

~ 2012 ~

# U.S. Sunflower Crop Quality Report



## ***Regarding the 2012 Sunflower Crop Quality Report . . .***

The 2012 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 2012 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](http://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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## 2012 U.S. Sunflower Acreage & Production

United States sunflower production totaled 2.8 billion pounds in 2012, up nearly 37% from the 2011 crop's size.

The U.S. average yield per acre — at 1,513 pounds — also was higher than the 2011's 1,398-pound average. Planted area, at 1.92 million acres, was about 24% above that of 2011. Area harvested during 2012 increased by 26% from the prior year, to 1.84 million acres.

After coming in second to South Dakota for the first time last year, North Dakota reclaimed its status as the nation's leading sunflower-producing state. North Dakota producers harvested 1.46 billion pounds in 2012, compared to about 892 million in South Dakota.

U.S. production of oil-type sunflower varieties in 2012, at 2.4 billion pounds, was up by 39% from 2011. Harvested acreage of oil types was up 20% from the prior year and by about 12% compared to 2010.

At 1,508 pounds per acre, the average yield of oil sunflower in 2012 was about 8% above the 2011 average of 1,397 pounds and 3% above 2010.

The 2012 U.S. production of nonoil sunflower varieties, at nearly 386 million pounds, was up 22% from 2011's 315,600 million — which in turn was a dramatic drop from the 2010 production level of 661 million pounds. Average nonoil yield in 2012 — 1,548 pounds — was 10% higher than 2011's average.



### U.S. Sunflower Production

(1,000s of Pounds)

	2009	2010	2011	2012
Oil	2,584,010	2,074,500	1,722,675	2,399,910
Nonoil	452,450	661,070	315,600	385,785
<b>Total</b>	<b>3,036,460</b>	<b>2,735,570</b>	<b>2,038,275</b>	<b>2,785,695</b>

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

(1,000s of Hectares)

State	2005	2006	2007	2008	2009	2010	2011	2012
Colorado	58.7	30.4	40.5	57.9	27.5	37.2	39.3	24.7
Kansas	99.2	52.6	58.7	83.0	56.7	42.5	42.5	26.3
Minnesota	29.1	21.4	35.6	29.5	17.8	20.6	10.9	15.0
Nebraska	23.5	12.5	13.4	17.4	10.5	9.7	14.2	11.9
North Dakota	358.2	299.5	362.2	376.4	307.6	277.2	202.3	305.5
South Dakota	194.7	165.9	157.4	220.6	206.4	161.9	163.1	226.6
Texas	19.4	5.3	5.9	21.9	23.9	11.3	9.3	13.4
Other	39.5	25.1	22.1	27.9	18.6	15.1	17.6	20.8
<b>Total</b>	<b>822.3</b>	<b>612.7</b>	<b>695.8</b>	<b>834.6</b>	<b>669.0</b>	<b>575.5</b>	<b>499.2</b>	<b>644.2</b>

# 2012 U.S. Sunflower Crop Quality Report

## 2012 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2012 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 41.6%, up slightly from the 2011 average of 41.4%. Test weight was 30.4 pounds per bushel, 1.6 pounds above the 2011 test weight average of 28.8 pounds. Foreign material, at 5.1%, was 0.7% higher than the 2011 average. Moisture, at 9.3%, was slightly less than the 2011 average.

The percentage of confection (nonoil) seeds over 20/64 in size was an impressive 84.1% in 2012. That's close to the 2011 figure of 84.3%.

Foreign material in the nonoils averaged 7.9%, 0.8% lower than 2011.

At 22.4 pounds per bushel, average 2012 nonoil test weight was 1.2 pounds higher than 2011's 21.2 pounds per bushel, while average moisture, at 10.4%, was 0.2% below the 2011 nonoil crop's average.

### Oil-Type Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Oil (%)
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
2008	31.4	10.1	4.3	43.6

### Nonoil Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Seeds Over 20/64 Size (%)
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
2008	23.3	10.5	8.2	76.8

### 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.



## 2012 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 2012 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 62.90% oleic average of the 2012 NuSun® (mid-oleic) samples was slightly higher than 2011's 62.42%, but on par with 2010's 62.82%.

The 2012 high-oleic seed samples averaged an oleic acid content of

84.80%. That is just slightly below the 85.06% average of the 2011 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.sunflowerusa.com](http://www.sunflowerusa.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](http://afoaonline.org).

