

2008 U.S. Sunflower Crop Quality Report



Regarding The 2008 Sunflower Crop Quality Report

The 2008 U.S. Sunflower Crop Quality Report, compiled by the National Sunflower Association in cooperation with the Foreign Agricultural Service, U.S. Department of Agriculture, provides an overview on the size and quality of the 2008 U.S. sunflower seed crop. It includes statistics on the marketing of the crop, as well as U.S. and world supply/disappearance tables and information on U.S. sunflower oil.

Produced annually by the National Sunflower Association since 1981, this latest U.S. Sunflower Crop Quality Report can be found on the NSA's website — www.sunflower-nsa.com. Printed copies of this report can be made available by the NSA. (See NSA's contact information on page 9).

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2008 U.S. Sunflower Acreage & Production

United States sunflower production totaled 3.42 billion pounds in 2008, up more than 19% from 2007 and up by nearly 60% from the 2006 crop size.

At 1,429 pounds per acre, the 2008 U.S. average sunflower yield was down very slightly from 2007's 1,437 pounds. However, a 2008 harvested acreage total of 2.4 million was up more than 19% from the 2007 level, resulting in the significant overall increase in seed production.

Production in North Dakota, the nation's leading sunflower state, was estimated at 1.51 billion pounds in 2008, a slight increase from 2007. Aside from Minnesota, whose 2008 production declined by about 14% from 2007, the nation's other major sunflower states also regis-

tered increased production. South Dakota had the biggest hike, with a 2008 crop of 1.05 billion pounds — up 66% from the previous year. That state also enjoyed the best average yield: an estimated 1,769 pounds per acre.

Production of oil-type sunflower seed, at 2.99 billion pounds, was up nearly 21% from 2007's 2.48 billion pounds. Harvested acreage of the oil types was 2.06 million in 2008 — up from 1.72 million the prior year. Yields averaged 1,452 pounds, about on par with the 2007 level.

In the nonoil area, overall production was estimated by USDA at 429.3 million pounds in 2008, up 11% from 2007's 385.3 million pounds. Average yield of nonoil sunflower acreage in 2008 was 1,285 pounds, down slightly

from the previous year's 1,315 pounds per acre.

The 2008 growing season provided generally favorable conditions for the sunflower crop, though some locales contended with disease issues (e.g., downy mildew, rust, Sclerotinia). Consistent periods of rain in August, September and October contributed to disease issues and a slower dry-down of the crop in the Northern Plains.

As of latter September, two-thirds of the sunflower crop was rated as “good to

excellent.” A killing frost did not arrive in the northern region until well into October, however, and that extended the drydown period. Continued rainfall also contributed to a delayed harvest.

The final portion of the 2008 sunflower harvest dragged far into November in the northern states. Wet conditions remained an issue. As indicated by the January USDA production estimates, however, the 2008 sunflower crop did, overall, come through in impressive fashion.

U.S. Sunflower Production

(1,000s of Pounds)

	2005	2006	2007	2008
Oil	3,177,635	1,787,966	2,483,585	2,993,510
Nonoil	840,720	355,647	385,285	429,330
Total	4,018,355	2,143,613	2,868,870	3,422,840

U.S. Oil-Type Sunflower Harvested Area, By State

(1,000s of Hectares)

State	2001	2002	2003	2004	2005	2006	2007	2008
Colorado	48.6	24.3	34.4	32.4	58.7	30.4	40.5	57.9
Kansas	117.4	62.7	62.7	56.7	99.2	52.6	58.7	83.0
Minnesota	11.3	15.0	21.9	11.3	29.1	21.4	35.6	29.5
Nebraska	20.2	13.8	19.4	14.2	23.5	12.5	13.4	17.4
North Dakota	337.0	447.2	412.8	267.1	358.2	299.5	362.2	376.4
South Dakota	267.5	151.8	174.0	159.4	194.7	165.9	157.4	220.6
Texas	13.4	3.6	6.5	6.5	19.4	5.3	5.9	21.9
Other	17.4	16.2	26.7	28.7	39.5	25.1	22.1	27.9
Total	832.8	734.6	758.4	576.3	822.3	612.7	695.8	834.6

2008 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2008 crop were estimated from samples of oil and nonoil (confection) sunflower collected with the aid of the North Dakota Grain Inspection Service, Kansas Grain Inspection Service, Aberdeen (S.D.) Grain Inspection and several confection sunflower processing plants. The samples were drawn from sunflower loads delivered to processors, or from submitted samples taken at local grain buying facilities. The seed samples were then analyzed according to USDA Grain Inspection, Packers &

Stockyards Administration (GIPSA, formerly known as FGIS) directives. Oil content of oil-type seed samples was determined on a clean-seed basis using nuclear magnetic resonance (NMR) analysis.

