

~ 2010 ~

U.S. Sunflower Crop Quality Report



Regarding the 2010 Sunflower Crop Quality Report . . .

The 2010 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 2010 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 newest U.S. Sunflower Crop Quality Report can be found on the NSA's website. That site's address is www.sunflowernsa.com. Printed copies of this report can be made available by the NSA. (See NSA's contact details on page 9).

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2010 U.S. Sunflower Acreage & Production

United States sunflower production totaled 2.74 billion pounds in 2010, down 10% from 2009 and down by about 20% from the 2008 crop size.

The U.S. average yield per acre decreased 94 pounds from 2009's record high level, down to 1,460 pounds per acre. Planted area, at 1.95 million acres, was 4% below that of 2009. Area harvested in 2010 decreased 4% from the prior year, to 1.87 million acres.

Average yield, compared with 2009, was lower in five of the nine major sunflower-producing States, but was up in Minnesota, Nebraska, Oklahoma and Texas. The average yield in Nebraska was the second highest on record for that state.

U.S. production of oil-type sunflower varieties in 2010, at 2.07 billion pounds, decreased 20% from 2009. Harvested acreage, down 14% from the previous year was at its lowest level since 1990.

Although the average yield decreased by 105 pounds in 2010 versus 2009 (down to 1,458 pounds per acre) the U.S. average yield for oil-type sunflower varieties was still the sixth highest on record.

The 2010 production of nonoil sunflower varieties, at 661 million pounds, increased 46% from 2009. Area harvested, at 451,300 acres, was up 50% from 2009. The average nonoil sunflower yield decreased by 41 pounds from 2009's record high, to 1,465 pounds per acre.



U.S. Sunflower Production

(1,000s of Pounds)

	2007	2008	2009	2010
Oil	2,483,585	2,993,510	2,584,010	2,074,500
Nonoil	385,285	429,330	452,450	661,070
Total	2,868,870	3,422,840	3,036,460	2,735,570

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

(1,000s of Hectares)

State	2003	2004	2005	2006	2007	2008	2009	2010
Colorado	34.4	32.4	58.7	30.4	40.5	57.9	27.9	37.2
Kansas	62.7	56.7	99.2	52.6	58.7	83.0	56.7	42.5
Minnesota	21.9	11.3	29.1	21.4	35.6	29.5	17.8	20.6
Nebraska	19.4	14.2	23.5	12.5	13.4	17.4	10.5	9.7
North Dakota	412.8	267.1	358.2	299.5	362.2	376.4	307.6	277.2
South Dakota	174.0	159.4	194.7	165.9	157.4	220.6	206.4	161.9
Texas	6.5	6.5	19.4	5.3	5.9	21.9	23.9	11.3
Other	26.7	28.7	39.5	25.1	22.1	27.9	18.6	15.1
Total	758.4	576.3	822.3	612.7	695.8	834.6	669.0	575.5

2010 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2010 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 43.5%, up 0.9% from the 2009 average of 42.6%. Test weight was 31.1 pounds per bushel, 1.3 pounds above the 2009 test weight average of 29.8 pounds. Foreign material, at 5.1%, was 0.8% higher than the 2009 average. Moisture, at 9.5%, was 0.3% below that of 2009.

The percentage of con-

fection seeds over 20/64 in size was 81.9% in 2010. That's 1.2% higher than 2009's impressive 80.7%. Foreign material in 2009 samples averaged 9.6%, 0.6% higher than in 2009.

At 21.9 pounds per

bushel, average 2010 nonoil test weight was 0.8 pound lower than 2009's 23.7 pounds per bushel, while average moisture at 11.3%, was 0.9% higher than the 2009 nonoil crop average.

Oil-Type Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Oil (%)
2010	31.1	9.5	5.1	43.5
2009	29.8	9.8	4.3	42.6
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

Nonoil Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Seeds Over 20/64 Size (%)
2010	21.9	11.3	9.6	81.9
2009	22.7	10.4	9.0	80.7
2008	23.3	10.5	8.2	76.8
2007	25.1	10.0	7.5	68.1
2006	26.3	10.5	6.4	70.7

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.