### Sunflower Oil Quality / High Oleic

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
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
2008	3.03	3.03	84.75	7.19	0.16

### Sunflower Oil Quality / NuSun®

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
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
2008	4.14	3.47	61.88	28.62	0.29

#### 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)

## 2012 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	2008/09	2009/10	2010/11	2011/12
Belgium	6	2	347	553
Canada	77,071	27,992	15,101	13,995
Chile	79	0	16	2
Costa Rica	4	521	1,120	277
Egypt	0	15,500	0	0
India	0	11,768	0	0
Japan	8,118	4,144	3,983	999
Mexico	2,458	10,398	5,056	478
Morocco	0	9,209	0	0
Singapore	1,990	0	0	0
South Korea	4	52	112	36
Taiwan	195	12,819	103	174
Tunisia	0	1,800	0	0
Saudi Arabia	0	2,500	0	0
South Africa	0	39	10,000	0
Other	915	969	2,193	2,694
<b>Total MT</b>	<b>90,840</b>	<b>97,674</b>	<b>38,031</b>	<b>19,208</b>

### U.S. Sunflower Meal Exports

(October-September, in Metric Tons)

Country	2008/09	2009/10	2010/11	2011/12
Canada	2,400	2,411	2,049	3,051
Mexico	4,662	3,141	825	204
Other	73	519	0	2
<b>Total MT</b>	<b>7,135</b>	<b>6,071</b>	<b>2,874</b>	<b>3,257</b>



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

Item	2007/08 <i>Oct.-Sept.</i>	2008/09	2009/10	2010/11	2011/12 <i>Revised</i>	2012/13 <i>Forecast</i>
<b>NONOIL SUNFLOWER</b>						
Area Harvested (1,000 HA)	118	135	122	183	91	101
Area Harvested (1,000 AC)	293	334	301	451	224	249
Yield (MT/HA)	1.47	1.44	1.69	1.64	1.58	1.74
Yield (LB/AC)	1,315	1,285	1,506	1,465	1,406	1,548
Stocks, Oct. 1	43	18	21	18	50	28
Production	175	195	205	300	143	175
Seed Import	68	54	36	28	28	25
<b>TOTAL SUPPLY</b>	<b>286</b>	<b>267</b>	<b>263</b>	<b>346</b>	<b>221</b>	<b>228</b>
Disappearance	268	245	245	296	193	210
Ending Stocks	18	21	18	50	28	18
<b>OIL SUNFLOWER</b>						
Area Harvested (1,000 HA)	696	834	669	576	499	644
Area Harvested (1,000 AC)	1,719	2,062	1,653	1,423	1,233	1,592
Yield (MT/HA)	1.62	1.63	1.75	1.63	1.57	1.69
Yield (LB/AC)	1,445	1,452	1,563	1,458	1,397	1,508
Stocks, Oct. 1	20	28	202	126	38	31
Production	1,127	1,358	1,172	941	782	1,089
Seed Import	19	16	12	15	15	12
<b>TOTAL SUPPLY</b>	<b>1,166</b>	<b>1,402</b>	<b>1,387</b>	<b>1,082</b>	<b>835</b>	<b>1,132</b>
Oilseed Crushed	682	697	780	526	355	500
Planting Seed, Birdfood, Domestic Use	428	475	448	490	420	480
Exports	28	28	33	28	29	28
Disappearance	1,138	1,200	1,261	1,044	804	1,008
Ending Stocks	28	202	126	38	31	124
<b>SUNFLOWER OIL</b>						
Stocks, Oct. 1	27	12	50	37	25	24
Oil Imports	47	30	22	47	74	45
Oil Production	273	289	320	216	146	208
<b>TOTAL SUPPLY</b>	<b>347</b>	<b>331</b>	<b>392</b>	<b>300</b>	<b>244</b>	<b>277</b>
Domestic Oil Use	258	190	257	237	201	217
Oil Exports	77	91	98	38	19	35
Total Use	335	281	355	275	220	252
Ending Stocks	12	50	37	25	24	25
<b>SUNFLOWER MEAL</b>						
Stocks, Oct. 1	4	3	4	6	4	3
Production	327	355	398	268	181	255
<b>TOTAL SUPPLY</b>	<b>331</b>	<b>359</b>	<b>402</b>	<b>274</b>	<b>185</b>	<b>258</b>
Domestic Use	311	348	390	267	179	250
Exports	17	7	6	3	3	5
Total Use	328	355	396	270	182	255
Ending Stocks	3	4	6	4	3	3

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## World Sunflower Supply & Disappearance