Analysis of the oil-type sunflower seed samples indicated an average oil of 43.6%, up 0.5% from the 2007 average of 43.1%. Test weight was 31.4 pounds per bushel, 0.5 pound higher than the 2007 test weight of 30.9. Foreign material at 4.3% was 1.2% lower than 2007 and also the lowest in the past five years. Moisture at 10.1% was 1.0% higher than that of the 2007 crop.

The percentage of confection seed over 20/64 in size was 80.9% in 2008. That's considerably higher than the preceding four years, when it averaged 69.3%. Foreign material in 2008 samples averaged

8.1%. That's 0.6% higher than in 2007. At 23.1%, test weight was 2.0% lower than 2007's 25.1%, while average moisture at 10.9%, was nearly one percentage point higher compared to 2007.

Oil-Type Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Oil (%)
2008	31.4	10.1	4.3	43.6
2007	30.9	9.1	5.5	43.1
2006	31.9	9.2	4.9	43.4
2005	31.3	9.7	4.4	42.7
2004	28.4	10.0	8.3	41.1

Nonoil Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Seeds Over 20/64 Size (%)
2008	23.1	10.9	8.1	80.9
2007	25.1	10.0	7.5	68.1
2006	26.3	10.5	6.4	70.7
2005	25.1	10.9	7.9	70.9
2004	23.2	11.8	14.5	67.3

Product Specifications U.S. Sunflower Kernel

- Origin** - Sunflower hybrid seed
- Flavor** - Good, typical, mild, distinctive
- Odor** - Good, clean, fresh aroma
- Texture** - Firm, not brittle or soggy
- Color** - Off-white, gray
- Microbiological** - Aflatoxin: Negative
Pathogens: Negative
- Chemical Additives** - No preservatives or chemical additives may be used
- Pesticide Residues** - Meets all state & federal regulatory requirements
- Fumigants** - Only FDA-approved fumigants may be used as considered necessary. Residues may not exceed FDA approved tolerances

Quality and type of kernel is determined with the following factors to meet specific customer needs:

- Size** - Defined as kernel count per oz
- Foreign Material** - Includes shells and unshelled seed; defined as percentage or count per unit of weight
- Moisture** - Defined as a percentage at or below 8%
- Damage** - Distinctly discolored kernel or insect damage. Each defined as a percentage
- Broken or Chip** - Any portion less than 1/2 kernel; defined as a percentage
- Sticktites** - Kernel with a piece of shell adhering; defined as count per unit of weight.

2008 Oil Quality Analysis/Oil Traits & Rules

The tables below compare the oil quality and fatty acid content of representative samples of linoleic and mid-oleic sunflower seed oil, gathered from the 2008 U.S. crop, to previous years' data on oil quality. The sunflower oil quality analysis was conducted with standard gas chromatography, basis American Oil Chemists' Society Method #Cel-62.

The 62.25% oleic average of NuSun® samples was higher than 2007's 61.73% average and the highest since 2001 (which had a 61.15% average).

The 2008 linoleic acid content of 62.59% was slightly higher than the 62.37% average of 2007

crop samples. The 26.19% oleic level average of the '08 linoleic ('conventional') variety samples was slightly higher than the 25.93% average of the '07 samples.

As is the case each year, climatic factors and timing of production contributed to the level of both linoleic and oleic acid in the samples collected each harvest.

See general trading rules for mid-oleic and linoleic oil, as well as product specification tables, at www.sunflowernsa.com.

Click on the link "Sunflower oil," then "product specifications." For more details or questions regarding trading rules, go to the American Fats & Oils Assn., Inc., website, afoaonline.org.

