2003
U.S. Sunflower
Crop Quality Report

Table of Contents

About the 2003 Sunflower Crop Quality Report

The 2003 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 2003 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 web site, www.sunflowernsa.com. Printed copies of this report can be made available by the NSA (See NSA contact information page 11).

U.S. Sunflower Acreage, Production 2003

Drought again plagued a number of sunflower-producing states in 2003. After spring rainfall hindered field work, dry conditions and warm temperatures promoted planting, emergence, and development of sunflower in a number of areas in the Plains. However, dry, hot conditions later in the summer stressed sunflower in many areas, cutting into yield potential.

Dry conditions persisted into the fall, enabling producers to harvest an above-average quality sunflower crop. By the end of October, sunflower harvest was nearing completion ahead of normal as growers had few delays during the month.

The 2003 sunflower production totaled 2.67 billion pounds, 7 percent above the 2002 production but down 22 percent from 2001, according to USDA. The estimated yield per acre, at 1,213 pounds, increased 71 pounds from 2002. Planted area, at 2.34 million acres, was 9 percent below 2002. Harvested acres increased 1 percent from 2002 to 2.20 million acres.

Planted and harvested acres decreased from 2002 by 12 and 11 percent, respectively. Production for oil type sunflower varieties, at 2.26 billion pounds, increased 9 percent from 2002. Harvested acres are up 3 percent from the previous year, while the yield increased by 66 pounds.

Production for non-oil sunflower varieties, at 406 million pounds, decreased 3 percent from last year. Acreage harvested for non-oil varieties decreased 12 percent from 2002. However, the average yield per acre, at 1,256 pounds, increased 106 pounds from 2002.

Production in North Dakota, the leading sunflower producing state, was estimated at 1.52 billion pounds, down 11 percent from 2002. The yield per acre, at 1,304 pounds, was up 4 pounds from 2002.

U.S. Sunflower Production

(1,000 pounds)

	2001	2002	2003
Oil	2,803,704	2,069,780	2,259,666
Non-Oil	615,055	419,826	405,560
Total	**3,418,759**	**2,489,606**	**2,665,226**

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

(Thousands of Hectares)

State	1997	1998	1999	2000	2001	2002	2003
Colorado	19.0	43.3	69.6	43.0	48.6	24.3	34.4
Kansas	66.8	62.7	97.1	75.8	117.4	62.7	62.7
Minnesota	29.1	35.2	31.2	19.6	11.3	15	21.9
Nebraska	9.7	15.4	19.0	20.0	20.2	13.8	19.4
North Dakota	445.2	639.4	493.7	401.8	337.0	447.2	412.8
South Dakota	301.5	358.2	348.8	278.8	267.5	151.8	174
Texas	8.9	4.5	9.7	5.3	13.4	3.6	6.5
Other	15.0	13.8	21.5	20.0	17.4	16.2	26.7
Total U.S.	**895.2**	**1,172.5**	**1,090.6**	**864.7**	**833.7**	**734.6**	**758.4**

Source: *USDA*

NuSun™ Gets A Boost In 2003 From Two Fronts

The stars are aligning for growing mid-oleic NuSun™ oil demand—now it's a matter of growing acreage to assure a larger, more consistent supply.

NuSun as a fledgling industry got a boost in 2003 with two important developments:

1) The Food & Drug Administration announcement requiring mandatory labeling of trans fats by Jan. 1, 2006, which makes naturally trans-fat free NuSun oil an attractive oil choice.

2) Early results of a nutritional study at Penn State, which indicate that NuSun compares favorably with olive oil for health benefits, and even better in some respects, as a NuSun diet was shown to lower cholesterol levels.

The FDA announcement had long been expected, but finally came in 2003 with a deadline. Food manufacturers will need to list trans fat on nutrition facts panels of food labels by Jan.1, 2006. The new label stipulation follows a National Academy of Sciences Institute of Medicine report released in the fall of 2002, which recommended limiting trans fat in the diet as much as possible.

A Q&A backgrounder on trans fat nutrition labeling can be found on the website for the FDA's Center for Food Safety and Applied Nutrition, http://www.cfsan.fda.gov/~dms/qatrans2.html.

