

1965

## EC66-128 Soybean Kernel Damage

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# SOYBEAN KERNEL DAMAGE



# PRINCIPAL SOYBEAN KERNEL DAMAGE



## FROST AND IMMATURE GREEN DAMAGE

Soybeans which are immature from any cause are considered damaged when a cross-section shows an intense green color, or when it is green in color and of a mealy or chalky consistency.



## HEAT-DAMAGED

Heat damaged kernels are soybeans and pieces of soybeans which are materially discolored and damaged by heat.



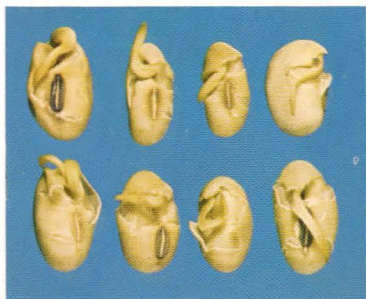
## SLIGHT DISCOLORATION BY HEAT

Soybeans or pieces of soybeans, which have been damaged by heat but are not materially discolored, are considered as damaged kernels, but not as *heat damaged* kernels.



## GROUND DAMAGE, MOLDY AND OTHERWISE MATERIALLY DAMAGED

Soybeans are considered damaged for inspection and grading purposes only when the damage is distinctly apparent and of such character as to be recognized as damaged for commercial purposes.



### **SPROUT DAMAGE**

Soybeans which show definite evidence of having sprouted.



### **INSECT DAMAGE (Weevil Cut)**

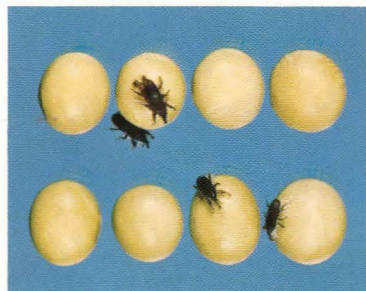
Soybeans and pieces of soybeans which contain insects, insect webbing, or insect refuse, are considered damaged kernels.

## **SPECIAL GRADES**



### **GARLICKY**

Soybeans which contain 5 or more garlic bulblets in 1,000 grams of soybeans. There is added to and made a part of the grade designation the word "garlicky." Garlic bulblets shall be bulblets which are hulled or unhulled, green, dry, or partially dry.



### **WEEVILY**

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



## OTHER GRADING FACTORS



### STAINED AND MOTTLED

Soybeans which are purple mottled or stained on the surface or seed coat by weather and/or disease, but which are not damaged or discolored internally, or in cross-section are considered sound soybeans.



### MATERIALLY WEATHERED

Results from exposure to adverse weather conditions, such as prolonged rains, or to snows. May become badly discolored, often with severely cracked or rough seed coats. Soybeans materially weathered shall be graded not higher than No. 4.