Sunflower Oil Quality / Linoleic

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2008	5.23	4.32	26.19	62.59	0.14
2007	5.71	4.07	25.93	62.37	0.16
2006	5.78	4.59	25.38	63.25	0.20
2005	5.95	4.28	24.85	63.56	0.38
2004	5.97	4.13	22.96	65.54	0.26

Sunflower Oil Quality / NuSun®

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2008	4.23	3.46	62.25	28.21	0.33
2007	4.12	3.98	61.73	28.32	0.43
2006	4.24	3.66	60.66	28.98	0.27
2005	4.36	3.51	59.44	31.04	0.44
2004	4.39	3.53	58.01	32.59	0.42

Mid-Oleic Sunflower Oil (NuSun®): Crude

Trading Rules: Specifications from American Fats and Oils Association: Rule 14B

ITEM	VALUE
Flash Point (AOCS Cc 9b-56)	250°F Minimum
Halphen Test	Negative
Saponification Value	188-194
Unsaponifiable	1.3% Maximum
Free Fatty Acid (as Oleic)	Basis 2.0% Maximum 3.0%
Moisture & Volatile (AOCS Ca 2d-25)	0.5% Maximum
Insoluble Impurities (AOCS Ca 3-46)	0.3% Maximum
Color (in 5 1/4 inch cell or tube), as determined under AOCS Method Cc 13b-45, Bleached (AOCS Cc 8g-52), after refining (AOCS Ca 9a-52)	2.5 Red Maximum
Linolenic acid	1.0% Maximum
Oleic (as % of TFA)	55% Minimum 75% Maximum

Rule 14B -- Crude mid-oleic sunflower oil (NuSun®) shall be pure and produced only from sunflower seed of fair average quality by hydraulic, expeller, or solvent extraction process. Buyer shall receive an allowance of 0.1% of the invoice value for each 0.1% of free fatty acid in excess of 2%; fractions in proportion. (Effective 1/1/2003)

Mid-Oleic Sunflower Oil (NuSun®): Fully Refined, Bleached & Deodorized

Trading Rules: Specifications from American Fats and Oils Association: Rule 15B

ITEM	VALUE
Free Fatty Acid (as Oleic)	0.05% Maximum
Moisture & Impurities (AOCS Ca 2d-25)	0.10% Maximum
Peroxide Value	2.0 Maximum
Color (Lovibond Scale)	2.5 Red Maximum
Iodine Value	88-115.0
Oleic	55% Minimum 75% Maximum
Flavor	Pleasing
Appearances (Waxes Not Separated)	Will be cloudy at room temperature

Other Possible Specs:

Saponification Value	186-194
Unsaponifiable	1.5% Maximum
Specific Gravity by 20° Centigrade	0.917-0.924

Rule 15B -- Fully refined, bleached and deodorized mid-oleic sunflower oil (NuSun®) shall be pure mid-oleic sunflower seed oil. It shall be produced from fair average quality crude mid-oleic sunflower seed oil from which essentially all of the free fatty acids and non-oil substances have been removed by chemical treatments and by mechanical or physical separation. (Effective 1/1/2003)

2008 Sun Oil & Sun Meal Exports

Oil Exports - Sunflower oil is the preferred oil in most of Europe, Russia and Mexico, as well as in countries along the Mediterranean and several South American nations.

U.S. sunflower oil exporters can deliver three types of sunflower oil: NuSun®, Linoleic and High Oleic.

- **NuSun®** is a mid-range oleic, 55%-75% (monounsaturated) sun-

flower oil. It needs no hydrogenation and has a 9% saturated fat level. NuSun® is extremely functional for frying applications and has a good balance of linoleic acid — an essential fatty acid that enhances products' taste.

- **Linoleic** sunflower oil has about 69% polyunsaturated fat, 20% monounsaturated fat and 11% saturated fat. Linoleic sunflower is an excellent cooking oil with a neutral taste. This enhances the taste of food rather than overpowering it.

- **High Oleic** sunflower oil has 80% or more oleic (monounsaturated) acid. This unique oil has many specialty applications.

Sun Meal Exports - Most of U.S. sunflower meal produced is utilized within the United States as an ingredient for the domestic livestock feeding industry, although some U.S. sunflower meal is exported. Four types of sun meal, identified by their respective protein contents (28, 30, 32 and 35%), are produced in the United States.