In the Penn State controlled feeding study, cholesterol levels of 31 volunteers were evaluated in a comparison of food prepared with a NuSun™ sunflower oil diet, an olive oil diet, and an average American diet. Olive oil was chosen as a comparison, since the oil, like NuSun, is recognized for its healthful benefits.

Preliminary results of the study showed that the diet with NuSun sunflower oil significantly reduced total cholesterol and reduced LDL cholesterol compared to the average American diet.

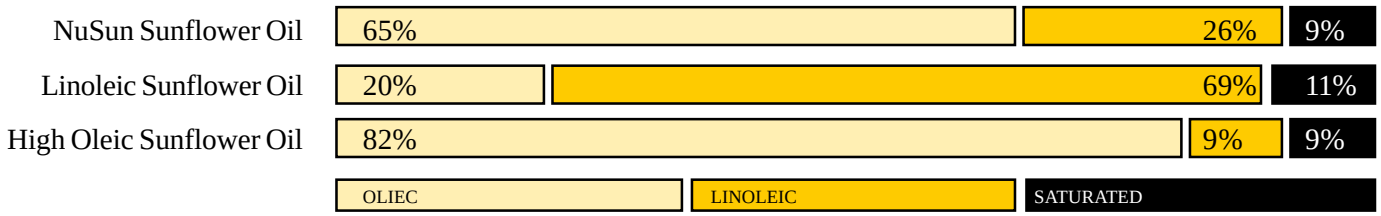
LDL (bad) cholesterol is the main source of cholesterol buildup and blockage in the arteries. HDL (good) cholesterol helps keep cholesterol from building up in the arteries. Consumption of trans fats has been associated with higher blood levels of LDL, or the "bad" cholesterol, and NuSun has no trans fats.

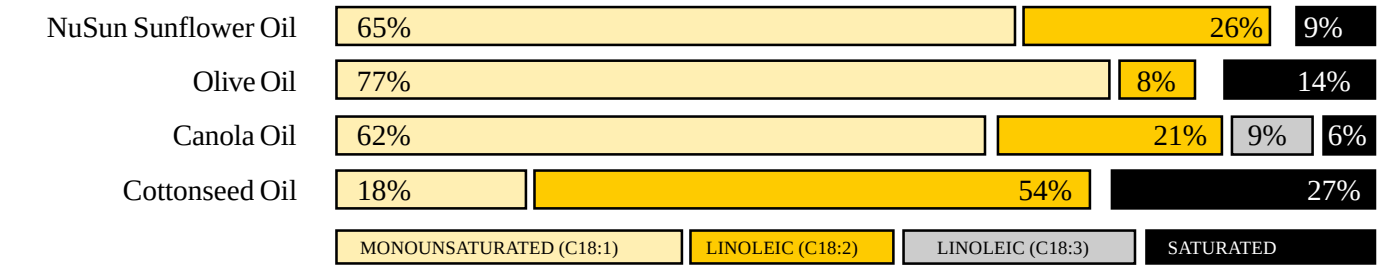
In the Penn State study, substituting NuSun sunflower oil daily in place of saturated fat had a significantly better cholesterol lowering effect than substituting a similar amount of olive oil.

"Early data from the Penn State research indicates that the health profile of NuSun is beneficial, with a performance that's on par and in some respects even better than that of olive oil," says Larry Kleingartner, executive director of the National Sunflower Association.

In less than a decade, the sunflower industry created NuSun sunflower oil through standard breeding techniques with no use of genetic modification. The unique fat profile of NuSun sunflower oil provides industrial cooking capabilities needed to produce tasty, high-quality food products, without partial hydrogenation, which adds the harmful trans fat. Because of its natural stability, NuSun sunflower oil performs extremely well in commercial cooking and frying, with a smoke point of 450°, a clean light taste, and excellent shelf-life characteristics—all of the necessary characteristics for today's manufacturers.

Fatty Acid Composition





2003 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2003 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 and Aberdeen (S.D.) Grain Inspection.

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.

