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### Soybean Grades and Grade Requirements

There are two classes of soybeans: Yellow soybeans and Mixed soybeans. There are no soybean subclasses. The class Yellow soybeans is the class most commonly exported by the U.S. market. Each class is divided into four U.S. numerical grades and U.S. Sample grade.

Special grades are provided to emphasize special qualities or conditions affecting the value of the soybeans. These special grades are a part of the grade designation but do not affect the numerical or Sample grade designation.

### U.S. Standards for Soybeans

Grade:	Max Limits of:				
	Damaged Kernels		Foreign Material (percent)	Splits (percent)	Soybeans of other colors <u>1</u> / (percent)
	Heat (part of total) (percent)	Total (percent)			
U.S. No. 1	0.2	2.0	1.0	10.0	1.0
U.S. No. 2	0.5	3.0	2.0	20.0	2.0
U.S. No. 3	1.0	5.0	3.0	30.0	5.0
U.S. No. 4	3.0	8.0	5.0	40.0	10.0

U.S. Sample Grade:

U.S. Sample grade shall be soybeans which:

- (a) Do not meet the requirements for U.S. Nos. 1, 2, 3, or 4; or
- (b) Contains 4 or more stones which have an aggregate weight in excess of 0.1 percent of the sample weight, 1 or more pieces of broken glass, 3 or more crotalaria seeds, 2 or more castor beans, 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic foreign substance(s), 10 or more rodent pellets, bird droppings, or an equivalent quantity of other animal filth in 1,000 grams of soybeans; or
- (c) Contains 11 or more pieces, in any combination, of animal filth, castor beans, crotalaria seeds, glass, stones, or unknown foreign substances.
- (d) Have a musty, sour, or commercially objectionable foreign odor (except garlic odor); or
- (e) Are heating or otherwise of distinctly low quality.

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1/ Disregard for Mixed Soybeans.

## Soybeans

### Definitions

**Test weight (lb/bu)** is pounds of grain per Winchester bushel determined by an approved device and is recorded to the nearest tenth pound for soybeans.

**Test weight (kg/hl)** is the metric system equivalent to pounds per bushel. Kilograms per hectoliter are calculated by multiplying pounds per bushel by 1.287.

**Moisture** is the water content of grain as determined by an approved electronic moisture meter. The percentage of moisture in a sample does not affect the numerical grade.

**Splits** are soybeans with more than one-fourth of the bean removed and which are not damaged.

**Damaged kernels** are soybeans and pieces of soybeans which are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, heat-damaged, insect-bored, mold-damaged, sprout damaged, stinkbug-stung, or otherwise materially damaged.

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

**Foreign material** is all matter, including soybeans and pieces of soybeans that will pass readily through an 8/64-inch sieve and all matter other than soybeans remaining on the sieve after sieving.

**Soybeans of other colors** are soybeans which have green, black, brown, or bicolored seed coats. Before September 9, 1985, this factor was called "brown, black, and/or bicolored soybeans in yellow or green soybeans."

**Mixed soybeans** is a combination of classes of soybeans which does not meet the minimum requirements of the class Yellow soybeans.

**Protein and oil** percentages in soybeans are determined by an approved near infrared transmittance (NIRT) instrument calibrated to approved methods. Percent protein and oil is reported on a 13 percent moisture basis unless another basis is requested. The level of protein and oil in a sample does not affect the numerical grade.

Table 12. U.S. Soybean Exports: Number of lots and quantity exported by grade, 2008-2010

Grade	2008		2009		2010	
	No. of Lots	Metric Tons	No. of Lots	Metric Tons	No. of Lots	Metric Tons
U.S. No. 1	16	117,125	20	303,270	26	532,098
U.S. No. 2	792	24,698,359	995	35,135,738	1,029	36,215,801
U.S. No. 3	17	341,769	15	307,884	11	192,479
U.S. No. 4	8	240,536	2	45,111	1	8,811
U.S. Sample Grade	42	1,787,135	10	389,666	15	654,218
Not Inspected	2	131,615	1	57,750	1	62,995
All lots	877	27,316,539	1,043	36,239,419	1,083	37,666,402

-- = No lots reported in the category.

Not inspected = These lots were sold without grade designation.

Table 13. Summary of export Soybean quality, 2008-2010

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of				No. of				No. of			
			Lots	Avg.	Low	High	Lots	Avg.	Low	High	Lots	Avg.	Low	High
Test Weight (lb/bu)	U.S. No. 1	N/A	16	55.8	55.1	57.3	20	56.0	55.5	58.0	26	56.4	55.4	57.5
	U.S. No. 2	N/A	792	54.5	0.0	57.6	995	54.3	0.0	58.1	993	55.9	54.1	58.6
	U.S. No. 3	N/A	17	53.0	0.0	56.9	15	39.5	0.0	57.7	5	55.3	52.5	56.1
	U.S. No. 4	N/A	8	54.9	53.0	55.3	2	53.1	53.0	53.3	1	55.1	55.1	55.1
	U.S. Sample Grade	N/A	42	54.4	53.0	55.4	10	54.3	53.1	55.1	15	54.8	52.6	56.1
	All lots	N/A	875	54.4	0.0	57.6	1042	54.2	0.0	58.1	1,040	55.8	52.5	58.6
Test Weight (kg/hl)	U.S. No. 1	N/A	16	71.9	71.0	73.8	20	72.1	71.4	74.7	26	72.6	71.3	74.1
	U.S. No. 2	N/A	792	70.1	0.0	74.1	995	69.9	0.0	74.8	993	71.9	69.6	75.5
	U.S. No. 3	N/A	17	68.2	0.0	73.3	15	50.8	0.0	74.3	5	71.1	67.6	72.2
	U.S. No. 4	N/A	8	70.6	68.3	71.2	2	68.4	68.2	68.6	1	70.9	70.9	70.9
	U.S. Sample Grade	N/A	42	70.0	68.2	71.3	10	70.0	68.4	70.9	15	70.5	67.7	72.3
	All lots	N/A	875	70.1	0.0	74.1	1042	69.8	0.0	74.8	1,040	71.9	67.6	75.5
Moisture	U.S. No. 1	N/A	16	11.4	10.6	12.5	20	12.5	10.6	13.8	26	12.3	10.7	13.4
	U.S. No. 2	N/A	790	11.6	9.8	13.0	995	12.3	9.9	14.0	1,026	11.7	9.5	13.3
	U.S. No. 3	N/A	17	12.1	11.0	13.6	15	12.5	10.1	13.2	11	12.0	11.0	12.9
	U.S. No. 4	N/A	8	11.5	10.9	13.7	2	13.5	13.4	13.7	1	12.5	12.5	12.5
	U.S. Sample Grade	N/A	42	11.7	10.7	13.9	10	13.0	11.7	13.8	15	12.4	10.5	13.2
	All lots	N/A	873	11.6	9.8	13.9	1042	12.3	9.9	14.0	1,079	11.7	9.5	13.4
Heat-damaged Kernels	U.S. No. 1	0.2	16	0.0	0.0	0.0	20	0.0	0.0	0.1	26	0.0	0.0	0.1
	U.S. No. 2	0.5	792	0.1	0.0	0.5	995	0.1	0.0	0.5	1,029	0.1	0.0	0.5
	U.S. No. 3	1.0	17	0.3	0.0	0.8	15	0.2	0.0	0.4	11	0.3	0.0	0.6
	U.S. No. 4	3.0	8	0.5	0.3	0.5	2	0.2	0.1	0.3	1	0.5	0.5	0.5
	U.S. Sample Grade	N/A	42	0.7	0.1	1.3	10	0.9	0.4	1.4	15	0.6	0.1	2.1
	All lots	N/A	875	0.2	0.0	1.3	1042	0.1	0.0	1.4	1,082	0.1	0.0	2.1
Damaged Kernels (Total)	U.S. No. 1	2.0	16	0.7	0.1	1.1	20	0.7	0.1	1.3	26	0.7	0.2	1.0
	U.S. No. 2	3.0	792	1.3	0.1	3.0	995	1.5	0.1	3.0	1,029	1.4	0.0	3.2
	U.S. No. 3	5.0	17	2.8	0.2	4.9	15	2.9	0.1	5.0	11	2.8	0.8	4.8
	U.S. No. 4	8.0	8	3.0	1.9	7.7	2	7.2	6.9	7.7	1	5.5	5.5	5.5
	U.S. Sample Grade	N/A	42	4.5	1.9	10.8	10	8.0	4.8	9.2	15	5.5	0.8	13.2
	All lots	N/A	875	1.5	0.1	10.8	1042	1.6	0.1	9.2	1,082	1.5	0.0	13.2

continued

Table 13. Summary of export Soybean quality, 2008-2010,  
continued

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of				No. of				No. of			
			Lots	Avg.	Low	High	Lots	Avg.	Low	High	Lots	Avg.	Low	High
Foreign	U.S. No. 1	1.0	16	0.9	0.3	1.0	20	0.8	0.5	1.0	26	0.8	0.2	1.0
Material	U.S. No. 2	2.0	792	1.5	0.4	2.0	995	1.3	0.4	2.0	1,029	1.4	0.0	2.0
	U.S. No. 3	3.0	17	1.7	1.2	2.1	15	1.3	0.8	2.4	11	1.3	1.1	1.8
	U.S. No. 4	5.0	8	1.7	1.5	2.0	2	1.3	1.1	1.6	1	1.5	1.5	1.5
	U.S. Sample Grade	N/A	42	2.0	1.3	3.0	10	1.6	1.3	2.0	15	1.7	1.1	2.2
	All lots	N/A	875	1.5	0.3	3.0	1042	1.3	0.4	2.4	1,082	1.4	0.0	2.2
Splits	U.S. No. 1	10.0	16	7.7	2.0	9.7	20	5.9	2.9	8.7	26	6.6	3.1	8.6
	U.S. No. 2	20.0	792	8.7	1.9	18.7	995	7.9	2.3	19.2	1,029	7.2	0.0	17.1
	U.S. No. 3	30.0	17	8.1	4.3	24.0	15	6.8	3.7	23.4	11	7.5	3.8	21.3
	U.S. No. 4	40.0	8	9.9	5.3	11.7	2	6.5	6.1	7.0	1	7.7	7.7	7.7
	U.S. Sample Grade	N/A	42	10.0	4.9	14.6	10	5.9	4.3	12.1	15	7.8	4.8	10.2
	All lots	N/A	875	8.7	1.9	24.0	1042	7.9	2.3	23.4	1,082	7.2	0.0	21.3
Soybeans of Other Colors	U.S. No. 1	1.0	16	0.0	0.0	0.2	20	0.0	0.0	0.2	26	0.0	0.0	0.2
	U.S. No. 2	2.0	792	0.0	0.0	0.7	995	0.0	0.0	0.5	1,029	0.0	0.0	0.4
	U.S. No. 3	5.0	17	0.1	0.0	0.2	15	0.1	0.0	0.1	11	0.0	0.0	0.2
	U.S. No. 4	10.0	8	0.0	0.0	0.1	2	0.1	0.0	0.1	1	0.0	0.0	0.0
	U.S. Sample Grade	N/A	42	0.1	0.0	0.2	10	0.0	0.0	0.1	15	0.0	0.0	0.1
	All lots	N/A	875	0.0	0.0	0.7	1042	0.0	0.0	0.5	1,082	0.0	0.0	0.4
Protein (adjusted to 13% moisture)	U.S. No. 1	N/A	10	35.2	34.2	36.9	15	35.2	34.7	35.9	20	35.6	35.1	36.6
	U.S. No. 2	N/A	416	34.9	33.4	38.7	503	34.7	32.7	38.0	514	34.9	33.2	39.9
	U.S. No. 3	N/A	6	35.3	34.4	38.6	3	35.7	33.9	36.1	--	--	--	--
	U.S. No. 4	N/A	6	35.3	35.2	35.4	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	33	35.2	34.5	35.7	10	35.2	35.1	35.5	12	35.2	34.9	35.5
	All lots	N/A	471	34.9	33.4	38.7	531	34.7	32.7	38.0	546	34.9	33.2	39.9
Oil (adjusted to 13% moisture)	U.S. No. 1	N/A	11	19.0	17.8	20.0	15	18.7	18.2	19.6	20	18.6	18.0	19.3
	U.S. No. 2	N/A	418	19.1	17.2	20.0	510	18.8	16.7	20.4	522	18.9	16.7	20.1
	U.S. No. 3	N/A	6	19.0	17.3	19.4	3	19.8	18.2	20.1	--	--	--	--
	U.S. No. 4	N/A	6	19.1	19.0	19.3	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	33	19.6	18.9	20.6	10	19.2	18.6	19.9	12	18.8	18.5	19.6
	All lots	N/A	474	19.2	17.2	20.6	538	18.8	16.7	20.4	554	18.8	16.7	20.1

