

~ 2013 ~

U.S. Sunflower Crop Quality Report



Regarding the 2013 Sunflower Crop Quality Report . . .

The 2013 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 2013 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 website'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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2013 U.S. Sunflower Acreage & Production

United States sunflower production totaled just over 2.0 billion pounds in 2013, down about 27% from the 2012 crop's size.

The U.S. average yield per acre — at 1,378 pounds — also was lower than the 2012's 1,513-pound average. Planted area, at 1.58 million acres, was about 18% below that of 2012. Area harvested during 2013 decreased by 20% from the prior year, to 1.47 million acres.

After trailing North Dakota last year, South Dakota again became — for the second time — the nation's leading sunflower-producing state. South Dakota producers harvested almost 997 million pounds in 2013, compared to about 608.2 million in North Dakota.

U.S. production of oil-type sunflower varieties in 2013, at 1.65 billion pounds, was down by more than 31% from 2012. Harvested acreage of oil types was down 24% from the prior year.

At 1,361 pounds per acre, the average yield of 2013 oil sunflower fields was about 10% below 2012's 1,508-pound level and just slightly under 2011's 1,397 pounds.

The 2013 U.S. production of nonoil sunflower varieties — at just under 386 million pounds — was virtually identical to the 2012 nonoil output. Average nonoil yield in 2013 — 1,458 pounds — was 90 pounds lower than the prior year's average. At 176 million pounds, South Dakota was the top nonoil producing state.



U.S. Sunflower Production

(1,000s of Pounds)

	2010	2011	2012	2013
Oil	2,074,500	1,722,675	2,399,910	1,646,805
Nonoil	661,070	315,600	385,785	385,920
Total	2,735,570	2,038,275	2,785,695	2,032,725

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

(1,000s of Hectares)

State	2006	2007	2008	2009	2010	2011	2012	2013
Colorado	30.4	40.5	57.9	27.5	37.2	39.3	24.7	22.3
Kansas	52.6	58.7	83.0	56.7	42.5	42.5	26.3	26.3
Minnesota	21.4	35.6	29.5	17.8	20.6	10.9	15.0	16.8
Nebraska	12.5	13.4	17.4	10.5	9.7	14.2	11.9	15.6
North Dakota	299.5	362.2	376.4	307.6	277.2	202.3	305.5	193.0
South Dakota	165.9	157.4	220.6	206.4	161.9	163.1	226.6	263.1
Texas	5.3	5.9	21.9	23.9	11.3	9.3	13.4	34.4
Other	25.1	22.1	27.9	18.6	15.1	17.6	20.8	25.3
Total	612.7	695.8	834.6	669.0	575.5	499.2	644.2	596.8

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2013 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2013 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 41.9%, up from the 2012 average of 41.6%. Test weight was 30.1 pounds per bushel, 0.3 pound below the 2012 test weight average of 30.4 pounds. Foreign material, at 5.0%, was a shade below the 2012 average of 5.1%. Moisture, at 10.0%, was 0.7% higher than the 2012 average of 9.3%.

The percentage of confection (nonoil) seeds over 20/64 in size was an impressive 85.4% in 2013. That's 1.3% higher than 2012's 84.1% average.

Foreign material in the nonoils averaged 7.3%, 0.6% lower than 2012.

At 22.0 pounds per bushel, average 2013 nonoil test weight was 0.4 pound lower than 2012's 22.4 pounds per bushel, while average moisture, at 11.6%, was 1.2% higher than the 2012 nonoil crop's average.

Oil-Type Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Oil (%)
2013	30.1	10.0	5.0	41.9
2012	30.4	9.3	5.1	41.6
2011	28.8	9.6	4.4	41.4
2010	31.1	9.5	5.1	43.5
2009	29.8	9.8	4.3	42.6

Nonoil Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Seeds Over 20/64 Size (%)
2013	22.0	11.6	7.3	85.4
2012	22.4	10.4	7.9	84.1
2011	21.2	10.6	8.7	84.3
2010	22.3	10.6	9.3	81.2
2009	22.7	10.4	9.0	80.7

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.