Oil-type sunflower seed analysis indicated an average oil of 42.6%, slightly higher than the 2002 average of 42.1%. Test weight was 30.7 pounds per bushel, higher than last year and the same as in 2001. Foreign material at 6.0% was higher than in the past two years. Moisture at 8.5% was down significantly from last year's 10.8%.

The percentage of confection seed in 2003 over 20/64 in size was 67.1%, significantly higher than last year's 55.9%, and the highest in over five years. Foreign material in samples in 2003 was 7.7%, lowest in five years. Test weight at 25.4% was lower than last year, with moisture (10.1%) the same as in 2002.

Non-Oil Sunflower Seed Quality

Year	Test Weight	Moisture	Foreign Matter	Over 20/64 Size
2003	25.4	10.1	7.7	67.1
2002	26.6	10.1	8.1	55.9
2001	27.5	10.4	7.8	55.7
2000	24.8	10.8	8.1	65.9
1999	24.4	10.3	8.1	66.1

Oil-Type Sunflower Seed Quality

Year	Test Weight*	Moisture	Foreign Matter	Oil%**
2003	30.7	8.5	6.0	42.6
2002	29.8	10.8	5.3	42.1
2001	30.7	9.6	5.1	42.3
2000	30.2	9.5	5.9	43.0
1999	28.6	9.4	8.0	42.2

*Test weights are in pounds/bushel.
**Oil content determined on clean-seed basis using Nuclear Magnetic Resonance NMR) analysis.
The oil content is standardized to a 10% moisture basis.

U.S. Confection Sunflower Kernel Product Specifications

Origin	- Confection 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 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
Moisture	- Not more than 10%; not less than 4%
Size	- Not more than 650/oz.
Foreign Material, Shell/Unshelled Seed	- Not more than 0.1%
Damage	- Not more than 0.5% heat damage and not more than 2 % misc. damage
Broken Kernels	- Not more than 10% (broken kernel is any portion less than ½ kernel)

2003 Oil Quality Analysis/Oil Traits, Rules

The tables below compare the oil quality and fatty acid content of representative samples of sun flower seed oil, gathered from the 2003 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 60.26% oleic average of NuSun samples was higher than the 59.52% average in 2002, but still short of the 61.15% average of oil samples in 2001.

The 2003 linoleic acid content of 65.54% is higher than the 63.95% average of 2002 crop samples. The 22.96% oleic level average of the 2003 sunflower oil samples is lower than the 24.63% average of the 2002 oil samples. As is the case each year, climatic factors and the timing of production contributed to the level of both linoleic and oleic acid in the samples collected each harvest.

High oleic sunflower is estimated to currently account for under 10% of U.S. oil-type sunflower acreage. The different varieties of "high oleic" hybrid seed historically have produced oleic levels ranging between 70 to 90%, depending upon the hybrid used and the environmental conditions during a particular growing season.

Sunflower Oil Quality Linoleic

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2003	5.97	4.13	22.96	65.54	0.26
2002	5.75	4.36	24.63	63.95	0.25
2001	5.38	4.21	24.19	64.65	0.18
2000	6.04	4.53	22.01	65.76	0.25
1999	6.19	4.33	17.17	70.80	0.21
1998	6.15	4.27	22.83	65.29	0.19

Sunflower Oil Quality NuSun

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2003	4.46	3.40	60.26	29.50	0.18
2002	4.32	3.49	59.52	30.97	0.17
2001	4.36	4.03	61.15	28.55	0.11
2000	4.33	4.14	59.08	30.58	0.39
1999	4.58	3.53	54.79	35.48	0.14

Linoleic Sun Oil (Crude) Trading Rules American Fats and Oils Association Specs Rule 14

Specification	Amount
Flash Point (AOCS Cc9b-55)	250º F Minimum
Halphen Test	Negative
Saponification Value	188-194
Unsaponifiable	1.3% Maximum
Free Fatty Acids (as Oleic)	Basis 2%, Maximum 3%; 1-for-1 allowance over 2, fraction for-fraction; nonreciprocal
Moisture and Volatiles (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 c 13b-45), bleached (AOCS Cc 8g-52), after refining (AOCS Cc 8g-52), after refining (AOCS Ca 9a-52)	2.5 Red Maximum
Linolenic Acid	1.0% Maximum

