



2002
U.S. Sunflower
Crop Quality Report



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About the 2002 Sunflower Crop Quality Report



The 2002 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 2002 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 2002

Drought defined the U.S. sunflower crop in 2002. Nationally, 2002 was the third hottest summer (June-August) in over 100 years of record. Bismarck, N.D. set an all-time high mark with 11 degrees F on June 29. In the Plains, extreme heat further aggravated drought conditions in July. During the 15th to 21st, thermometers from South Dakota to Kansas hit the century mark each day.

The hot weather aggravated drought in many areas, including the Plains from North Dakota to Texas, the primary sunflower production growing area of the U.S. Six states—Wyoming, Nebraska, Colorado (all sunflower producing states) Utah, Nevada, and Arizona—recorded one of the driest 7 years on record, with Colorado recording its driest year ever.

Wet weather conditions in the central and eastern part of the Dakotas in the fall were still conducive for the formation of some Sclerotinia. Thus, the 2002 sunflower harvest was a mixed bag of yields and quality. The 2002 sunflower production totaled 2.50 billion pounds, 27% below the 2001 production. The estimated yield per

acre, at 1,133 pounds, decreased 205 pounds from the previous year. Planted area, at 2.59 million acres, was down 2% from 2001. Harvested acres, at 2.21 million, declined 14% from 2001.

Production of oil type sunflower varieties, at 2.07 billion pounds, dropped 26% from 2001. Acreage harvested of oil type varieties decreased 11% from 2001 and yield was down 233 pounds.

Production of non-oil (confection) sunflower varieties, at 425 million pounds, was down 31% from last year. Acreage harvested of non-oil varieties decreased 26% from 2001. The yield per acre was 1,154 pounds, 89 pounds below 2001.

U.S. Sunflower Production
(1,000 pounds)

	2000	2001	2002
Oil	2,909,844	2,803,704	2,072,410
Non-Oil	634,584	615,055	424,826
Total	3,544,428	3,418,759	2,497,236

U.S. Oil-Type Sunflower Harvested Area, By State
(Thousands of Hectares)

State	1996	1997	1998	1999	2000	2001	2002
Colorado	17.8	19.0	43.3	69.6	43.0	48.6	32.4
Kansas	93.1	66.8	62.7	97.1	75.8	117.4	62.7
Minnesota	39.3	29.1	35.2	31.2	19.6	11.3	15
Nebraska	8.9	9.7	15.4	19.0	20.0	20.2	13.8
North Dakota	360.2	445.2	639.4	493.7	401.8	337.0	447.2
South Dakota	256.2	301.5	358.2	348.8	278.8	267.5	151.8
Texas	3.2	8.9	4.5	9.7	5.3	13.4	4.5
Other	12.3	15.0	13.8	21.5	20.0	17.4	16.2
Total U.S.	791.0	895.2	1,172.5	1,090.6	864.7	833.7	743.6

Source: USDA



NuSun™ Industry Inroads Continue; Nutrition Research Promising

NuSun™ mid-oleic sunflower oil continues to be a solution to food processors, food service users and consumers looking for a cooking oil with excellent taste, performance and health profiles. NuSun™ meets all of these criteria and does not need partial hydrogenation—therefore, no trans fats (trans fatty acids) are created.

The U.S. National Academy of Science’s Institute of Medicine, an advisory group to the U.S. government on health and nutrition issues, recently released a major new report that recommended consuming as few trans fatty acids as possible while still consuming a nutritionally adequate diet. The report states that trans fat, along with saturated fats, elevate total and ‘bad’ low density lipoprotein (LDL) cholesterol, increasing the risk of cardiovascular disease.

Health Canada, the Canadian food regulatory group, has mandated trans fat labeling on nutritional labels effective in three to five years. The U.S. Food and Drug Administration is expected to do the same. Consumers are becoming aware of the negative health implications associated with trans fats and are looking for healthier alternatives.