N/A = Does not apply.

-- = No lots reported in this category.

Figure 13. Soybean FM Distribution, Grade 2

**U.S. SOYBEANS EXPORTED, 2010  
DISTRIBUTION FOR FM – GRADE 2**

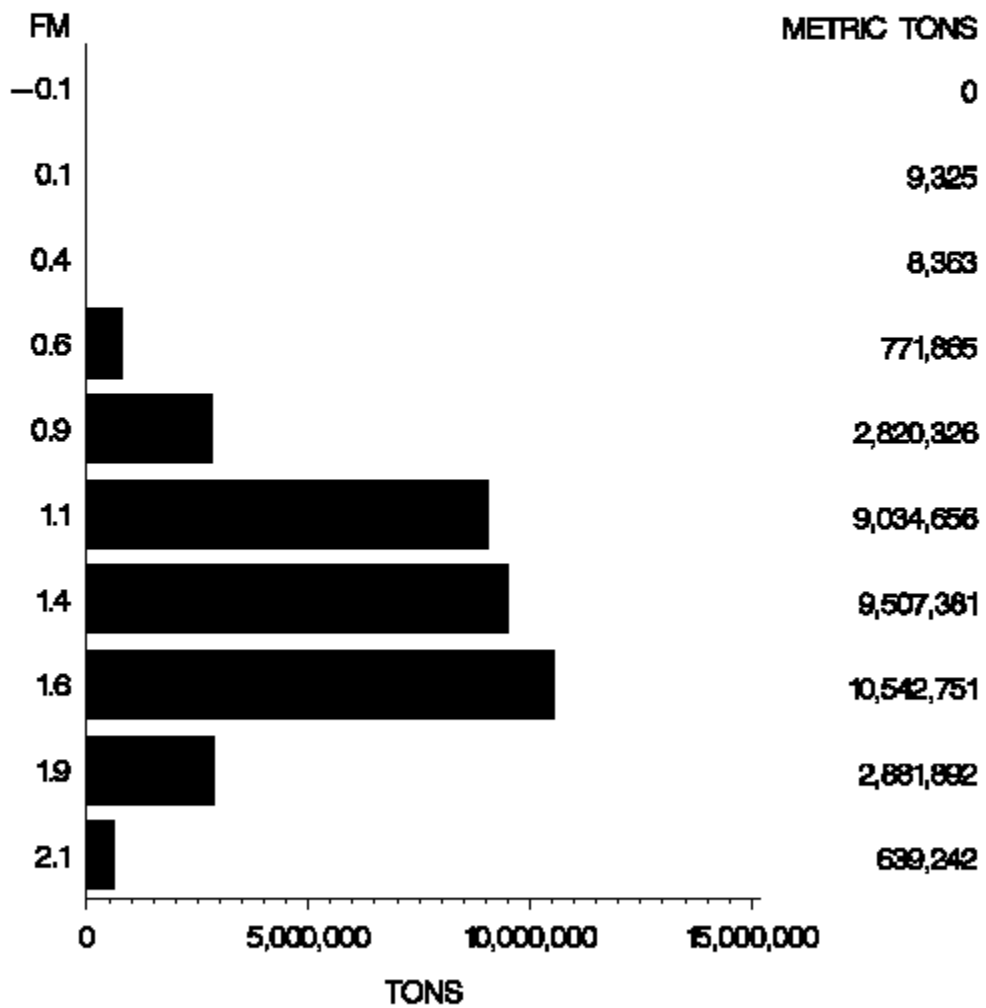


Figure 14. Soybean Protein Distribution, All Grades

**U.S. SOYBEANS EXPORTED, 2010**  
**DISTRIBUTION FOR PROTEIN (13% M) – ALL GRADES**

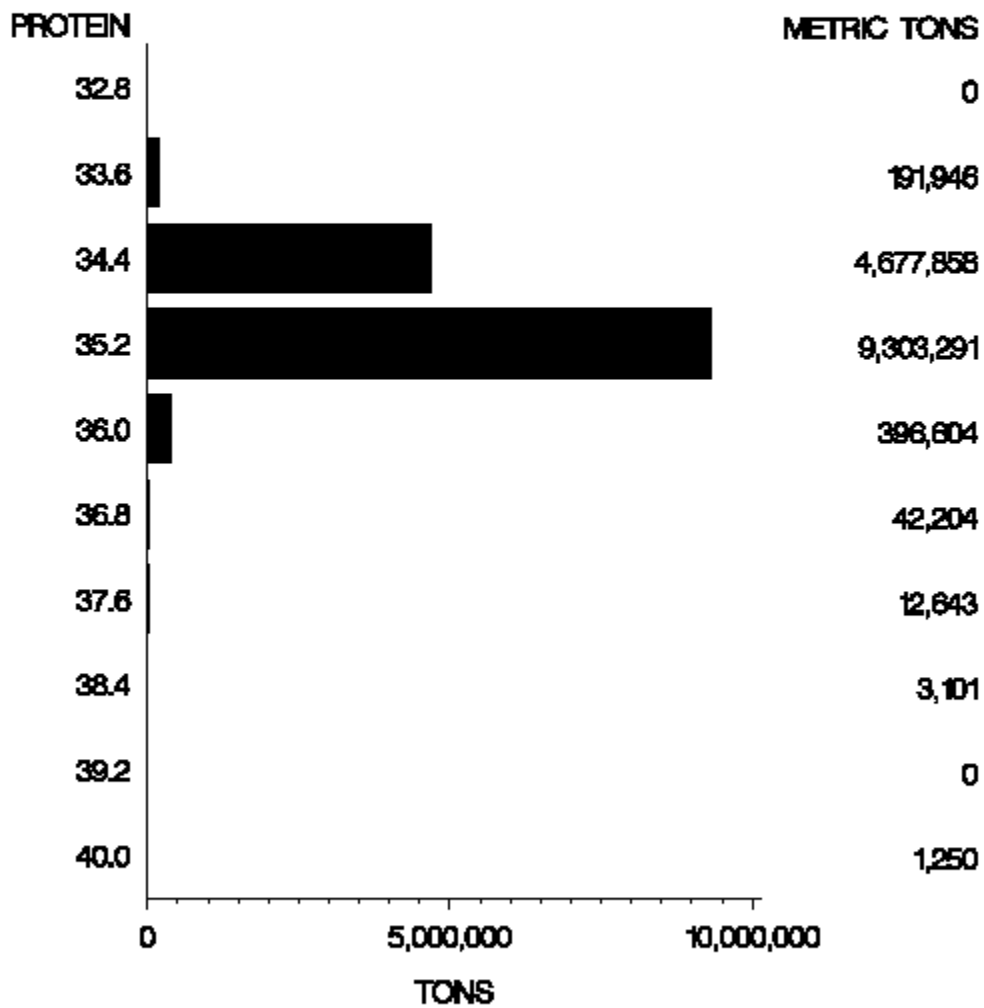
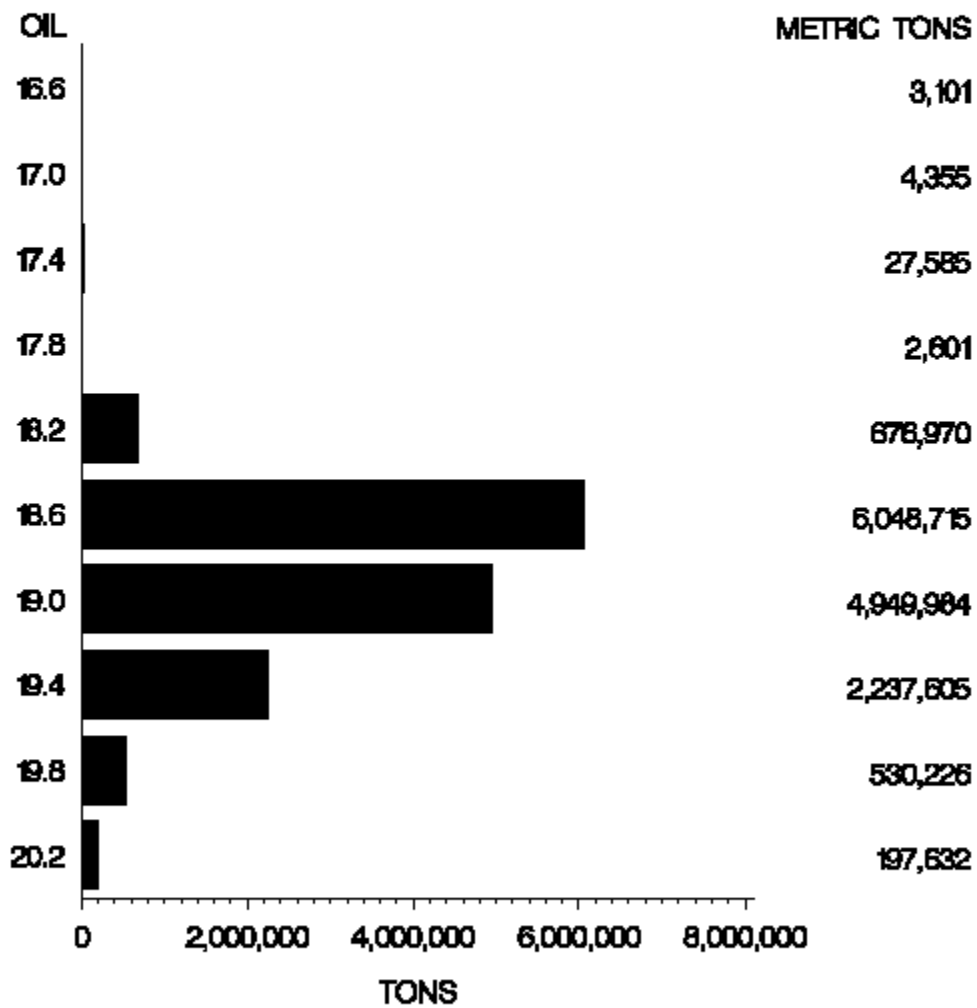


Figure 15. Soybean Oil Distribution, All Grades

**U.S. SOYBEANS EXPORTED, 2010  
DISTRIBUTION FOR OIL (13% M) – ALL GRADES**



## Other Grain Exports

### Sorghum

#### Sorghum Grades and Grade Requirements

Sorghum is divided into four classes: Sorghum, Tannin sorghum, White sorghum, and Mixed sorghum. There are no subclasses in sorghum. Each class is divided into four numerical grades and U.S. Sample grade. Special grades are provided to emphasize special qualities or conditions affecting the value of sorghum. Special grades are added to and made a part of the grade designation. They do not affect the numerical or Sample grade designation.