2010 Oil Quality Analysis/Oil Traits & Rules

The tables below compare the oil quality and fatty acid content of representative samples of high-oleic and mid-oleic sunflower seed oil, gathered from the 2010 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 63.04% oleic average of the 2010 NuSun® (mid-oleic) samples was higher than 2009's 62.34% average (which in turn was above 2008's 61.88%).

The 2010 high-oleic seed samples averaged an oleic acid content of

85.57%. That is just slightly below the 85.71% average of the 2009 high-oleic sunflower seed samples.

As is the case each year, climatic factors and timing of production contributed to the fatty acid levels of both the NuSun and high-oleic samples collected at harvest.

See general trading rules for mid-oleic and high-oleic 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 / High Oleic

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2010	3.24	3.26	85.57	6.09	0.24
2009	3.05	3.10	85.71	6.27	0.18
2008	3.03	3.03	84.75	7.19	0.16
2007	3.04	3.35	85.89	5.44	0.13
2006	3.60	3.03	82.39	8.83	0.16

Sunflower Oil Quality / NuSun®

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2010	4.42	3.50	63.04	27.02	0.26
2009	4.28	3.62	62.34	27.92	0.22
2008	4.14	3.47	61.88	28.62	0.29
2007	4.12	3.98	61.73	28.32	0.43
2006	4.24	3.66	60.66	28.98	0.27

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)

2010 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** sun-

flower 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, in Metric Tons)

Country	2006/07	2007/08	2008/09	2009/10
Belgium	9,524	2,304	6	2
Canada	50,541	60,099	77,071	27,992
Chile	1,145	1,176	79	0
Egypt	0	0	0	15,500
India	0	0	0	11,768
Japan	4,812	4,584	8,118	4,144
Mexico	3,547	3,587	2,458	10,398
Morocco	0	0	0	9,209
Singapore	5,906	4,205	1,990	0
South Korea	172	30	4	52
Taiwan	201	157	195	12,819
Tunisia	0	0	0	1,800
Saudi Arabia	0	0	0	2,500
Other	1,195	543	919	1,490
Total MT	77,043	76,685	90,840	97,674

U.S. Sunflower Meal Exports

(October-September, in Metric Tons)

Country	2006/07	2007/08	2008/09	2009/10
Canada	4,032	2,348	2,400	2,411
Mexico	6,526	10,011	4,662	3,141
Ireland	0	4,108	0	0
United Kingdom	2,707	0	0	0
Other	81	171	73	519
Total MT	13,346	16,638	7,135	6,071



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

Item	2005/06 Oct.-Sept.	2006/07	2007/08	2008/09	2009/10 Revised	2010/11 Forecast
NONOIL SUNFLOWER						
Area Harvested (1,000 HA)	234	104	118	135	122	183
Area Harvested (1,000 AC)	578	256	293	334	301	451
Yield (MT/HA)	1.63	1.56	1.47	1.44	1.69	1.64
Yield (LB/AC)	1,455	1,389	1,315	1,285	1,506	1,465
Stocks, Oct. 1	12	120	43	17	21	17
Production	382	161	175	195	205	300
Seed Import	29	86	68	54	36	30
TOTAL SUPPLY	422	368	285	266	262	347
Disappearance	302	325	268	245	245	325
Ending Stocks	120	43	17	21	17	22
OIL SUNFLOWER						
Area Harvested (1,000 HA)	822	613	696	834	669	576
Area Harvested (1,000 AC)	2,032	1,514	1,719	2,062	1,653	1,423
Yield (MT/HA)	1.75	1.32	1.62	1.63	1.75	1.63
Yield (LB/AC)	1,564	1,181	1,445	1,452	1,563	1,458
Stocks, Oct. 1	55	349	20	28	203	126
Production	1,442	811	1,127	1,358	1,172	941
Seed Import	13	27	19	16	12	10
TOTAL SUPPLY	1,510	1,188	1,166	1,403	1,387	1,077
Oilseed Crushed	597	648	682	697	780	630
Planting Seed, Birdfood, Domestic Use	563	519	456	475	448	380
Exports	0	0	0	28	33	30
Disappearance	1,160	1,167	1,138	1,200	1,261	1,040
Ending Stocks	350	21	28	203	126	37
SUNFLOWER OIL						
Stocks, Oct. 1	10	26	27	12	50	36
Oil Imports	26	71	47	30	22	40
Oil Production	248	259	273	289	320	258
TOTAL SUPPLY	284	356	347	331	392	334
Domestic Oil Use	163	252	258	190	258	245
Oil Exports	95	77	77	91	98	70
Total Use	258	329	335	281	356	315
Ending Stocks	26	27	12	50	36	19
SUNFLOWER MEAL						
Stocks, Oct. 1	4	3	4	3	3	5
Production	287	311	327	355	398	321
TOTAL SUPPLY	290	314	331	358	401	327
Domestic Use	281	297	311	348	390	317
Exports	6	13	17	7	6	6
Total Use	287	310	328	355	396	323
Ending Stocks	3	4	3	3	5	4