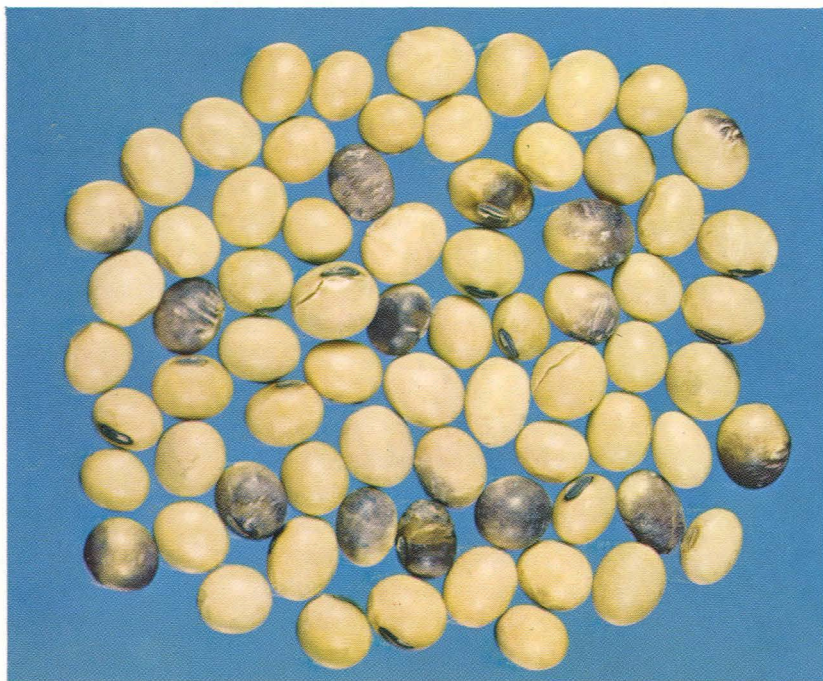
### SPLITS

A soybean with more than one-fourth broken off is considered as split. Must *not* be *damaged*. Expressed only in terms of whole percent.



### FOREIGN MATERIAL

All matter, including soybeans and pieces of soybeans which pass readily through an 8/64-inch sieve and all matter other than soybeans remaining on such sieve after sieving.



## **PURPLE MOTTLED**

Soybeans to grade No. 1 or No. 2 must be better than the above sample with respect to purple mottled appearance.

## **PREVENTING RANCIDITY FOR HIGH QUALITY BEANS**

1. Harvest when all pods are ripe, and beans are dry — approximately 12% moisture.
2. Avoid splitting beans when harvesting. Slow down the speed of the machinery by trial, until split beans are at a minimum. Prevent the beans from re-entering the cylinder through the return.
3. Remove splits, field insects, green pods and stems by cleaning.
4. Store in cool dry place.

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.



# GRADE REQUIREMENTS FOR SOYBEANS

Grade	Minimum test weight per bushel	Maximum limits of —					
		Moisture	Splits	Damaged kernels		Foreign material	Brown, black, and/or bicolored soybeans in yellow or green soybeans
				Total	Heat-damaged		
	<i>Pounds</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
1	56	13.0	10	2.0	0.2	1.0	1.0
2	54	14.0	20	3.0	0.5	2.0	2.0
3*	52	16.0	30	5.0	1.0	3.0	5.0
4**	49	18.0	40	8.0	3.0	5.0	10.0

**SAMPLE:** Sample grade shall be soybeans which do not meet the requirements for any of the grades from No. 1 to No. 4, inclusive; or which are musty, sour, or heating; or which have any commercially objectionable foreign odor; or which contain stones; or which are otherwise of distinctly low quality.

\*Soybeans which are purple mottled or stained shall be graded not higher than No. 3.  
 \*\*Soybeans which are materially weathered shall be graded not higher than No. 4.

## SOYBEANS

Soybeans shall be any grain which consists of 50 percent or more of whole or broken soybeans which will not pass readily through an 8/64 sieve and not more than 10 percent of other grains for which standards have been established under the United States Grain Standards Act.

### Classes

**YELLOW SOYBEANS.** Yellow soybeans shall be any soybeans which have yellow or green seed coats, and which in cross section are yellow or have a yellow tinge, and may include not more than 10 percent of soybeans of other classes.

**GREEN SOYBEANS.** Green soybeans shall be any soybeans which have green seed coats, and which in cross section are green, and may include not more than 10 percent of soybeans of other classes.

**MIXED SOYBEANS.** Mixed soybeans shall be any mixture of soybeans which does not meet the requirements of the classes yellow soybeans, green soybeans, brown soybeans, or black soybeans. Bicolored soybeans shall be classified as mixed soybeans.

**BLACK SOYBEANS.** Black soybeans shall be any soybeans with black seed coats, and may include not more than 10 percent of soybeans of other classes.

**BROWN SOYBEANS.** Brown soybeans shall be any soybeans with brown seed coats, and may include not more than 10 percent of soybeans of other classes.

Revised by Robert W. Schoeff, Feed and Grain Marketing, Kansas State University, and R. E. "Gus" Page, Extension Economist, Grain Marketing, Oklahoma State University. The authors wish to express sincere appreciation to representatives of the Federal Grain Inspection Service for their assistance.

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