#### U.S. Standards for Sorghum

Grade:	Min Limits of:	Max Limits of:			
	Test weight per bushel (pounds)	Damaged Kernels		Broken kernels and foreign material	
		Heat (percent)	Total (percent)	Foreign material (percent)	Total (percent)
U.S. No. 1	57.0	0.2	2.0	1.0	3.0
U.S. No. 2	55.0	0.5	5.0	2.0	6.0
U.S. No. 3 <u>1/</u>	53.0	1.0	10.0	3.0	8.0
U.S. No. 4	51.0	3.0	15.0	4.0	10.0

#### U.S. Sample Grade:

U.S. Sample grade shall be sorghum which:

- (a) Do not meet the requirements for U.S. Nos. 1, 2, 3, or 4; or
- (b) Contains 8 or more stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Ricinus communis* L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cockleburs (*Xanthium* spp.) or similar seeds singly or in combination, 10 or more rodent pellets, bird droppings, or equivalent quantity of other animal filth; or
- (c) Have a musty, sour, or commercially objectionable foreign odor (except smut odor); or
- (d) Is badly weathered, heating, or otherwise of distinctly low quality.

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1/ Sorghum which is distinctly discolored shall not grade any higher than U.S. No. 3.



## Sorghum

### Definitions

**Test weight (lb/bu)** is pounds of grain per Winchester bushel (2.150.42 cubic inches) as determined using an approved device before the removal of dockage.

**Test weight (kg/hl)** is the metric system equivalent to pounds per bushel. Kilograms per hectoliter are calculated by multiplying pounds per bushel by 1.287.

**Heat-damaged kernels** are kernels, pieces of sorghum kernels, and other grains that are materially discolored and damaged by heat.

**Damaged kernels** are kernels, pieces of sorghum kernels, and other grains that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

**Foreign material** is all matter except sorghum, which passes over the number 6 riddle and all matter other than sorghum that remains on the top of the 5/64 triangular-hole sieve.

**Broken kernels** are all matter which passes through a 5/64 triangular-hole sieve and over a 2.5/64 round-hole sieve.

**Broken kernels and foreign material** consists of the combination of broken kernels and foreign material.

**Dockage** is all matter other than sorghum that can be removed from the original sample by use of an approved device. Also, underdeveloped, shriveled, and small pieces of sorghum kernels removed in properly separating the material other than sorghum.

**Moisture** is the water content of grain as determined by an approved moisture meter. The percentage of moisture in a sample does not affect the numerical grade.

**Mixed sorghum** is a sorghum which does not meet the minimum requirements for any of the classes of sorghum, Tannin sorghum or White sorghum.

Table 14. U.S. Sorghum Exports: Number of lots and quantity exported by class and grade, 2008-2010

Class	Grade	2008		2009		2010	
		No. of Lots	Metric Tons	No. of Lots	Metric Tons	No. of Lots	Metric Tons
Sorghum	U.S. No. 2	199	4,055,944	163	2,542,005	192	2,745,431
	U.S. No. 3	2	104,505	3	17,553	9	351,380
	U.S. No. 4	1	33,554	--	--	--	--
	U.S. Sample Grade	1	60,003	--	--	--	--
	Not Inspected	4	226,848	1	2,622	--	--
	All lots	207	4,480,854	167	2,562,180	201	3,096,811
All Classes	U.S. No. 2	199	4,055,944	163	2,542,005	192	2,745,431
	U.S. No. 3	2	104,505	3	17,553	9	351,380
	U.S. No. 4	1	33,554	--	--	--	--
	U.S. Sample Grade	1	60,003	--	--	--	--
	Not Inspected	4	226,848	1	2,622	--	--
	All lots	207	4,480,854	167	2,562,180	201	3,096,811

-- = No lots reported in the category.

Not inspected = These lots were sold without grade designation.

Table 15. Summary of export Sorghum quality, 2008-2010

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of				No. of				No. of			
			Lots	Avg.	Low	High	Lots	Avg.	Low	High	Lots	Avg.	Low	High
Test Weight (lb/bu)	U.S. No. 2	55.0	199	58.7	55.8	60.1	163	58.0	56.4	59.9	192	57.7	55.3	60.1
	U.S. No. 3	53.0	2	58.7	58.5	58.8	3	58.5	57.8	58.9	9	57.4	55.8	58.3
	U.S. No. 4	51.0	1	55.9	55.9	55.9	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	59.1	59.1	59.1	--	--	--	--	--	--	--	--
	All lots	N/A	203	58.7	55.8	60.1	166	58.0	56.4	59.9	201	57.7	55.3	60.1
Test Weight (kg/hl)	U.S. No. 2	N/A	199	75.5	71.9	77.3	163	74.7	72.6	77.1	192	74.3	71.2	77.4
	U.S. No. 3	N/A	2	75.5	75.3	75.7	3	75.4	74.4	75.8	9	74.0	71.8	75.0
	U.S. No. 4	N/A	1	71.9	71.9	71.9	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	76.1	76.1	76.1	--	--	--	--	--	--	--	--
	All lots	N/A	203	75.5	71.9	77.3	166	74.7	72.6	77.1	201	74.2	71.2	77.4
Moisture	U.S. No. 2	N/A	199	13.4	12.1	14.0	163	13.5	12.3	14.0	192	13.4	12.4	14.1
	U.S. No. 3	N/A	2	13.1	13.0	13.2	3	14.0	13.8	14.2	9	13.1	12.6	13.3
	U.S. No. 4	N/A	1	13.1	13.1	13.1	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	13.5	13.5	13.5	--	--	--	--	--	--	--	--
	All lots	N/A	203	13.3	12.1	14.0	166	13.5	12.3	14.2	201	13.4	12.4	14.1
Heat-damaged Kernels	U.S. No. 2	0.5	199	0.0	0.0	0.1	163	0.0	0.0	0.1	192	0.0	0.0	0.1
	U.S. No. 3	1.0	2	0.0	0.0	0.0	3	0.1	0.0	0.1	9	0.0	0.0	0.0
	U.S. No. 4	3.0	1	0.0	0.0	0.0	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	0.0	0.0	0.0	--	--	--	--	--	--	--	--
	All lots	N/A	203	0.0	0.0	0.1	166	0.0	0.0	0.1	201	0.0	0.0	0.1
Damaged Kernels (Total)	U.S. No. 2	5.0	199	1.9	0.2	4.7	163	1.3	0.2	4.5	192	1.9	0.2	5.0
	U.S. No. 3	10.0	2	3.6	2.7	5.1	3	1.9	1.3	2.3	9	6.5	2.7	9.4
	U.S. No. 4	15.0	1	9.1	9.1	9.1	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	1.5	1.5	1.5	--	--	--	--	--	--	--	--
	All lots	N/A	203	2.0	0.2	9.1	166	1.3	0.2	4.5	201	2.4	0.2	9.4

continued

Table 15. Summary of export Sorghum quality, 2008-2010, continued

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of				No. of				No. of			
			Lots	Avg.	Low	High	Lots	Avg.	Low	High	Lots	Avg.	Low	High
Broken Kernels and Foreign Material	U.S. No. 2	6.0	199	3.1	1.5	5.8	163	3.2	1.0	5.0	192	3.4	2.0	5.1
	U.S. No. 3	8.0	2	3.1	3.1	3.2	3	4.0	3.7	4.2	9	3.1	2.5	3.6
	U.S. No. 4	10.0	1	4.7	4.7	4.7	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	3.6	3.6	3.6	--	--	--	--	--	--	--	--
	All lots	N/A	203	3.1	1.5	5.8	166	3.2	1.0	5.0	201	3.4	2.0	5.1
Broken Kernels	U.S. No. 2	N/A	--	--	--	--	--	--	--	--	2	2.6	2.5	2.6
	U.S. No. 3	N/A	--	--	--	--	--	--	--	--	--	--	--	--
	U.S. No. 4	N/A	--	--	--	--	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	--	--	--	--	--	--	--	--	--	--	--	--
	All lots	N/A	--	--	--	--	--	--	--	--	2	2.6	2.5	2.6
Foreign Material	U.S. No. 2	2.0	199	1.0	0.0	2.4	163	1.2	0.3	2.0	192	1.2	0.0	2.0
	U.S. No. 3	3.0	2	0.9	0.8	0.9	3	2.6	2.5	2.8	9	0.9	0.7	1.4
	U.S. No. 4	4.0	1	1.6	1.6	1.6	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	1.2	1.2	1.2	--	--	--	--	--	--	--	--
	All lots	N/A	203	1.0	0.0	2.4	166	1.3	0.3	2.8	201	1.2	0.0	2.0
Dockage	U.S. No. 2	N/A	198	0.2	0.1	0.4	162	0.2	0.1	0.5	186	0.2	0.1	0.6
	U.S. No. 3	N/A	2	0.2	0.2	0.2	3	0.4	0.2	0.9	9	0.2	0.1	0.3
	U.S. No. 4	N/A	1	0.3	0.3	0.3	--	--	--	--	--	--	--	--
	U.S. Sample Grade	N/A	1	0.2	0.2	0.2	--	--	--	--	--	--	--	--
	All lots	N/A	202	0.2	0.1	0.4	165	0.2	0.1	0.9	195	0.2	0.1	0.6

N/A = Does not apply.

-- = No lots reported in this category.

