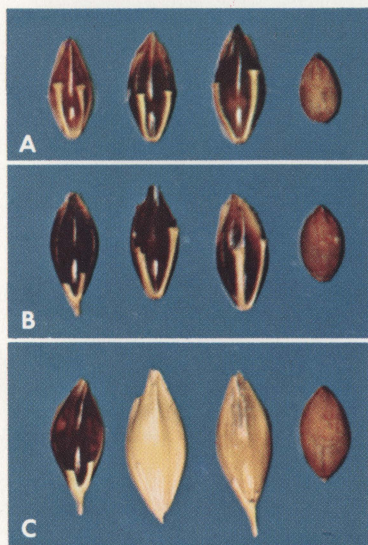
SMUTTY

Grain sorghums which have kernels covered with smut spores, or which contain a quantity of smut masses in excess of a quantity equal to 10 masses in 50 grams of grain sorghums. The word "smutty" is added to and made a part of the grade designation.



NON-GRAIN SORGHUMS

Non-grain sorghums shall include Broomcorn, Sudangrass, Johnsongrass, and Cane Seed. Non-grain sorghum shall be characterized by the tightly clasped hull, by color which commonly is a shiny red, black, lemon yellow or buff, and by the size of the kernels which are smaller than true grain sorghum seed and range in size from a large mustard seed to that of a large cockle seed. Rarely white in color.



JOHNSONGRASS MIXTURE IN GRAIN SORGHUM

Johnsongrass is a more serious mixture in grain sorghums than are other non-grain sorghums. It is a troublesome, hard to control weed and is declared a noxious weed in many states. Johnsongrass spreads by seed and by rhizomes. Every effort needs to be made to prevent spreading this weed through seed and feed grains.

Johnsongrass-sorghum crosses, such as sorghum alnum, have seed characteristics almost identical to Johnsongrass. For this reason, the sale of such crop seed is prohibited by law in many states. These Johnsongrass derivatives usually are not serious weeds in themselves. However, since the seed cannot definitely be distinguished from Johnsongrass, it is called Johnsongrass when found in other crop seed or grain and must be handled as Johnsongrass contamination. Therefore, sorghum alnum and similar Johnsongrass derivatives must be considered serious mixtures in seed and grain.

A. Johnsongrass. Note color and shape. Knob-shaped, sucker mouth rachilla. Smooth and rounded break at base of seed. Margin of germ in hulled seed well defined.

B. Sorghum Alnum. Note similarity to Johnsongrass. Some rachilla knobbed, some broken.

C. Sudangrass. Note shape. Rachilla broken, portion of pedicel adhering to base of seed. Easily distinguished from Johnsongrass.

Samples pictured were selected by Joseph E. Elstner, officer in charge Kansas City District, U. S. Department of Agriculture, Agricultural Marketing Service, Grain Division, and passed on by Board of Grain Supervisors at Chicago.

EFFECTIVE WEED CONTROL DEPENDS ON THE PREVENTION OF WEED SEED DISTRIBUTION THROUGH SEED AND FEED

GRADE REQUIREMENTS FOR GRAIN SORGHUMS

Grade	Minimum test weight per bushel	Moisture	Maximum limits of —			
			Damaged kernels (grain sorghums, non-grain sorghums, and other grains)		Non-grain sorghums	Total cracked kernels, foreign material, and other grains
			Total	Heat-damaged		
	Pounds	Percent	Percent	Percent	Percent	Percent
1	55	14	2	0.2	1	4
2	53	15	5	.5	3	8
3	51	16	10	1.0	5	12
4	49	18	15	3.0	10	15
SAMPLE: Sample grade shall include grain sorghums of any class or subclass which do not come within the requirements of any of the grades from No. 1 to No. 4, inclusive; or which contain inseparable stones and/or cinders; or which are musty, or sour, or heating, or hot; or which are badly weathered; or which have any commercially objectionable foreign odor except of smut; or which are otherwise of distinctly low quality.						

GRAIN SORGHUMS

Grain sorghums shall be any grain which, before the removal of dockage, consists of 50 percent of more of grain sorghums and not more than 10 percent of other grains for which standards have been established under the provisions of the United States Grain Standards Act, and which, after the removal of dockage and of "cracked kernels, foreign material, and other grains", contains not more than 25 percent of non-grain sorghums.

WHITE GRAIN SORGHUMS (Class I)

This class shall include all varieties of white grain sorghums, and may include not more than 10 percent of grain sorghums of other colors. Colored spots upon kernels that are otherwise white shall not affect their classification as white. This class shall be divided into three subclasses.

YELLOW GRAIN SORGHUMS (Class II)

This class shall include all varieties of yellow and salmon-pink grain sorghums, and may include not more than 10 percent of grain sorghums of other colors. This class shall be divided into two subclasses.

RED GRAIN SORGHUMS (Class III)

This class shall include all varieties of red grain sorghums, and may include not more than 10 percent of grain sorghums of other colors. This class shall be divided into two subclasses.

BROWN GRAIN SORGHUMS (Class IV)

This class shall include all varieties of brown grain sorghums, and may include not more than 10 percent of grain sorghum of other colors.

MIXED GRAIN SORGHUMS (Class V)

This class shall include all mixtures of grain sorghums not provided for in the classes from I to IV, inclusive.

"Prepared by Norman V. Whitehair, Extension Economist in Grain Marketing, and Frank G. Bieberly, Extension Agronomist, Kansas State University in cooperation with James R. Enix, Regional Wheat Marketing Specialist, Federal Extension Service, USDA.

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