Linoleic Sun Oil (Refined, Bleached, Deodorized) Trading Rules AFOA Specs Rule 15

Item	Specification
Linoleic	55% Minimum
Iodine Value	125-145
Saponification Value	188-194
Refractive Index at 25º	1.4740-1.4745
Smoke Point	252-254º C
Phosphates	1 PPM Max
Unsaponifiable	1.5% Max (Saponification value 186-194)
Color (Lovibond Scale)	1.5 Red, 15.0 Yellow
Peroxide	1.0% Max
Fat Stability by AOM	Peroxide 35 After 8 Hrs.
Chlorophyll	0.03 PPM Max
Moisture and impurities	0.10% Max (AOCS Ca 2d-25)
Free Fatty Acids	0.05 % Max
Soap (Sodium Oleate)	0.003 % Max
Chill Test: 0º C (32º F)	48 Hours
4.4º C (40º F)	120 Hours
Flavor and Odor	Pleasing; Not Rancid, Bitter or Sour
Appearances (waxes not separated)	Will be cloudy at room temperature

Sun Oil & Meal Exports

Oil Exports -- Sunflower oil is the preferred oil in most of Europe, East Europe, Russia, Mexico, countries along the Mediterranean and several South American countries. 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) sunflower 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 the taste of products. Linoleic sunflower oil has about 69% polyunsaturated fat, 20% monounsaturated fat and 11% saturated fat. Linoleic sunflower oil is 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.

U.S. Sunflower Oil Exports

October 02-September 03 (metric tons)

Country	1999/00	2000/01	2001/02	2002/03
Algeria	32,593	62,701	47,898	0
Bahrain	1,069	24	60	0
Canada	24,038	22,990	24,465	16,939
Columbia	393	1,058	187	0
Egypt	21,829	5,924	12,500	3,000
El Salvador	2,561	295	254	0
Guatemala	2,105	4,428	0	1,050
India	0	0	752	0
Japan	6,620	5,769	6,143	10,228
Jordan	4	3,797	4,889	1,000
Kuwait	24	616	14	24
Mexico	169,577	43,086	17,761	5,258
Netherlands	2,700	57,547	22,914	16
Singapore	2	1,054	4	11
Taiwan	15,176	9,920	13,647	4,230
Turkey	0	12,575	15,697	0
Utd. Arab Em.	0	6,513	3,999	0
Other	7,334	13,125	34,467	9,909
Total MT	**286,025**	**251,422**	**205,651**	**51,665**

Sun Meal Exports -- Most of the 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.

Both U.S. sunflower oil and meal exports declined significantly in 2002/03, a reflection of increased U.S. domestic use and other global market factors.

U.S. Sunflower Meal Exports

October 02 - September 03 (metric tons)

Country	1999/00	2000/01	2001/02	2002/03
Canada	1,956	1,423	2,166	1,740
Netherlands	7,282	0	0	0
Mexico	3,922	2,731	2,451	1,372
Ireland	7,577	3,862	17,677	0
Un. Kingdom	0	0	3,348	0
Other	75	92	20	31
Total MT	20,812	8,108	25,662	3,143