Figure 16. Sorghum BNFM Distribution, Grade 2

**U.S. SORGHUM EXPORTED, 2010  
DISTRIBUTION FOR BNFM – GRADE 2**

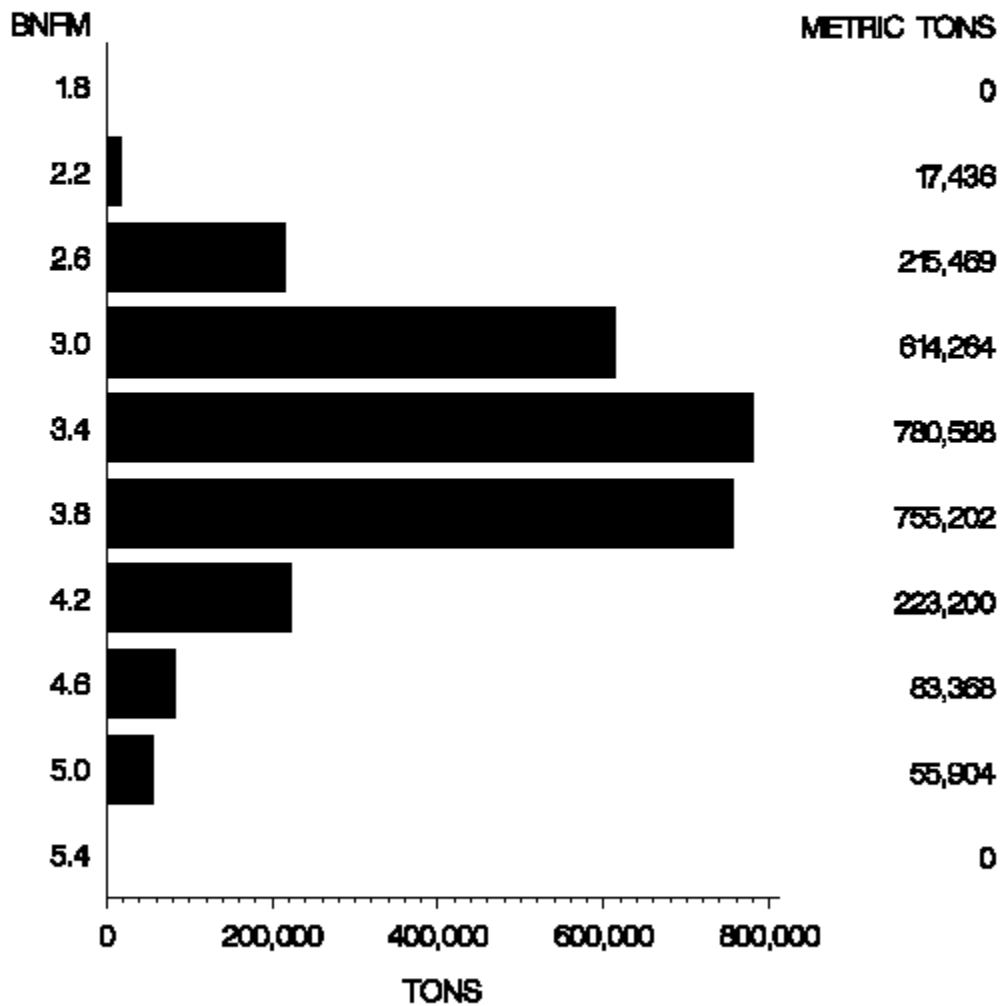
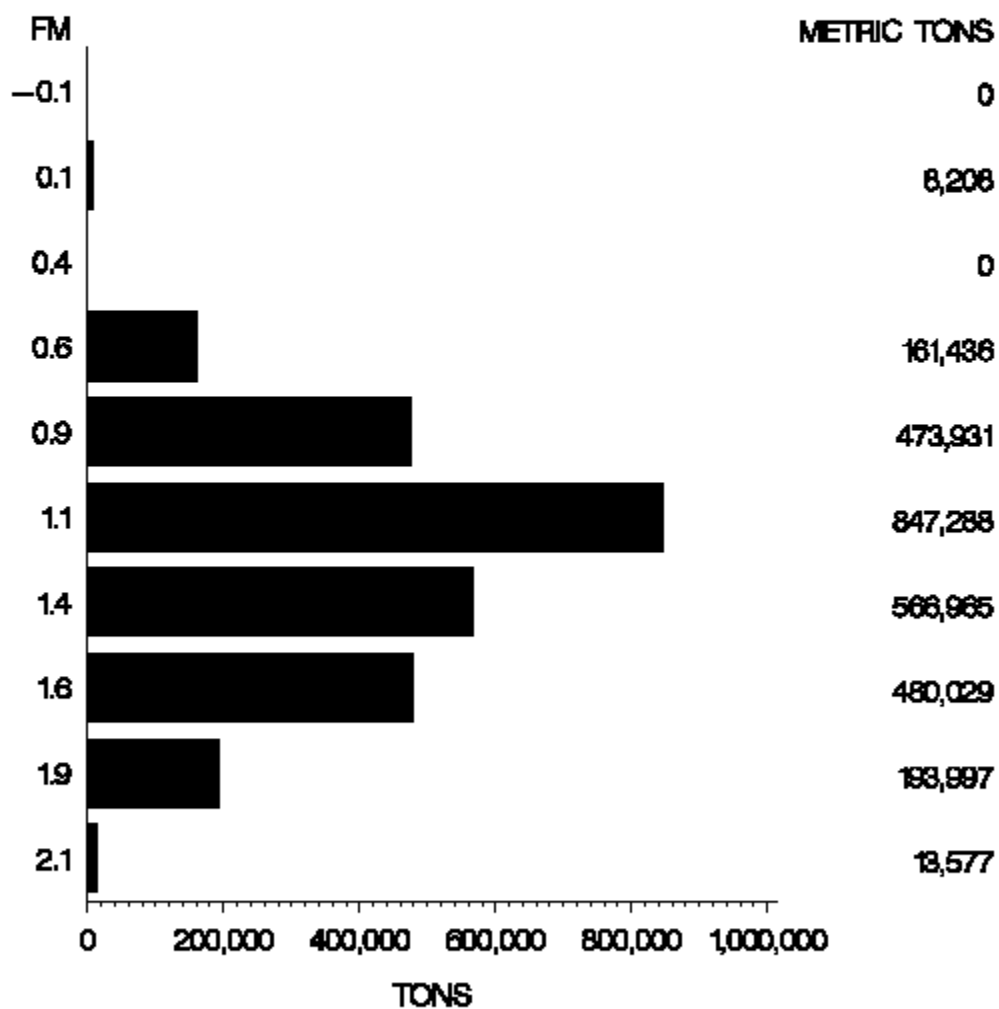


Figure 17. Sorghum FM Distribution, Grade 2

**U.S. SORGHUM EXPORTED, 2010  
DISTRIBUTION FOR FM – GRADE 2**



## Barley

### Barley Grades and Grade Requirements

Barley is divided into two classes: Malting Barley and Barley. The class Malting Barley is divided into three subclasses: Six-Rowed Malting Barley, Six-Rowed Blue Malting Barley, and Two-Rowed Malting Barley. The class Barley is divided into three subclasses: Six Rowed Barley, Two-Rowed Barley, and Barley. The applicant for service may request either the malting standards or barley standards for malting types.

#### Grades and grade requirements for Six-rowed Malting barley and Six-rowed Blue Malting barley

Grade	Minimum Limits of:			Maximum Limits of -				
	Test weight per bushel (pounds)	Suitable malting type (percent)	Sound barley <u>1/</u> (percent)	Damaged kernels <u>1/</u> (percent)	Foreign material (percent)	Other grains (percent)	Skinned and broken kernels (percent)	Thin Barley <u>2/</u> (percent)
U.S. No. 1	47.0	95.0	97.0	2.0	0.5	2.0	4.0	7.0
U.S. No. 2	45.0	95.0	94.0	3.0	1.0	3.0	6.0	10.0
U.S. No. 3	43.0	95.0	90.0	4.0	2.0	5.0	8.0	15.0
U.S. No. 4	43.0	95.0	87.0	5.0	3.0	5.0	10.0	15.0

1/ Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

2/ Using a 5.5/64 x 3/4 slotted-hole sieve.

NOTE: Malting barley shall not be infested, blighted, ergoty, garlicky, smutty, or contain any special grades. Upon request, malting barley varieties may be inspected and graded in accordance with standards established for the class Barley.

### Grades and grade requirements for Two-rowed Malting barley

Grade	Minimum Limits of:			Maximum Limits of -			
	Test weight per bushel (pounds)	Suitable malting type (percent)	Sound barley <u>1/</u> (percent)	Wild Oats (percent)	Foreign material (percent)	Skinned and broken kernels (percent)	Thin Barley <u>2/</u> (percent)
U.S. No. 1	50.0	97.0	98.0	1.0	0.5	5.0	5.0
U.S. No. 2	48.0	97.0	98.0	1.0	1.0	7.0	7.0
U.S. No. 3	48.0	95.0	96.0	2.0	2.0	10.0	10.0
U.S. No. 4	48.0	95.0	93.0	3.0	3.0	10.0	10.0

1/ Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

2/ Using a 5.5/64 x 3/4 slotted-hole sieve.

NOTE: Malting barley shall not be infested, blighted, ergoty, garlicky, smutty, or contain any special grades. Upon request, malting barley varieties may be inspected and graded in accordance with standards established for the class Barley.

Two-rowed barley that does not meet the requirements for U.S. Nos. 1, 2, 3, or 4 Malting shall be graded under the Barley standards.

### Grades and grade requirements for Barley

Grade	Minimum Limits of:		Maximum Limits of -				
	Test weight per bushel (pounds)	Sound barley (percent)	Damaged kernels <u>1/</u> (percent)	Heat damaged kernels (percent)	Foreign material (percent)	Broken kernels (percent)	Thin Barley <u>2/</u> (percent)
U.S. No. 1	47.0	97.0	2.0	0.2	1.0	4.0	10.0
U.S. No. 2	45.0	94.0	4.0	0.3	2.0	8.0	15.0
U.S. No. 3	43.0	90.0	6.0	0.5	3.0	12.0	25.0
U.S. No. 4	40.0	85.0	8.0	1.0	4.0	18.0	35.0
U.S. No. 5	36.0	75.0	10.0	3.0	5.0	28.0	75.0

U.S. Sample Grade:

U.S. Sample Grade is wheat that:

- (a) Does not meet the requirements for grades U.S. No. 1, 2, 3, 4, or 5; or
- (b) Contains 8 or more stones or any number of stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Ricinus communis* L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cocklebur (*Xanthium* spp.) or similar seeds singly or in combination, 10 or more rodent pellets, bird droppings, or equivalent quantity of other animal filth per 1-1/8 to 1-1/4 quarts of barley; or
- (c) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
- (d) Is heating or otherwise of distinctly low quality.

1/ Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

2/ Using a 5.5/64 x 3/4 slotted-hole sieve.