2013 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 2013 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 66.17% oleic average of the 2013 NuSun® (mid-oleic) samples was significantly higher than 2012's 62.90% and those of prior years as well.

The 2013 high-oleic seed samples averaged an oleic acid content of

85.87%. That is more than a point above the 84.80% average of the 2012 high-oleic 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
2013	3.72	3.29	85.87	4.96	0.18
2012	3.54	3.18	84.80	6.30	0.23
2011	3.34	3.15	85.06	6.46	0.26
2010	3.24	3.03	85.27	6.62	0.21
2009	3.05	3.10	85.71	6.27	0.18

Sunflower Oil Quality / NuSun®

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2013	4.41	3.72	66.17	23.44	0.28
2012	4.43	3.74	62.90	26.56	0.40
2011	4.44	3.47	62.42	27.67	0.35
2010	4.30	3.40	62.82	27.47	0.23
2009	4.28	3.62	62.34	27.92	0.22

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)

2013 Sunflower Oil & Sunflower 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	2009/10	2010/11	2011/12	2012/13
Belgium	2	347	553	3
Canada	27,992	15,101	13,995	15,178
Costa Rica	521	1,120	277	413
Egypt	15,500	0	0	0
India	11,768	0	0	7
Japan	4,144	3,983	999	1,106
Mexico	10,398	5,056	478	8,343
Morocco	9,209	0	0	0
Singapore	0	0	32	312
South Korea	52	112	36	998
Taiwan	12,819	103	174	313
Tunisia	1,800	0	0	0
Saudi Arabia	2,500	0	6	0
South Africa	39	10,000	0	0
Vietnam	0	48	377	1,029
Other	930	2,161	2,281	1,629
Total MT	97,674	38,031	19,208	29,331

U.S. Sunflower Meal Exports

(October-September, in Metric Tons)

Country	2009/10	2010/11	2011/12	2012/13
Canada	2,411	2,049	3,051	5,112
Israel	0	0	0	14,057
Mexico	3,141	825	204	18
Other	519	0	2	71
Total MT	6,071	2,874	3,257	19,258



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

Item	2008/09 Oct.-Sept.	2009/10	2010/11	2011/12	2012/13 Revised	2013/14 Forecast
NONOIL SUNFLOWER						
Area Harvested (1,000 HA)	135	122	183	91	101	107
Area Harvested (1,000 AC)	334	301	451	224	249	265
Yield (MT/HA)	1.44	1.69	1.64	1.58	1.74	1.63
Yield (LB/AC)	1,285	1,506	1,465	1,406	1,548	1,458
Stocks, Oct. 1	18	21	18	50	28	23
Production	195	205	300	143	175	175
Seed Import	54	36	28	28	25	25
TOTAL SUPPLY	267	263	346	221	228	223
Disappearance	245	245	296	193	205	205
Ending Stocks	21	18	50	28	23	18
OIL SUNFLOWER						
Area Harvested (1,000 HA)	834	669	576	499	644	490
Area Harvested (1,000 AC)	2,062	1,653	1,423	1,233	1,592	1,210
Yield (MT/HA)	1.63	1.75	1.63	1.57	1.69	1.53
Yield (LB/AC)	1,452	1,563	1,458	1,397	1,508	1,361
Stocks, Oct. 1	28	202	126	38	31	166
Production	1,358	1,172	941	782	1,089	747
Seed Import	16	12	15	15	25	15
TOTAL SUPPLY	1,402	1,387	1,082	835	1,145	928
Oilseed Crushed	697	780	526	355	467	415
Planting Seed, Birdfood, Domestic Use	475	448	490	420	478	430
Exports	28	33	28	29	34	28
Disappearance	1,200	1,261	1,044	804	979	873
Ending Stocks	202	126	38	31	166	55
SUNFLOWER OIL						
Stocks, Oct. 1	12	50	37	25	17	19
Oil Imports	30	22	47	74	32	45
Oil Production	289	320	216	146	194	172
TOTAL SUPPLY	331	392	300	244	243	236
Domestic Oil Use	190	257	237	208	195	198
Oil Exports	91	98	38	19	29	20
Total Use	281	355	275	227	224	218
Ending Stocks	50	37	25	17	19	18
SUNFLOWER MEAL						
Stocks, Oct. 1	3	4	6	4	3	2
Production	355	398	268	181	238	212
TOTAL SUPPLY	359	402	274	185	241	213
Domestic Use	348	390	267	179	220	207
Exports	7	6	3	3	19	3
Total Use	355	396	270	182	239	210
Ending Stocks	4	6	4	3	2	3