U.S. Sunflower Oil Exports

(October-September)

Country	2004/05	2005/06	2006/07	2007/08
Belgium	2,722	6,001	9,524	2,304
Canada	41,167	47,905	50,541	60,099
Chile	0	188	1,145	1,176
Guatemala	590	272	0	4
Japan	3,240	2,372	4,812	4,584
Lebanon	464	13	0	0
Mexico	5,334	26,154	3,547	3,587
Netherlands	0	5,658	15	0
Singapore	1,673	4,162	5,906	4,205
South Korea	158	81	172	30
Taiwan	198	267	201	157
Other	2,231	2,413	1,180	539
Total MT	57,777	95,486	77,043	76,685

U.S. Sunflower Meal Exports

(October-September)

Country	2004/05	2005/06	2006/07	2007/08
Canada	304	1,669	4,032	2,348
Mexico	2,491	4,363	6,526	10,011
Ireland	0	0	0	4,108
U.K.	0	0	2,707	0
Other	323	21	81	171
Total MT	3,118	6,053	13,346	16,638



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U.S. Sunflower Supply & Disappearance (in 1,000 Metric Tons, Unless Specified)

Item	2003/04 <i>Oct.-Sept.</i>	2004/05	2005/06	2006/07	2007/08 <i>Revised</i>	2008/09 <i>Forecast</i>
NONOIL SUNFLOWER						
Area Harvested (1,000 HA)	131	116	234	104	118	135
Area Harvested (1,000 AC)	323	287	578	256	293	334
Yield (MT/HA)	1.41	1.12	1.63	1.56	1.47	1.44
Yield (LB/AC)	1,256	997	1,455	1,389	1,315	1,285
Stocks, Oct. 1	13	11	12	120	43	17
Production	184	130	382	161	175	195
Seed Import	75	34	29	86	68	50
TOTAL SUPPLY	272	175	422	368	285	262
Disappearance	261	163	302	325	268	246
Ending Stocks	11	12	120	43	17	16
OIL SUNFLOWER						
Area Harvested (1,000 HA)	758	576	822	613	696	834
Area Harvested (1,000 AC)	1,874	1,424	2,032	1,514	1,719	2,062
Yield (MT/HA)	1.35	1.39	1.75	1.32	1.62	1.63
Yield (LB/AC)	1,206	1,238	1,564	1,181	1,445	1,452
Stocks, Oct. 1	113	107	55	349	21	29
Production	1,025	800	1,442	811	1,127	1,358
Seed Import	25	10	13	27	19	20
TOTAL SUPPLY	1,164	917	1,510	1,188	1,167	1,407
Oilseed Crushed	609	276	597	648	682	625
Planting Seed, Birdfood, Domestic Use	448	586	563	519	456	480
Exports	0	0	0	0	0	0
Disappearance	1,057	862	1,160	1,167	1,138	1,105
Ending Stocks	107	55	350	21	29	302
SUNFLOWER OIL						
Stocks, Oct. 1	12	12	10	26	27	12
Oil Imports	12	34	26	71	47	25
Oil Production	256	116	248	259	273	259
TOTAL SUPPLY	280	162	284	356	347	296
Domestic Oil Use	157	94	163	252	258	215
Oil Exports	111	58	95	77	77	70
Total Use	268	152	258	329	335	285
Ending Stocks	12	10	26	27	12	11
SUNFLOWER MEAL						
Stocks, Oct. 1	3	3	4	3	4	4
Production	292	132	287	311	327	319
TOTAL SUPPLY	295	136	290	314	332	323
Domestic Use	280	129	281	297	311	306
Exports	12	3	6	13	17	12
Total Use	292	132	287	310	328	318
Ending Stocks	3	4	3	4	4	5