## Barley

### Definitions

**Test weight (lb/bu)** is pounds of grain per Winchester bushel as determined using an approved device on a dockage-free barley sample.

**Test weight (kg/hl)** is the metric system equivalent to pounds per bushel. Kilograms per hectoliter are calculated by multiplying pounds per bushel by 1.287.

**Heat-damaged kernels** are kernels and pieces of barley kernels, other grains, and wild oats that are materially discolored and damaged by heat.

**Damaged kernels** are kernels, pieces of barley kernels, other grains, and wild oats that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, injured-by-heat, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

**Foreign material** is all matter other than barley, other grains, and wild oats that remains in the sample after removal of dockage.

**Skinned and broken kernels** are barley kernels that have one-third or more of the hull removed, or that the hull is loose or missing over the germ, or broken kernels, or whole kernels that have a part or all of the germ missing.

**Dockage** is all matter other than barley that can be removed from the original sample by use of an approved device. Also, underdeveloped, shriveled, and small pieces of barley kernels removed by properly separating the material other than barley and that cannot be recovered by properly rescreening or re-cleaning.

**Moisture** is the water content of grain as determined by an approved moisture meter. The percentage of moisture in a sample does not affect the numerical grade.

**Suitable malting type** are varieties of malting barley that are recommended by the American Malting Barley Association and any other proprietary malting type(s) used by the malting and brewing industries.

**Sound barley** is kernels and pieces of barley kernels that are not damaged.

**Thin barley** is: Six-rowed Malting barley that passes through a 5/64 x 3/4 slotted-hole sieve and Two-rowed Malting barley that passes through a 5.5/64 x 3/4 slotted-hole sieve; Six-rowed barley, Two-rowed barley, or Barley that passes through a 5/64 x 3/4 slotted-hole sieve.

*Table 16. U.S. Barley Exports: Number of lots and quantity exported by grade, 2007-2009*

Grade	2008		2009		2010	
	No. of Lots	Metric Tons	No. of Lots	Metric Tons	No. of Lots	Metric Tons
U.S. No. 2	23	412,099	3	38,606	5	69,771
All lots	23	412,099	3	38,606	5	69,771

Table 17. Summary of export Barley quality, 2008-2010

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of				No. of				No. of			
			Lots	Avg.	Low	High	Lots	Avg.	Low	High	Lots	Avg.	Low	High
Test Weight (lb/bu)	U.S. No. 2	45.0	23	51.2	49.3	53.5	3	52.2	51.4	52.6	5	51.0	49.0	54.4
	All lots	N/A	23	51.2	49.3	53.5	3	52.2	51.4	52.6	5	51.0	49.0	54.4
Test Weight (kg/hl)	U.S. No. 2	N/A	23	65.9	63.5	68.9	3	67.2	66.2	67.7	5	65.6	63.1	70.1
	All lots	N/A	23	65.9	63.5	68.9	3	67.2	66.2	67.7	5	65.6	63.1	70.1
Moisture	U.S. No. 2	N/A	23	10.9	9.9	12.7	3	11.2	11.0	11.7	5	12.7	10.8	13.4
	All lots	N/A	23	10.9	9.9	12.7	3	11.2	11.0	11.7	5	12.7	10.8	13.4
Heat-damaged Kernels	U.S. No. 2	0.3	23	0.0	0.0	0.1	3	0.1	0.0	0.1	5	0.2	0.0	0.3
	All lots	N/A	23	0.0	0.0	0.1	3	0.1	0.0	0.1	5	0.2	0.0	0.3
Damaged Kernels (Total)	U.S. No. 2	4.0	23	0.4	0.0	1.4	3	0.4	0.1	0.5	5	1.3	0.0	2.2
	All lots	N/A	23	0.4	0.0	1.4	3	0.4	0.1	0.5	5	1.3	0.0	2.2
Foreign Material	U.S. No. 2	2.0	23	0.1	0.0	0.3	3	0.2	0.0	0.5	5	0.1	0.1	0.2
	All lots	N/A	23	0.1	0.0	0.3	3	0.2	0.0	0.5	5	0.1	0.1	0.2
Sound Barley	U.S. No. 2	94.0	23	26.2	0.0	99.3	3	0.0	0.0	0.0	5	28.2	0.0	98.4
	All lots	N/A	23	26.2	0.0	99.3	3	0.0	0.0	0.0	5	28.2	0.0	98.4
Thin Barley	U.S. No. 2	15.0	23	7.7	2.6	10.3	3	5.6	5.0	7.2	5	3.8	1.1	7.5
	All lots	N/A	23	7.7	2.6	10.3	3	5.6	5.0	7.2	5	3.8	1.1	7.5
Broken Kernels	U.S. No. 2	8.0	23	0.6	0.0	1.0	3	0.9	0.4	1.2	5	0.3	0.0	0.7
	All lots	N/A	23	0.6	0.0	1.0	3	0.9	0.4	1.2	5	0.3	0.0	0.7
Dockage	U.S. No. 2	N/A	23	0.9	0.5	1.3	3	1.0	0.5	1.2	4	1.0	0.4	1.5
	All lots	N/A	23	0.9	0.5	1.3	3	1.0	0.5	1.2	4	1.0	0.4	1.5

N/A = Does not apply.

## Canola

### Canola Grades and Grade Requirements

There are no classes of canola. Canola is divided into three numerical grades and U.S. Sample grade. Special grades are provided to emphasize special qualities or conditions affecting the value, and are added to and made a part of the grade designation. They do not affect the numerical or sample grade designation.

#### U.S. Standards for Canola

Grade	Maximum percent limits of:								Maximum count limits of:		
	Damaged Kernels			Conspicuous Admixture				Inconspicuous admixture	Other Material		
	Heat Damage (percent)	Distinctly green (percent)	Total (percent)	Ergot (percent)	Sclerotinia (percent)	Stones (percent)	Total (percent)		Animal filth	Glass	Unknown foreign substances
U.S. No. 1	0.1	2.0	3.0	0.05	0.05	0.05	1.0	5.0	3	0	1
U.S. No. 2	0.5	6.0	10.0	0.05	0.10	0.05	1.5	5.0	3	0	1
U.S. No. 3	2.0	20.0	20.0	0.05	0.15	0.05	2.0	5.0	3	0	1

U.S. Sample Grade:

U.S. Sample Grade is canola that:

- (a) Does not meet the requirements for U.S. Nos. 1, 2, or 3; or
- (b) Has a musty, sour, or commercially objectionable foreign odor; or
- (c) Is heating or otherwise of distinctly low quality.

## Canola

### Definitions

**Conspicuous admixture** is all matter other than canola including, but not limited to, ergot, sclerotinia, and stones, which is conspicuous and readily distinguishable from canola and which remains in the sample after the removal of machine separated dockage. Conspicuous admixture is added to machine separated dockage in the computation of total dockage.

**Damaged kernels** are canola and pieces of canola that are heat-damaged, sprout-damaged, mold-damaged, distinctly green-damaged, frost-damaged, rime-damaged, or otherwise materially damaged.

**Distinctly green kernels** are canola and pieces of canola which, after being crushed, exhibit a distinctly green color.

**Dockage** is all matter other than canola that can be removed from the original sample by use of an approved device according to procedures described in FGIS instructions, as well as underdeveloped, shriveled, and small pieces of canola kernels that cannot be recovered by properly screening or re-cleaning. Machine separated dockage is added to conspicuous admixture in the computation of total dockage.

**Ergot** is sclerotia of the fungus, *Claviceps* species, which are associated with some seeds other than canola where the fungal organism has replaced the seed.

**Heat-damaged kernels** are canola and pieces of canola which, after being crushed, exhibit that they are discolored and damaged by heat.

**Inconspicuous admixture** is any seed which is difficult to distinguish from canola. This includes, but is not limited to, common wild mustard (*Brassica kaber* and *B. juncea*), domestic brown mustard (*Brassica juncea*), yellow mustard (*B. hirta*), and seed other than the mustard group.

**Sclerotia** are dark colored or black resting bodies of the *Sclerotinia* and *Claviceps*.

**Sclerotinia** is the genus name which includes the fungus *Sclerotinia sclerotiorum* which produces sclerotia. Canola is only infrequently infected, and the sclerotia, unlike sclerotia of ergot, are usually associated with the stem of the plants.

Table 18. U.S. Canola Exports: Number of lots and quantity exported by grade, 2007-2009

Grade	2008		2009		2010	
	No. of Lots	Metric Tons	No. of Lots	Metric Tons	No. of Lots	Metric Tons
U.S. No. 1	1	21,078	3	61,785	4	65,878
All lots	1	21,078	3	61,785	4	65,878

-- = No lots reported in this category.

Table 19. Summary of export Canola quality, 2008-2010

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of				No. of				No. of			
			Lots	Avg.	Low	High	Lots	Avg.	Low	High	Lots	Avg.	Low	High
Dockage	U.S. No. 1	N/A	1	1.9	1.9	1.9	3	2.3	2.3	2.4	4	2.6	2.3	2.7
	All lots	N/A	1	1.9	1.9	1.9	3	2.3	2.3	2.4	4	2.6	2.3	2.7
Moisture	U.S. No. 1	N/A	1	8.1	8.1	8.1	3	7.7	7.5	7.8	4	7.7	7.3	8.2
	All lots	N/A	1	8.1	8.1	8.1	3	7.7	7.5	7.8	4	7.7	7.3	8.2
Heat-damaged Kernels	U.S. No. 1	0.1	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
	All lots	N/A	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
Distinctly green Kernels	U.S. No. 1	2.0	1	0.3	0.3	0.3	3	0.5	0.4	0.6	4	0.5	0.3	0.7
	All lots	N/A	1	0.3	0.3	0.3	3	0.5	0.4	0.6	4	0.5	0.3	0.7
Total Damaged Kernels	U.S. No. 1	3.0	1	0.4	0.4	0.4	3	0.7	0.6	0.7	4	0.6	0.4	0.8
	All lots	N/A	1	0.4	0.4	0.4	3	0.7	0.6	0.7	4	0.6	0.4	0.8
Ergot	U.S. No. 1	0.05	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
	All lots	N/A	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
Sclerotinia	U.S. No. 1	0.05	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
	All lots	N/A	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
Stones	U.S. No. 1	0.05	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
	All lots	N/A	1	0.0	0.0	0.0	3	0.0	0.0	0.0	4	0.0	0.0	0.0
Total Conspicuous Admixture	U.S. No. 1	1.0	1	0.1	0.1	0.1	3	0.2	0.1	0.2	4	0.2	0.1	0.3
	All lots	N/A	1	0.1	0.1	0.1	3	0.2	0.1	0.2	4	0.2	0.1	0.3
Inconspicuous Admixture	U.S. No. 1	5.0	1	0.0	0.0	0.0	3	0.1	0.0	0.1	4	0.0	0.0	0.1
	All lots	N/A	1	0.0	0.0	0.0	3	0.1	0.0	0.1	4	0.0	0.0	0.1

N/A = Does not apply.

-- = No lots reported in this category.