Sources:  
Oil World & USDA

Item	2007/08	2008/09	2009/10	2010/11	2011/12 <i>Revised</i>	2012/13 <i>Forecast</i>
<b>Area Harvested (1,000 HA)</b>	<b>23,397</b>	<b>24,725</b>	<b>24,250</b>	<b>23,923</b>	<b>25,833</b>	<b>25,801</b>
<b>Yield (MT/HA)</b>	<b>1.25</b>	<b>1.41</b>	<b>1.36</b>	<b>1.40</b>	<b>1.53</b>	<b>1.41</b>
<b>SUNFLOWER SEED —</b>						
<b>Production</b>						
Argentina	4,600	3,200	2,650	3,665	3,720	3,500
Other Europe	295	454	378	378	400	363
European Union	4,944	6,909	7,001	6,975	8,317	6,836
China, Peoples Republic of	1,800	1,750	1,650	1,710	1,720	1,730
Russia	5,500	7,270	6,600	5,820	9,500	8,000
Ukraine	4,880	7,100	7,300	8,000	9,350	8,700
United States	1,309	1,553	1,377	1,241	925	1,264
India	1,460	1,150	1,000	650	620	680
Turkey	670	850	790	1,020	940	1,100
Other	3,801	4,517	3,425	4,113	3,981	4,137
<b>TOTAL</b>	<b>29,259</b>	<b>34,753</b>	<b>32,171</b>	<b>33,572</b>	<b>39,473</b>	<b>36,310</b>
<b>Seed Import</b>						
Turkey	529	477	704	719	844	680
European Union	353	623	283	393	300	350
Other	452	1,065	693	620	824	600
<b>TOTAL</b>	<b>1,334</b>	<b>2,165</b>	<b>1,680</b>	<b>1,732</b>	<b>1,968</b>	<b>1,630</b>
<b>Seed Exports</b>						
Argentina	41	64	67	70	92	71
United States	168	159	160	144	114	146
Russia	35	155	18	13	337	150
Ukraine	72	774	350	446	284	200
Other	1,016	1,125	1,018	1,083	1,130	1,048
<b>TOTAL</b>	<b>1,332</b>	<b>2,277</b>	<b>1,613</b>	<b>1,756</b>	<b>1,957</b>	<b>1,615</b>
<b>Oilseed Crushed</b>	<b>25,331</b>	<b>31,096</b>	<b>30,454</b>	<b>30,034</b>	<b>36,016</b>	<b>33,265</b>
<b>SUNFLOWER OIL —</b>						
<b>Oil Opening Stocks</b>	<b>994</b>	<b>944</b>	<b>1,598</b>	<b>1,287</b>	<b>1,212</b>	<b>1,720</b>
<b>Oil Production</b>	<b>10,200</b>	<b>12,871</b>	<b>12,543</b>	<b>12,418</b>	<b>15,038</b>	<b>13,812</b>
<b>Oil Imports</b>						
Algeria	55	114	175	45	229	180
Turkey	334	427	194	403	681	600
Egypt	195	425	503	315	948	700
European Union	973	1,076	972	883	925	900
Russia	131	46	52	144	19	50
India	859	593	622	776	1,151	1,000
Others	1,161	2,496	2,361	2,317	3,087	2,770
<b>TOTAL</b>	<b>3,708</b>	<b>5,177</b>	<b>4,879</b>	<b>4,883</b>	<b>7,040</b>	<b>6,200</b>
<b>Oil Exports</b>						
Argentina	1,188	1,082	727	893	970	940
European Union	106	133	144	157	198	164
Russia	340	834	503	195	1,428	1,000
Ukraine	1,339	2,196	2,552	2,654	3,454	3,000
United States	77	91	98	38	19	35
Other	679	926	741	922	1,131	986
<b>TOTAL</b>	<b>3,729</b>	<b>5,262</b>	<b>4,765</b>	<b>4,859</b>	<b>7,200</b>	<b>6,125</b>
<b>Disappearance</b>	<b>10,250</b>	<b>12,217</b>	<b>12,854</b>	<b>12,493</b>	<b>14,530</b>	<b>14,123</b>
<b>Ending Stocks</b>	<b>944</b>	<b>1,598</b>	<b>1,287</b>	<b>1,212</b>	<b>1,720</b>	<b>1,409</b>
<b>SUNFLOWER MEAL —</b>						
Meal Production	11,607	14,295	14,018	14,128	16,978	15,639
Meal Imports	3,259	4,713	4,150	4,645	6,870	5,865
Meal Exports	3,289	4,775	4,190	4,703	6,950	5,825
Disappearance	11,536	14,293	13,866	14,084	16,940	15,710
<b>Ending Stocks</b>	<b>317</b>	<b>257</b>	<b>370</b>	<b>408</b>	<b>367</b>	<b>337</b>



## 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](http://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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***NSA is an equal opportunity  
provider and employer.***



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