Table Data: NSA Assumptions

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World Sunflower Supply & Disappearance

Sources:
Oil World & USDA

Item	2005/06	2006/07	2007/08	2008/09	2009/10 <i>Revised</i>	2010/11 <i>Forecast</i>
Area Harvested (1,000 HA)	22,944	24,094	23,397	24,725	23,996	24,275
Yield (MT/HA)	1.32	1.25	1.25	1.41	1.36	1.32
SUNFLOWER SEED						
Production						
Argentina	3,840	3,120	4,600	3,200	2,520	2,800
Other Europe	682	385	295	454	378	380
European Union	5,717	6,407	4,944	6,909	7,012	7,080
China, Peoples Republic of	1,830	1,850	1,800	1,750	1,650	1,680
Russia	6,441	6,350	5,500	7,270	6,600	5,700
Ukraine	4,950	5,550	4,880	7,100	7,300	7,500
United States	1,720	997	1,309	1,553	1,377	1,241
India	1,490	1,450	1,460	1,150	1,000	750
Turkey	780	820	670	850	790	1,000
Other	2,851	3,163	3,801	4,517	3,944	4,005
TOTAL	30,301	30,092	29,259	34,753	32,571	32,136
Seed Import						
Turkey	391	495	529	477	704	612
European Union	686	653	353	623	280	290
Other	437	806	452	1,065	682	576
TOTAL	1,514	1,954	1,334	2,165	1,666	1,478
Oilseed Crushed	26,570	27,517	25,331	31,096	30,314	28,926
Seed Exports						
Argentina	45	63	41	64	65	41
United States	184	181	168	159	160	160
Russia	375	167	35	155	17	11
Ukraine	220	338	72	774	350	210
Other	726	1,166	1,016	1,125	1,021	1,096
TOTAL	1,550	1,915	1,332	2,277	1,613	1,518
SUNFLOWER OIL						
Oil Opening Stocks	832	1,124	994	944	1,598	1,138
Oil Production	10,993	11,320	10,200	12,871	12,313	11,967
Oil Imports						
Algeria	75	139	55	114	175	120
Turkey	456	132	334	427	194	155
Egypt	248	303	195	425	503	360
Mexico	91	82	29	24	18	22
Russia	101	124	131	46	56	110
Taiwan	12	11	7	12	15	15
Others	3,255	3,621	2,957	4,129	3,883	3,377
TOTAL	4,238	4,412	3,708	5,177	4,844	4,159
Disappearance	10,701	11,450	10,250	12,217	12,773	12,205
Oil Exports						
Argentina	1,306	1,080	1,188	1,082	733	700
European Union	174	153	106	133	146	117
Russia	624	693	340	834	506	240
Ukraine	1,588	1,833	1,339	2,196	2,552	2,490
United States	95	77	77	91	98	70
Other	585	556	679	926	741	583
TOTAL	4,372	4,392	3,729	5,262	4,776	4,200
Ending Stocks	1,124	994	944	1,598	1,138	900
SUNFLOWER MEAL						
Meal Production	12,347	12,794	11,607	14,295	13,932	13,396
Meal Imports	3,639	3,782	3,259	4,713	4,143	3,900
Disappearance	12,012	12,821	11,536	14,293	13,827	13,488
Meal Exports	3,718	3,735	3,289	4,775	4,253	3,860
Ending Stocks	255	275	317	257	253	202

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 tech-

nical 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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