NuSun™ sunflower oil was designed by the sunflower industry with the needs of the food industry and consumers in mind. The industry realized that NuSun™ sunflower oil could meet the demands for oil that does not contain trans fats and produces tasty, high-quality foods products. It is also attractive to the

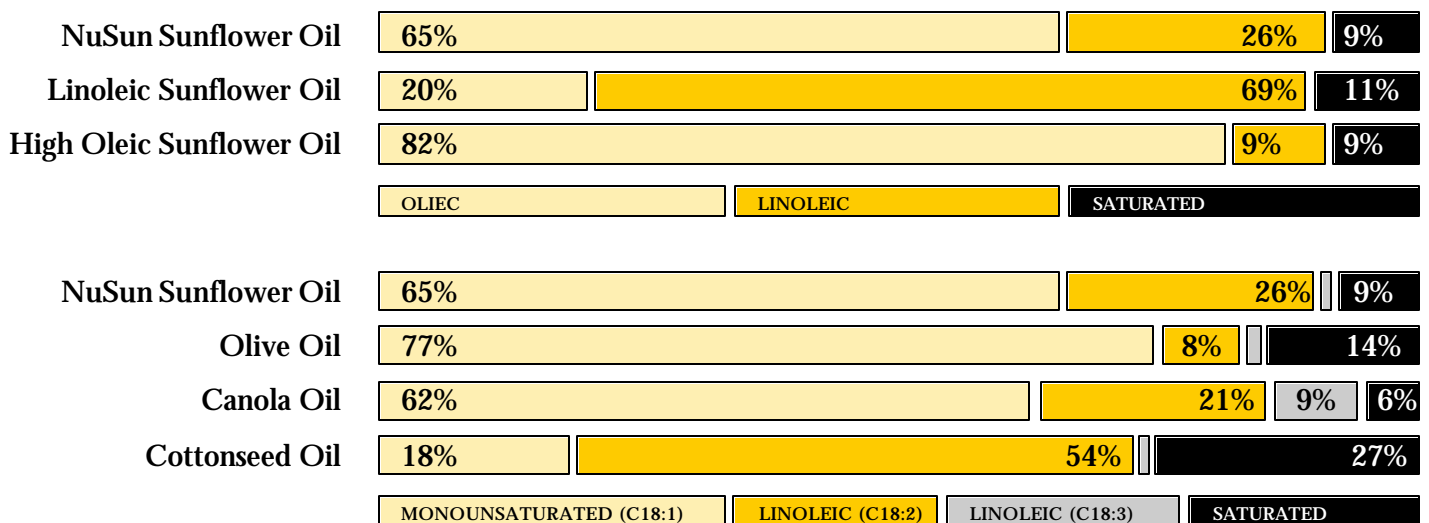
world market. According to John Sandbakken, international marketing director of the National Sunflower Association, world buyers are interested in the ‘new and improved’ sunflower oil and like the fact the fatty acid profile is very similar to olive oil without the strong taste. The international marketplace realizes the value of the healthier oil and it is also attractive to some markets because it is a non-biotech product.

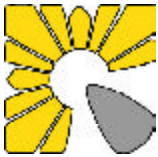
Developed with standard hybrid breeding methods, NuSun™ first entered the export market in 2002. Currently Taiwan, Mexico and the United Arab Emirates import the mid-oleic oil. It is available as bottled oil in all three countries. It is also being used as a spray oil for the baking industry in Mexico. Bimbo, one of Mexico’s largest baking companies, has replaced cottonseed oil with NuSun™ in its operations.

Initial NuSun™ nutrition research was done by Dr. Robert Nicolosi and T. Wilson at the University of Massachusetts-Lowell using animals. NuSun™ sunflower oil compared with olive-fed animals in lowering levels of LDL cholesterol without significantly reducing HDL cholesterol and oxidative stress.

Results from the first human study with NuSun™ should be available in 2003. This research is being done at Penn State University by Dr. Penny Kris-Etherton and is examining NuSun™ sunflower oil’s effect on blood cholesterol levels.