## Flaxseed

### Flaxseed Grades and Grade Requirements

There are no classes of flaxseed. Flaxseed is divided into two numerical grades and U.S. Sample grade. Other determinations not specifically provided for under the general provisions are made on the basis of the grain when free from dockage, except the determination of odor is made on either the basis of the grain as a whole or the grain when free from dockage.

### U.S. Standards for Flaxseed

Grade:	Minimum Test Weight per bushel (pounds)	Max Limits of damaged kernels:	
		Heat-Damaged kernels (percent)	Damaged kernels total (percent)
U.S. No. 1	49.0	0.2	10.0
U.S. No. 2	47.0	0.5	15.0

U.S. Sample Grade:

U.S. Sample Grade is flaxseed that:

- (a) Does not meet the requirements for the grades U.S. Nos. 1 or 2; or
- (b) Contains 8 or more stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Ricinus communis* L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 10 or more rodent pellets, bird dropping, or equivalent quantity of other animal filth per 1-1/8 to 1-1/4 quarts of flaxseed; or
- (c) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
- (d) Is heating or otherwise of distinctly low quality.

### Definitions

**Flaxseed.** Grain that, before the removal of dockage, consists of 50 percent or more of common flaxseed (*Linum usitatissimum* L.) and not more than 20 percent of other grains for which standards have been established under the United States Grain Standards Act and which, after the removal of dockage, contains 50 percent or more of whole flaxseed.

**Damaged kernels.** Kernels and pieces of flaxseed kernels that are badly ground damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

**Dockage.** All matter other than flaxseed that can be removed from the original sample by use of an approved device according to procedures prescribed in FGIS instructions. Also, underdeveloped, shriveled, and small pieces of flaxseed kernels removed in properly separating the material other than flaxseed and that cannot be recovered by properly rescreening or re-cleaning.

**Heat-damaged kernels.** Kernels and pieces of flaxseed kernels that are materially discolored and damaged by heat.

**Other grains.** Barley, corn, cultivated buckwheat, einkorn, emmer, guar, hull-less barley, non-grain sorghum, oats, Polish wheat, popcorn, poulard wheat, rice, rye, safflower, sorghum, soybeans, spelt, sunflower seed, sweet corn, triticale, wheat, and wild oats.

Table 20. U.S. Flaxseed Exports: Number of lots and quantity exported by grade, 2008-2010

Grade	2008		2009		2010	
	No. of Lots	Metric Tons	No. of Lots	Metric Tons	No. of Lots	Metric Tons
U.S. No. 1	3	21,112	2	14,754	3	46,550
All lots	3	21,112	2	14,754	3	46,550

Table 21. Summary of export Flaxseed quality, 2008-2010

Factor	Grade	Grade Limit	2008				2009				2010			
			No. of Lots	Avg.	Low	High	No. of Lots	Avg.	Low	High	No. of Lots	Avg.	Low	High
Test Weight (lb/bu)	U.S. No. 1	49.0	3	50.1	49.7	50.7	2	50.0	50.0	50.1	3	49.8	49.6	50.2
	All lots	N/A	3	50.1	49.7	50.7	2	50.0	50.0	50.1	3	49.8	49.6	50.2
Test Weight (kg/hl)	U.S. No. 1	N/A	3	64.5	64.0	65.3	2	64.4	64.3	64.5	3	64.2	63.9	64.6
	All lots	N/A	3	64.5	64.0	65.3	2	64.4	64.3	64.5	3	64.2	63.9	64.6
Moisture	U.S. No. 1	N/A	3	7.1	6.7	7.3	2	7.9	7.7	8.0	3	7.5	7.4	7.8
	All lots	N/A	3	7.1	6.7	7.3	2	7.9	7.7	8.0	3	7.5	7.4	7.8
Heat-damaged kernels	U.S. No. 1	0.2	3	0.0	0.0	0.0	2	0.0	0.0	0.0	3	0.0	0.0	0.0
	All lots	N/A	3	0.0	0.0	0.0	2	0.0	0.0	0.0	3	0.0	0.0	0.0
Damaged Flaxseed (Total)	U.S. No. 1	10.0	3	0.0	0.0	0.0	2	0.1	0.0	0.1	3	0.0	0.0	0.1
	All lots	N/A	3	0.0	0.0	0.0	2	0.1	0.0	0.1	3	0.0	0.0	0.1
Dockage	U.S. No. 1	N/A	3	5.2	4.7	5.5	2	4.6	4.0	5.4	3	4.6	4.3	5.1
	All lots	N/A	3	5.2	4.7	5.5	2	4.6	4.0	5.4	3	4.6	4.3	5.1

N/A = Does not apply.

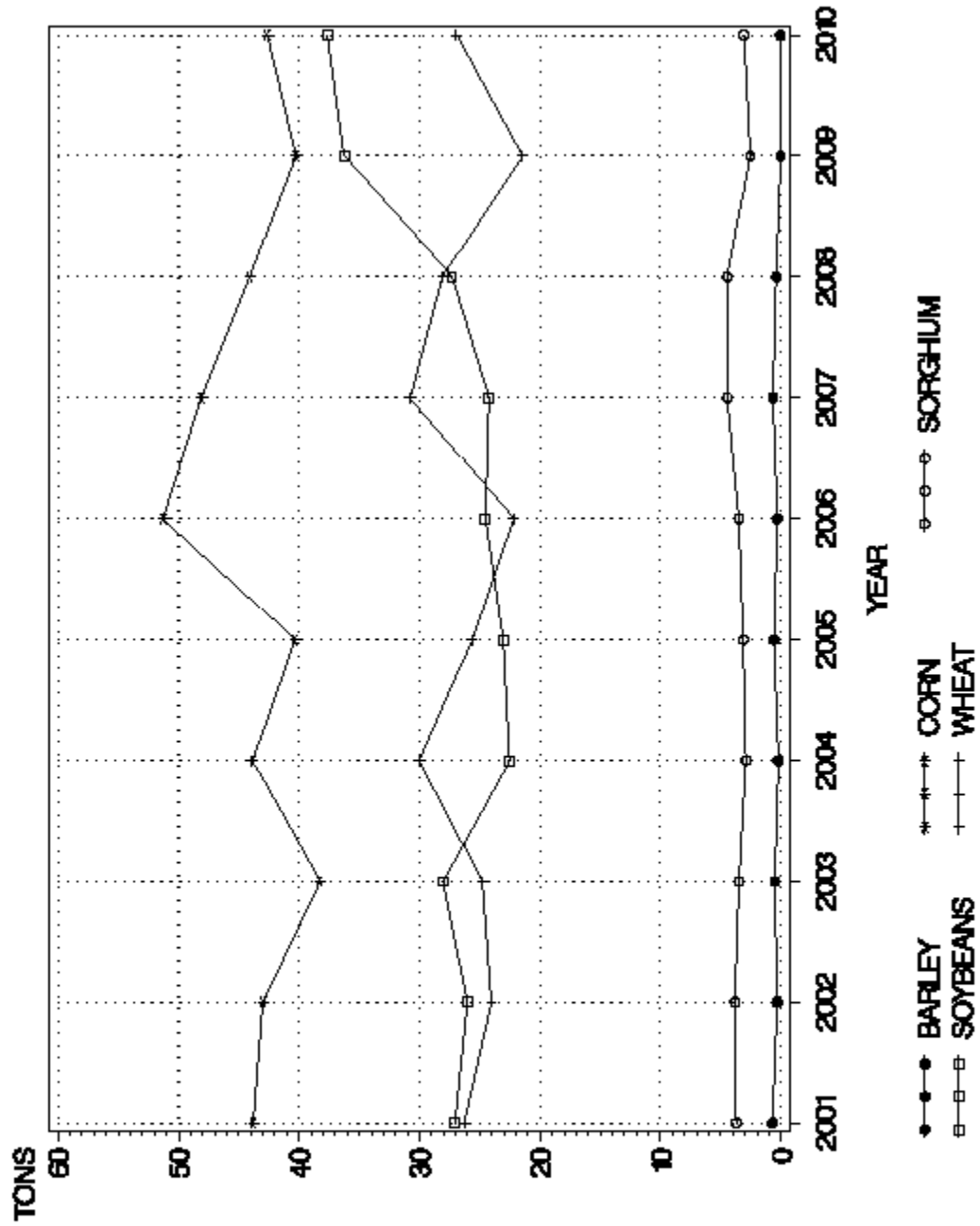
## Appendix

U.S. Grain Quantity Exported, 2001-2010.....	62
U.S. Grain Exported, 2001-2010, Average Dockage by Grain.....	63
U.S. Wheat Exported, 2001-2010, Average Dockage by Class.....	64
U.S. Wheat Exported, 2001-2010, Average Dockage by Destination Country.....	65
U.S. Wheat Exported, 2001-2010, Average Protein (12% Moisture) by Class.....	66
U.S. Soybeans Exported, 2001-2010, Average Protein and Oil (13% Moisture).....	67
U.S. Grains Exported, 2001-2010, Average FM, BNF, and BCFM.....	68