U.S. Supply/Disappearance

	98/99 Oct-Sep	99/00	00/01	01/02	02/03 Revised	03/04 Forecast	Trad.	NuSun	Totals
	———In 1,000 Metric Tons, Unless Otherwise Specified——								
NON-OIL (CONFECTION) SUNFLOWER									
Area Harvested (1,000 HA)	241	302	215	200	148	131	-	-	
Area Harvested (1,000 AC)	595	746	531	495	365	323	-	-	
Yield (MT\HA)	1.48	1.27	1.34	1.39	1.29	1.41	-	-	
Yield (LB/AC)	1,322	1,131	1,195	1,243	1,150	1,256	-	-	
Stocks, Oct 1	9	16	27	22	15	13	-	-	
Production	357	383	288	279	190	184	-	-	
Seed Import	10	18	44	56	73	75			
TOTAL SUPPLY	376	417	359	357	278	272	-	-	
Disappearance	360	390	337	342	265	260	-	-	
Ending Stocks	16	27	22	15	13	12	-	-	
OILSEED SUNFLOWER									
Area Harvested (1,000 HA)	1,172	1,091	856	834	735	758	304	455	758
Area Harvested (1,000 AC)	2,897	2,695	2,116	2,060	1,815	1,874	750	1,124	1,874
Yield (MT\HA)	1.74	1.46	1.54	1.53	1.28	1.35	1.35	1.35	-
Yield (LB\AC)	1,549	1,298	1,375	1,361	1,140	1,206	1,206	1,206	-
Stocks, Oct 1	13	110	94	40	41	115	55	60	115
Production	2,036	1,587	1,320	1,272	939	1,025	410	615	1,025
Seed Import	26	31	23	16	24	25	25	0	25
TOTAL SUPPLY	2,075	1,728	1,437	1,328	1,004	1,165	490	675	1,165
Oilseed Crushed	1,241	1,103	922	723	346	625	195	430	625
Planting Seed, Birdfood,	586	490	447	536	543	500	275	225	500
Exports	138	41	28	28	0	0	0	0	0
Disappearance	1,965	1,634	1,397	1,287	889	1,125	470	655	1,125
Ending Stocks	110	94	40	41	115	40	20	20	40
SUNFLOWER OIL									
Stocks, Oct 1	27	55	71	62	10	12	6	6	12
Oil Imports	0	0	0	16	28	0	0	0	0
Oil Production	521	452	387	304	145	263	82	181	263
TOTAL SUPPLY	548	507	458	382	183	275	88	187	275
Domestic Oil Use	130	150	145	166	119	203	47	156	203
Oil Exports	363	286	251	206	52	60	35	25	60
Total Use	493	436	396	372	171	263	82	181	263
Ending Stocks	55	71	62	10	12	12	6	6	12
SUNFLOWER MEAL									
Stocks, Oct. 1	2	7	5	7	3	3	2	1	3
Production	621	552	443	347	166	300	94	206	300
TOTAL SUPPLY	623	559	448	354	169	303	96	207	303
Domestic Use	575	533	433	325	163	295	93	202	295
Exports	41	21	8	26	3	5	2	3	5
Total Use	616	554	441	351	166	300	95	205	300
Ending Stocks	7	5	7	3	3	3	1	2	3

World Supply/Disappearance

	1998/99	1999/00	2000/01	2001/02	2002/03 Revised	2003/2004 Forecast
Area Harvested	22,536	22,858	19,540	18,485	20,221	22,596
Yield (MT/HEC)	1.22	1.18	1.18	1.18	1.19	1.15
SUNFLOWER SEED	*(In 1,000 Metric Tons, Unless Specified)*					
PRODUCTION						
Argentina	7,130	5,800	2,950	3,720	3,500	3,000
Eastern Europe	2,594	2,754	1,657	1,861	2,259	2,673
European Union	3,438	3,105	3,333	3,030	2,774	2,544
China, Peoples Republic of	1,465	1,765	1,954	1,750	1,900	1,800
former USSR	5,737	6,890	7,368	4,936	7,190	8,800
United States	2,393	1,970	1,608	1,551	1,129	1,209
India	1,170	870	730	870	1,220	1,350
Turkey	850	820	630	530	820	570
Other	2,827	2,983	2,880	3,551	3,275	3,964
TOTAL	27,604	26,957	23,110	21,799	24,067	25,910
SEED IMPORTS						
Mexico	49	15	23	10	104	152
European Union	2,034	2,231	1,999	1,155	1,533	1,930
Other	918	871	704	467	813	1,097
TOTAL	3,001	3,117	2,726	1,632	2,450	3,179
OILSEED CRUSHED	21,466	23,366	21,116	18,514	21,024	22,898
SEED EXPORTS						
Argentina	504	265	94	342	231	122
United States	157	168	153	176	122	123
former USSR	1,717	1,239	1,768	100	539	1,140
Other	617	1,372	711	1,084	1,568	1,725
TOTAL	2,995	3,044	2,726	1,702	2,460	3,110
SUNFLOWER OIL						
OIL OPENING STOCKS	969	974	1,241	922	767	708
OIL PRODUCTION	8,588	9,550	8,668	7,489	8,642	9,311
OIL IMPORTS						
Algeria	209	233	276	207	215	220
Turkey	202	99	133	147	83	105
Egypt	279	187	114	145	90	116
Mexico	193	173	73	40	52	50
former USSR	372	228	175	173	193	140
Taiwan	27	32	29	25	26	30
Others	1,792	1,988	1,788	1,525	1,865	1,977
TOTAL	3,074	2,940	2,588	2,262	2,524	2,638
DISAPPEARANCE	8,702	9,322	9,029	7,684	8,664	9,250
OIL EXPORTS						
Argentina	1,664	1,484	1,149	1,083	1,093	1,010
European Union	276	178	161	114	100	116
Eastern Europe	357	172	90	95	105	150
United States	363	286	251	206	52	60
Others	350	817	918	744	1,211	1,289
TOTAL	3,010	2,937	2,569	2,242	2,561	2,625
ENDING STOCKS	919	1,161	899	767	708	773
SUNFLOWER MEAL						
MEAL PRODUCTION	10,244	10,976	9,971	8,687	9,800	10,679
MEAL IMPORT	2,662	2,995	2,665	2,296	2,609	2,833
DISAPPEARANCE	10,230	10,937	10,122	8,713	9,804	10,681
MEAL EXPORTS	2,649	3,010	2,569	2,311	2,611	2,825
ENDING STOCKS	234	247	133	92	86	91