Fatty Acid Composition





2002 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2002 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.

Non-Oil Sunflower Seed Quality				
Year	Test Weight	Moisture	Foreign Matter	Over 20/64 Size
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%**
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
1998	30.8	9.8	3.9	43.9
1997	30.9	9.5	4.0	44.0
1996	30.3	9.6	4.7	43.0

*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.

Oil-type sunflower seed analysis indicated an average oil of 42.1%, slightly lower than the 2001 average of 42.3% and similar to the 42.2% average in 1999. Test weight was 29.8 pounds per bushel, lower than the 30.7 lbs/bu average of 2001. Foreign material at 5.3% was slightly higher than the 2001 average of 5.1%. Moisture at 10.8% was higher than 2001 at 9.6%.

The percentage of confection seed in 2002 over 20/64 in size was 55.9%, slightly higher than 55.7% in 2001. Foreign material in samples in 2002 was 8.1%, higher than the 7.8% in 2001. Test weight (26.6%) and moisture (10.1%) was lower than in 2001 (27.5% test weight, 10.4% moisture).

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 1/2 kernel)



2001 Fatty Acid Analysis/Oil Traits, Rules

The tables below compare the fatty acid content of representative samples of sunflower seed oil, gathered from the 2002 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 59.52% oleic average of NuSun samples was lower than the 61.15% average in 2001, but still well above the 54.79% average of 1999 oil samples.

The 2002 linoleic acid content of 63.95% is below that of the 64.65% average of the 2001 crop samples. The 24.63% oleic level average of the 2002 sunflower oil samples is slightly higher than the 24.19% average of the 2001 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 2002 samples.

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.

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

Specification	Amount
Flash Point (AOCS Cc9b-55)	250° 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 25°	1.4740-1.4745
Smoke Point	252-254° 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: 0° C (32° F)	48 Hours
4.4° C (40° F)	120 Hours
Flavor and Odor	Pleasing; Not Rancid, Bitter or Sour
Appearances (waxes not separated)	Will be cloudy at room temperature

Sunflower Oil Quality Linoleic Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2002	5.75	4.36	24.63	63.95	0.25
2001	5.68	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
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



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 sunflower oil.

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.

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.

U.S. Sunflower Oil Exports				
October 01-September 02 (metric tons)				
Country	1998/99	1999/00	2000/01	2001/02
Algeria	26,960	32,593	62,701	47,898
Bahrain	2,524	1,069	24	60
Canada	18,733	24,038	22,990	24,465
Columbia	7,410	393	1,058	187
Egypt	14,333	21,829	5,924	12,500
El Salvador	5,213	2,561	295	254
Guatemala	15,301	2,105	4,428	0
India	20,997	0	0	752
Japan	4,598	6,620	5,769	6,143
Jordan	6,270	4	3,797	4,889
Kuwait	2,572	24	616	14
Mexico	151,536	169,577	43,086	17,761
Netherlands	1,763	2,700	57,547	22,914
Singapore	4,501	2	1,054	4
Taiwan	17,154	15,176	9,920	13,647
Turkey	9,198	0	12,575	15,697
Utd. Arab Em.	500	0	6,513	3,999
Other	53,232	7,334	13,125	34,467
Total MT	362,795	286,025	251,422	205,651

U.S. Sunflower Meal Exports				
October 01 - September 02 (metric tons)				
Country	1998/99	1999/00	2000/01	2001/02
Canada	811	1,956	1,423	2,166
Netherlands	0	7,282	0	0
Mexico	11,076	3,922	2,731	2,451
Ireland	23,856	7,577	3,862	17,677
Un. Kingdom	5,382	0	0	3,348
Other	96	75	92	20
Total MT	41,221	20,812	8,108	25,662