Table Data: NSA Assumptions

World Sunflower Supply & Disappearance

Item	2003/04	2004/05	2005/06	2006/07	2007/08 <i>Revised</i>	2008/09 <i>Forecast</i>
Area Harvested (1,000 HA)	22,820	21,254	22,944	24,094	23,374	24,570
Yield (MT/HA)	1.18	1.23	1.32	1.25	1.24	1.35
SUNFLOWER SEED						
Production						
Argentina	2,980	3,730	3,840	3,120	4,400	3,500
Other Europe	2,670	2,250	682	385	295	374
European Union	4,070	4,069	5,717	6,407	4,932	6,380
China, Peoples Republic of	1,820	1,700	1,830	1,850	1,800	1,850
Russia/Ukraine	9,348	8,001	11,390	11,900	10,250	12,900
United States	1,209	930	1,720	997	1,309	1,553
India	1,160	1,300	1,490	1,450	1,400	1,300
Turkey	560	640	780	820	670	850
Other	3,069	3,555	2,852	3,163	3,889	4,354
TOTAL	26,886	26,175	30,301	30,092	28,945	33,061
Seed Import						
Turkey	630	518	391	495	529	630
European Union	1,077	481	686	653	353	640
Other	579	300	437	792	388	696
TOTAL	2,286	1,299	1,514	1,940	1,270	1,966
Oilseed Crushed	23,384	23,303	26,570	27,517	25,088	28,761
Seed Exports						
Argentina	44	99	45	63	34	35
United States	138	117	155	156	167	170
Russia/Ukraine	1,251	73	595	505	108	580
Other	879	902	755	1,191	1,045	1,161
TOTAL	2,312	1,191	1,550	1,915	1,354	1,946
SUNFLOWER OIL						
Oil Opening Stocks	833	793	832	1,075	943	936
Oil Production	9,579	9,417	10,993	11,231	10,101	11,820
Oil Imports						
Algeria	238	126	75	139	54	90
Turkey	81	157	456	132	334	262
Egypt	137	208	254	303	199	280
Mexico	110	54	91	82	29	90
Russia	175	136	101	124	131	110
Taiwan	26	21	24	22	20	18
Others	2,026	2,145	3,289	3,621	2,823	3,740
TOTAL	2,793	2,847	4,290	4,423	3,590	4,590
Disappearance	9,625	9,432	10,701	11,413	10,057	11,570
Oil Exports						
Argentina	944	1,230	1,306	1,080	1,177	1,190
European Union	250	231	177	153	111	155
Other Europe	37	88	51	57	59	65
United States	110	58	95	77	77	70
Other	1,446	1,186	2,725	3,007	2,217	3,105
TOTAL	2,787	2,793	4,354	4,374	3,641	4,585
Ending Stocks	793	832	1,061	943	936	1,192
SUNFLOWER MEAL						
Meal Production	10,946	10,745	12,221	12,668	11,525	13,232
Meal Imports	2,925	2,900	3,591	3,687	3,203	3,848
Disappearance	10,935	10,699	12,025	12,621	11,539	13,264
Meal Exports	2,936	2,869	3,720	3,708	3,229	3,820
Ending Stocks	79	156	223	281	241	237

About the National Sunflower Association

The National Sunflower Association (NSA) is a nonprofit organization dedicated to the promotion of U.S. sunflower and its products, and to the development of sunflower markets throughout the world.

Based in the capital city of the nation's largest sunflower producing state, NSA was incorporated in 1981. It is funded and governed by U.S. sunflower growers and industry representatives. Agreements with the U.S. Department

of Agriculture's Foreign Agricultural Service provide funding for overseas market development programs, including this publication.

Among the many NSA programs and activities are the following:

- Developing and distributing technical literature on sunflower refining and nutrition.
- Providing technical assistance to foreign companies on oil refining and finished product manufacture; also, providing techni-

cal aid to U.S. confection sunflower customers.

- Producing and distributing a variety of literature pertaining to sunflower markets, the U.S. sunflower crop and sunflower products, including *The Sunflower* magazine, published six times annually
- Researching the marketplace and surveying consumer awareness of (and attitudes toward) sunflower products.
- Conducting industrial research abroad, including confection shelf-life and

other utilization studies.

- Hosting foreign marketing and technical personnel, arranging meetings with U.S. sunflower industry representatives, setting up tours of U.S. processing and research facilities, and coordinating educational seminars for the benefit of foreign visitors.

The National Sunflower Association welcomes inquiries from any foreign agencies, companies or individuals interested in U.S. sunflower.

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U.S. Sunflower Information Online

The National Sunflower Association has a wealth of U.S. sunflower information online at www.sunflowernsa.com.

This web site provides international marketing information, product specifications, and a list of sunflower product suppliers.

Click on the "Buyers and Sellers" link for a list of sunflower product suppliers and buyers.

The "Sunflower oil" link provides more detailed information on sunflower oil.

Use the "Sunflower seed/kernel" link if you require information about confection sunflower seeds and kernel.



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