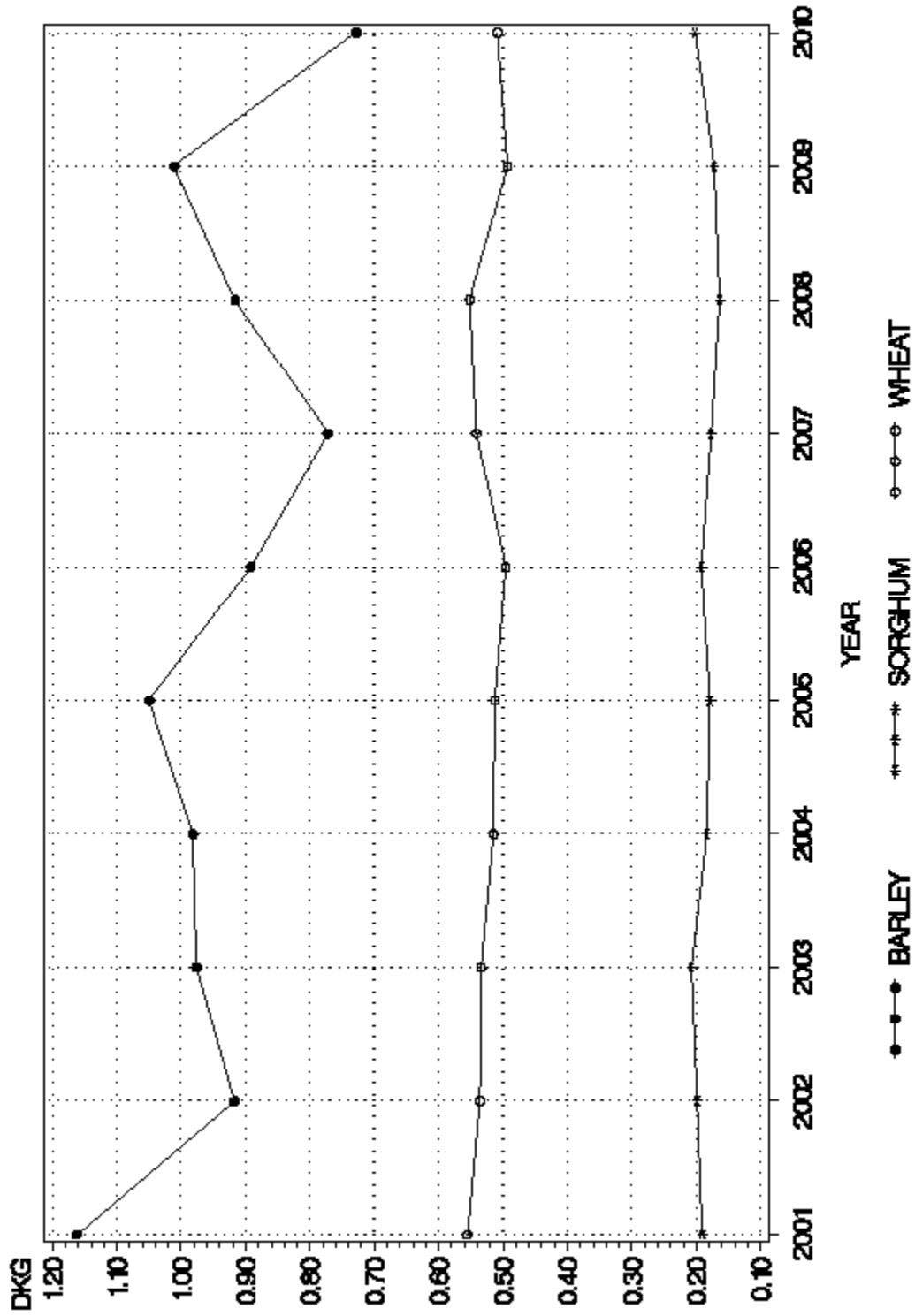
# U.S. GRAIN QUANTITY EXPORTED, 2001-2010