U.S. Supply/Disappearance

	97/98 Oct-Sep	98/99	99/00	00/01	01/02 Revised	02/03 Forecast	Trad.	NuSun	Totals
-----In 1,000 Metric Tons, Unless Otherwise Specified-----									
CONFECTION SUNFLOWER									
Area Harvested (1,000 HA)	235	241	302	215	200	149	-	-	
Area Harvested (1,000 AC)	580	595	746	531	495	368	-	-	
Yield (MT\HA)	1.34	1.48	1.27	1.34	1.39	1.29	-	-	
Yield (LB\AC)	1,192	1,322	1,131	1,195	1,243	1,154	-	-	
Stocks, Oct 1	45	9	16	27	22	15	-	-	
Production	314	357	383	288	279	193	-	-	
Seed Import	<u>9</u>	<u>10</u>	<u>18</u>	<u>44</u>	<u>48</u>	<u>55</u>			
TOTAL SUPPLY	368	376	417	359	349	263	-	-	
Disappearance	359	360	390	337	334	250	-	-	
Ending Stocks	9	16	27	22	15	13	-	-	
OILSEED SUNFLOWER									
Area Harvested (1,000 HA)	895	1,172	1,091	856	834	743	446	297	743
Area Harvested (1,000 AC)	2,212	2,897	2,695	2,116	2,060	1,837	1,102	735	1,837
Yield (MT\HA)	1.51	1.74	1.46	1.54	1.53	1.26	1.26	1.26	-
Yield (LB\AC)	1,350	1,549	1,298	1,375	1,361	1,128	1,128	1,128	-
Stocks, Oct 1	74	13	110	94	40	41	28	13	41
Production	1,355	2,036	1,587	1,320	1,272	940	564	376	940
Seed Import	<u>20</u>	<u>26</u>	<u>31</u>	<u>23</u>	<u>26</u>	<u>30</u>	<u>30</u>	<u>0</u>	<u>30</u>
TOTAL SUPPLY	1,449	2,075	1,728	1,437	1,338	1,011	622	389	1,011
Oilseed Crushed	1,000	1,241	1,103	922	723	435	217	218	435
Planting Seed, Birdfood, Domestic Use	279	586	490	447	546	550	389	161	550
Exports	<u>157</u>	<u>138</u>	<u>41</u>	<u>28</u>	<u>28</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Disappearance	1,436	1,965	1,634	1,397	1,297	985	606	379	985
Ending Stocks	13	110	94	40	41	26	16	10	26
SUNFLOWER OIL									
Stocks, Oct 1	42	27	55	71	62	10	6	4	10
Oil Imports	0	0	0	0	9	0			
Oil Production	<u>420</u>	<u>521</u>	<u>452</u>	<u>387</u>	<u>304</u>	<u>183</u>	<u>91</u>	<u>92</u>	<u>183</u>
TOTAL SUPPLY	462	548	507	458	375	193	97	96	193
Domestic Oil Use	65	130	150	145	159	130	47	83	130
Oil Exports	<u>370</u>	<u>363</u>	<u>286</u>	<u>251</u>	<u>206</u>	<u>55</u>	<u>45</u>	<u>10</u>	<u>55</u>
Total Use	435	493	436	396	365	185	92	93	185
Ending Stocks	27	55	71	62	10	8	5	3	8
SUNFLOWER MEAL									
Stocks, Oct. 1	5	2	7	4	8	4	2	2	4
Production	<u>500</u>	<u>621</u>	<u>552</u>	<u>443</u>	<u>347</u>	<u>209</u>	<u>104</u>	<u>105</u>	<u>209</u>
TOTAL SUPPLY	505	623	558	447	355	213	106	107	213
Domestic Use	490	575	533	431	325	204	102	102	204
Exports	<u>13</u>	<u>41</u>	<u>21</u>	<u>8</u>	<u>26</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>5</u>
Total Use	503	616	554	439	351	209	104	105	209
Ending Stocks	2	7	4	8	4	4	2	2	4