Source: Oil World & USDA

NuSun™, Clearfield™, Developed With Standard Hybrid Breeding Methods

Currently, no transgenic sunflower is commercially available in the United States. Some commodity buyers request proof of non-transgenic crop origin, however, and thus for sunflower seed or oil exports, the NSA provides members with a letter stating that U.S. sunflower is currently free of transgenic traits. USDA's Grain Inspection, Packers and Stockyards Administration (GIPSA) is providing similar documentation upon request.

NuSun, the new category of cooking oil made from sunflower that is mid-oleic, predominantly monounsaturated, with low saturated fat, is non-transgenic. It was developed with standard hybrid breeding methods.

It should be noted that Clearfield™ sunflower technology now available to sunflower producers is non-transgenic. Clearfield sunflower is conventionally bred sunflower resistant to imazamox herbicide for control of a wide array of grassy and broadleaf weeds. The Clearfield technology was developed by BASF, and the resistant breeding work was done by USDA and the private hybrid seed industry.

U.S. Sunflower Information Online

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

Click on the "Buyers Information" link for international marketing information, product specifications, and a list of sunflower product suppliers.

The NuSun™ link has more information about this mid-oleic oil, and suppliers.

See the Confection/Non-oil link for a list of industry suppliers.

About the National Sunflower Association

The National Sunflower Association (NSA) is a non- profit 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 technical 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 overseas, 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.

NSA welcomes inquiries from any foreign agencies, companies or individuals interested in U.S. sunflower.

CONTACTS:

National Sunflower Association
John Sandbakken, Marketing Director
Email: johns@sunflowernsa.com
4023 State Street
Bismarck, ND 58503-0620
Ph: (701) 328-5100
Fax: (701) 328-5101
Web site: www.sunflowernsa.com

NSA Representative in Mexico
Jose Luis Escamilla
Email:escgrain@avantel.net
Jose Ma Rico 212-Desp. 702
Col Del Valle
Mexico, D.F. 03100, Mexico
Ph. (5255) 524-8273; or 524-8192
Fax: (5255) 534-8997

ACKNOWLEDGEMENTS:

The NSA gratefully acknowledges the contributions of the Foreign Agricultural Service, U.S. Department of Agriculture, (**Web Site:** http://www.fas.usda.gov) in the preparation of this electronic publication.

The 2003 U.S. Sunflower Crop Quality Report was compiled by John Sandbakken, Marlene Dufault and Tracy Sayler.

NATIONAL
SUNFLOWER
ASSOCIATION

4023 State Street • Bismarck, ND 58503-0620
Ph: (701) 328-5100 • Fax: (701) 328-5101
Web site: www.sunflowernsa.com