METRIC TONS IN MILLIONS

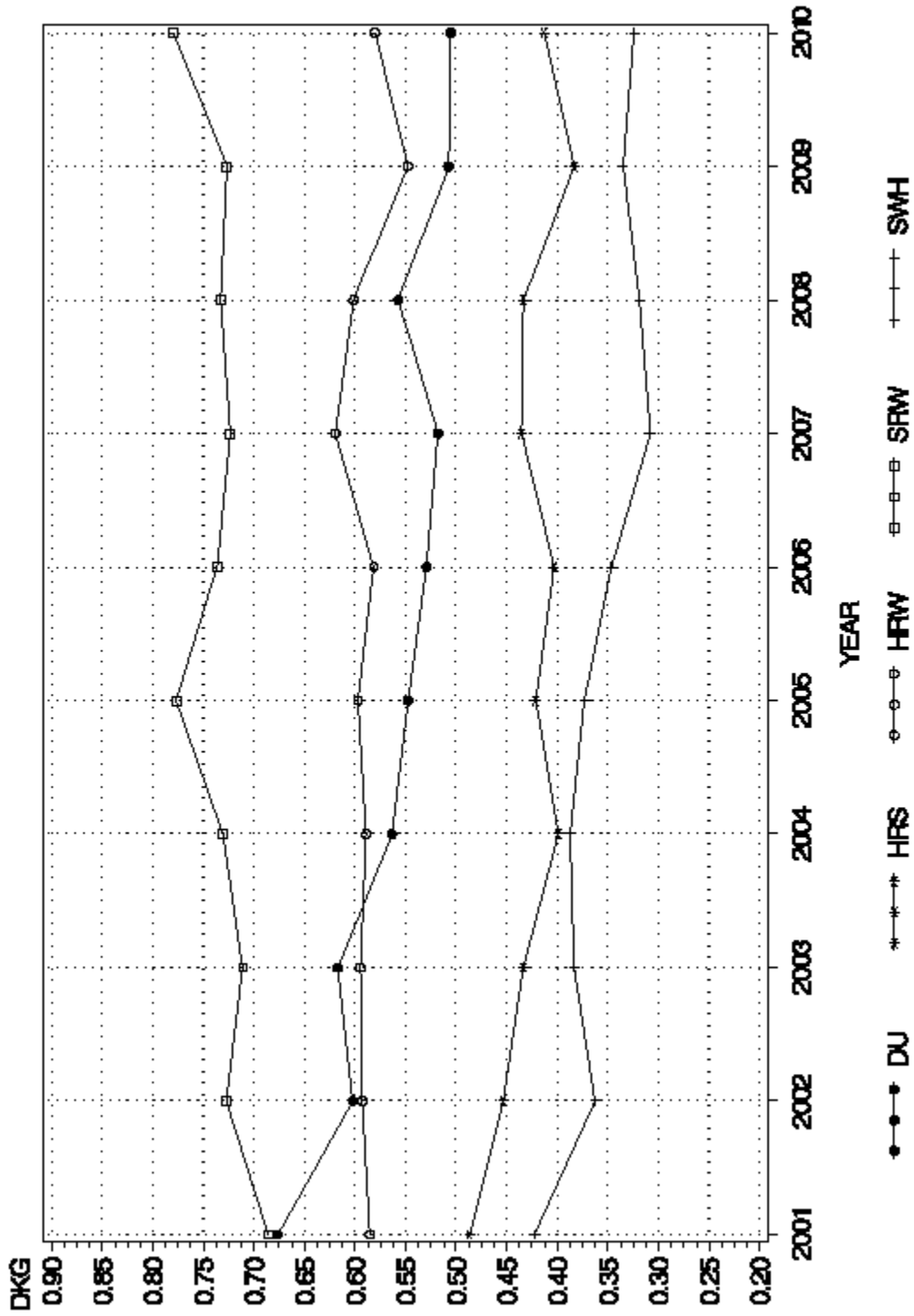


# U.S. GRAIN EXPORTED, 2001–2010

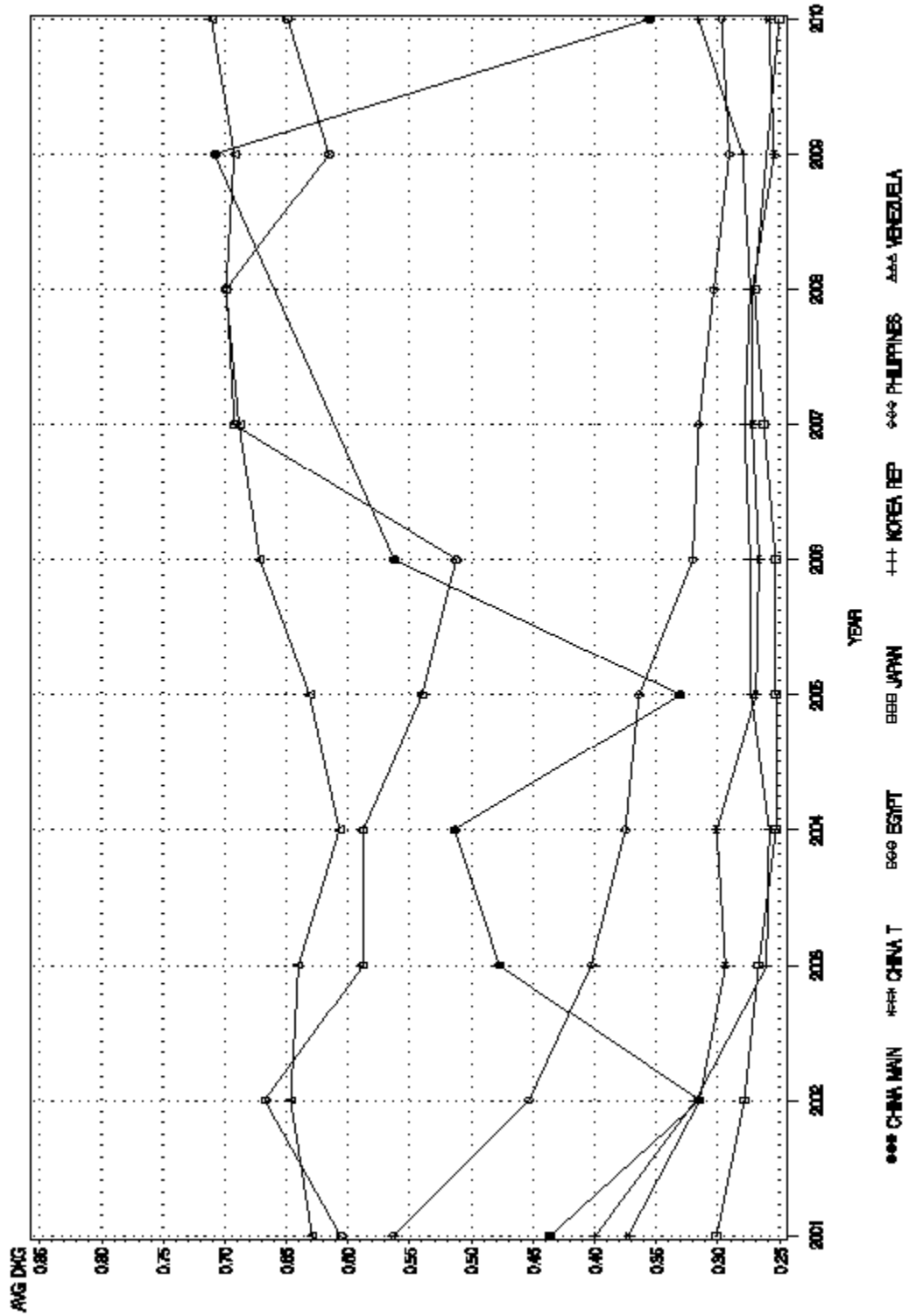
## AVG DOCKAGE BY GRAIN



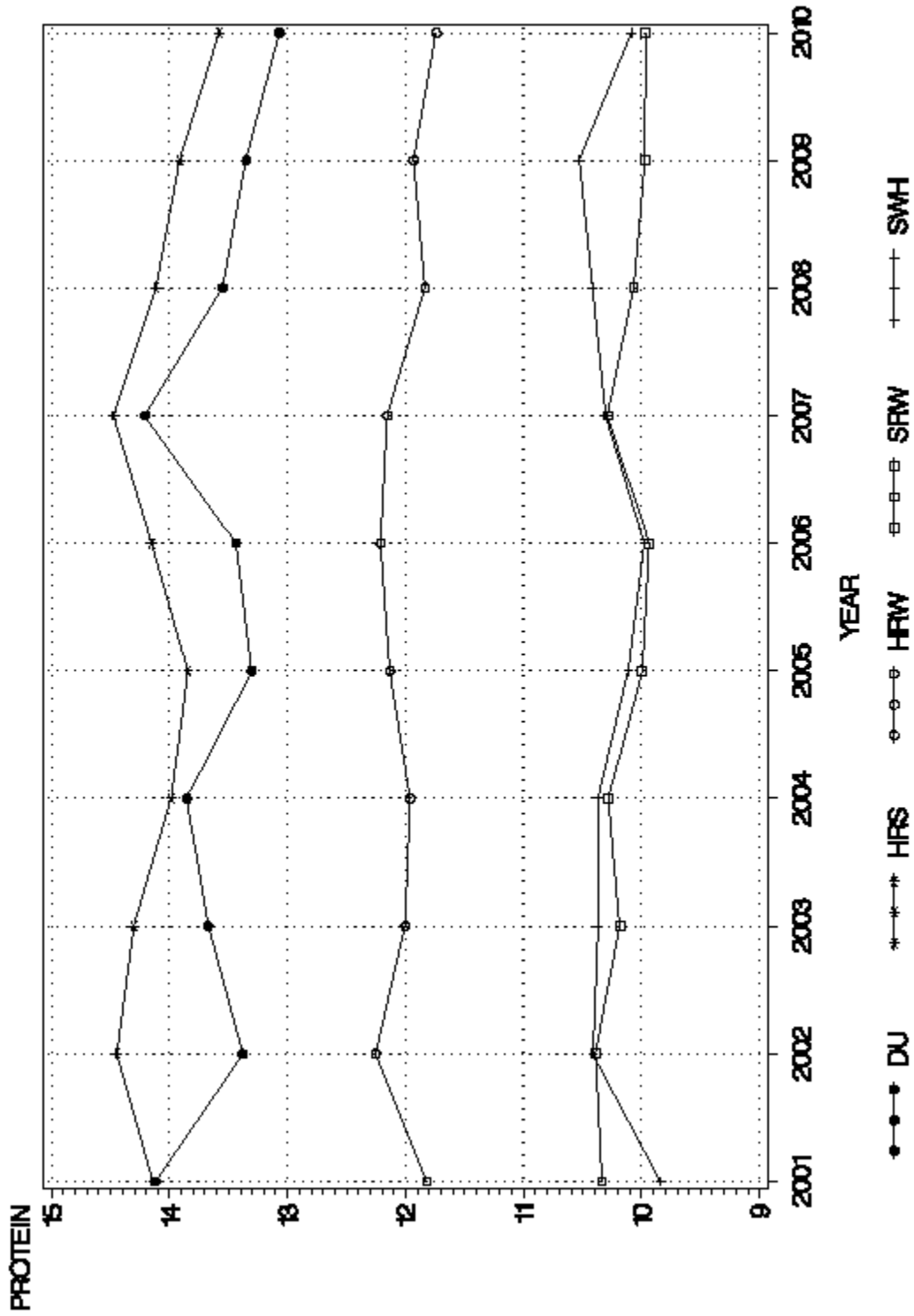
**U.S. WHEAT EXPORTED, 2001-2010**  
**AVG DOCKAGE BY CLASS**



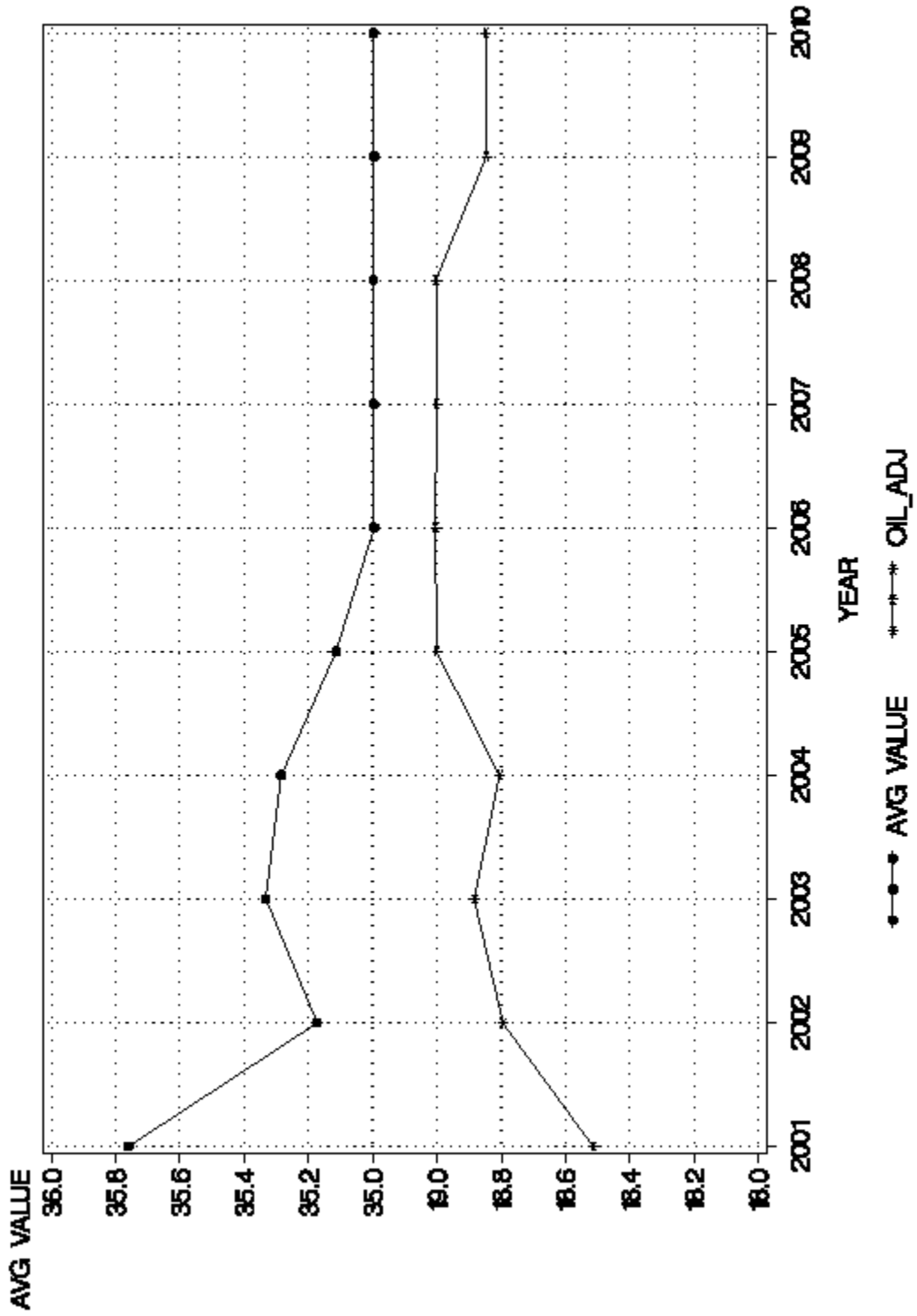
**U.S. WHEAT EXPORTED, 2001-2010**  
**AVG DOCKAGE BY DESTINATION COUNTRY**



**U.S. WHEAT EXPORTED, 2001-2010**  
**AVG PROTEIN(12% M) BY CLASS**

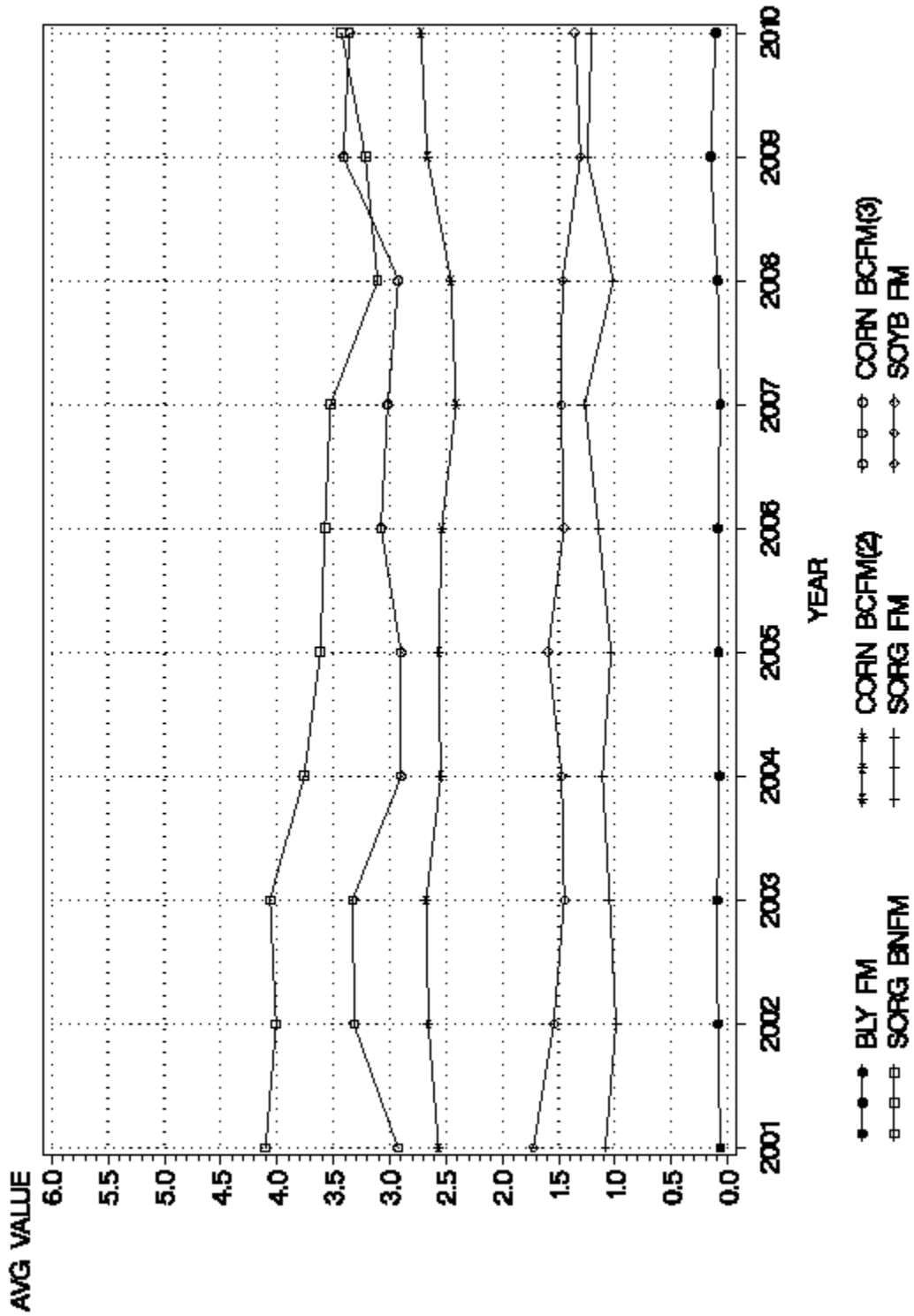


**U.S. SOYBEANS EXPORTED, 2001–2010**  
**AVG PROTEIN AND OIL (13% M)**



# U.S. GRAINS EXPORTED, 2001–2010

## AVG FM BNFM BCFM



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