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World Sunflower Supply & Disappearance

Sources:
Oil World & USDA

Item	2008/09	2009/10	2010/11	2011/12	2012/13 <i>Revised</i>	2013/14 <i>Forecast</i>
Area Harvested (1,000 HA)	24,725	24,250	23,923	25,856	25,225	25,892
Yield (MT/HA)	1.41	1.36	1.40	1.53	1.41	1.55
SUNFLOWER SEED —						
Production						
Argentina	3,200	2,650	3,665	3,775	3,000	2,900
European Union	6,909	7,001	6,975	8,323	7,060	8,624
China	1,750	1,650	1,710	1,700	1,730	1,750
Russia	7,270	6,600	5,820	9,500	7,993	9,300
Ukraine	7,100	7,300	8,000	9,500	8,387	9,800
United States	1,553	1,377	1,241	925	1,264	922
India	1,150	1,000	650	620	620	660
Turkey	850	790	1,020	940	1,100	1,450
Other	4,517	3,425	4,113	4,226	4,414	4,784
TOTAL	34,753	32,171	33,572	39,509	35,568	40,190
Seed Import						
Turkey	477	704	719	844	627	550
European Union	623	283	393	291	219	190
Other	1,065	693	620	830	599	1,045
TOTAL	2,165	1,680	1,732	1,965	1,445	1,785
Seed Exports						
Argentina	64	67	70	83	85	80
United States	159	160	144	114	144	125
Russia	155	18	13	402	59	100
Ukraine	774	350	446	284	124	100
Other	1,125	1,018	1,083	1,097	1,098	1,365
TOTAL	2,277	1,613	1,756	1,980	1,510	1,770
Oilseed Crushed	31,096	30,454	30,034	36,145	32,085	36,230
SUNFLOWER OIL —						
Oil Opening Stocks	944	1,598	1,287	1,212	1,858	1,432
Oil Production	12,871	12,543	12,418	15,171	13,439	15,151
Oil Imports						
Algeria	114	175	45	229	44	140
Turkey	427	194	403	681	656	650
Egypt	425	503	315	863	653	770
European Union	1,076	972	883	1,046	965	920
India	593	622	776	1,151	939	1,100
Others	2,496	2,361	2,317	3,165	2,993	3,445
TOTAL	5,177	4,879	4,883	7,135	6,250	7,025
Oil Exports						
Argentina	1,082	727	893	936	612	620
European Union	133	144	157	200	235	257
Russia	834	503	195	1,505	1,088	1,450
Ukraine	2,196	2,552	2,654	3,454	3,120	3,550
United States	91	98	38	19	29	20
Other	926	741	922	1,166	1,041	1,153
TOTAL	5,262	4,765	4,859	7,280	6,125	7,050
Disappearance	12,217	12,854	12,493	14,525	13,865	14,880
Ending Stocks	1,598	1,287	1,212	1,858	1,432	1,703
SUNFLOWER MEAL —						
Meal Production	14,295	14,018	14,128	16,934	14,781	16,813
Meal Imports	4,713	4,150	4,645	6,955	5,360	6,380
Meal Exports	4,775	4,190	4,703	6,980	5,365	6,400
Disappearance	14,293	13,866	14,084	16,845	14,833	16,779
Ending Stocks	257	370	408	407	349	362

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 central North Dakota city of Mandan, 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, which is 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.

***NSA is an equal opportunity
provider and employer.***



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