World Supply/Disappearance

ITEM	1997/98	1998/99	1999/00	2000/01	2001/02 Revised	2002/03 Forecast
Area Harvested	19,776	22,536	22,858	19,540	18,555	19,604
Yield (MT/HEC)	1.21	1.22	1.18	1.18	1.15	1.17
SUNFLOWER SEED -----(In 1,000 Metric Tons, Unless Specified)-----						
PRODUCTION						
Argentina	5,680	7,130	5,800	2,950	3,650	3,850
Eastern Europe	2,179	2,594	2,754	1,657	1,767	1,903
European Union	4,078	3,438	3,105	3,333	3,019	2,856
China, Peoples Republic of	1,176	1,465	1,765	1,954	1,750	1,900
former USSR	5,412	5,737	6,890	7,368	4,979	5,950
United States	1,668	2,393	1,970	1,608	1,551	1,133
India	1,160	1,170	870	730	870	1,150
Turkey	672	850	820	630	530	820
Other	<u>1,866</u>	<u>2,827</u>	<u>2,983</u>	<u>2,880</u>	<u>3,160</u>	<u>3,421</u>
TOTAL	23,891	27,604	26,957	23,110	21,276	22,983
SEED IMPORTS						
Mexico	116	49	15	23	10	12
European Union	2,340	2,034	2,231	1,999	1,164	1,410
Other	<u>856</u>	<u>918</u>	<u>871</u>	<u>704</u>	<u>496</u>	<u>559</u>
TOTAL	3,312	3,001	3,117	2,726	1,670	1,981
OILSEED CRUSHED						
	22,601	21,466	23,366	21,116	18,317	20,180
SEED EXPORTS						
Argentina	65	504	265	94	341	350
United States	10	157	168	153	176	100
former USSR	2,395	1,717	1,239	1,768	107	320
Other	<u>817</u>	<u>617</u>	<u>1,372</u>	<u>711</u>	<u>1,076</u>	<u>1,190</u>
TOTAL	3,287	2,995	3,044	2,726	1,700	1,960
SUNFLOWER OIL						
OIL OPENING STOCKS	1,132	969	974	1,241	899	627
OIL PRODUCTION	9,146	8,588	9,550	8,668	7,398	8,257
OIL IMPORTS						
Algeria	219	209	233	276	191	225
Turkey	209	202	99	133	152	100
Egypt	316	279	187	114	143	150
Mexico	180	193	173	73	40	38
former USSR	276	372	228	175	174	195
Taiwan	28	27	32	29	30	30
Others	<u>1,975</u>	<u>1,792</u>	<u>1,988</u>	<u>1,788</u>	<u>1,511</u>	<u>1,701</u>
TOTAL	3,203	3,074	2,940	2,588	2,241	2,439
DISAPPEARANCE						
	9,318	8,702	9,322	9,029	7,684	8,225
OIL EXPORTS						
Argentina	1,745	1,664	1,484	1,149	1,070	1,170
European Union	437	276	178	161	112	99
Eastern Europe	373	357	172	90	105	107
United States	370	363	286	251	206	55
Others	<u>276</u>	<u>350</u>	<u>817</u>	<u>918</u>	<u>734</u>	<u>1,017</u>
TOTAL	3,201	3,010	2,937	2,569	2,227	2,448
ENDING STOCKS						
	961	919	1,161	899	627	650
SUNFLOWER MEAL						
MEAL PRODUCTION	10,860	10,244	10,976	9,971	8,575	9,428
MEAL IMPORT	2,588	2,662	2,995	2,665	2,292	2,618
DISAPPEARANCE	10,853	10,230	10,937	10,122	8,620	9,420
MEAL EXPORTS	2,551	2,649	3,010	2,569	2,289	2,625
ENDING STOCKS	207	234	247	133	90	92

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.

Clearfield™ sunflower seed will be available for planting in the U.S. in 2003, pending regulatory approval of herbicide for the crop. 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 breed-

ing 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.

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