~ 2024 ~

U.S. Sunflower Crop Quality Report

National Sunflower Association

2024 U.S. Sunflower Crop Quality Report

Regarding the 2024 Sunflower Crop Quality Report . . .

The 2024 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 2024 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 at www.sunflowernsa.com .

Printed copies of this report can be made available upon request by the NSA. (See the NSA's contact details on page 9.)

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National Sunflower Association

2024 U.S. Sunflower Acreage & Production

United States sunflower production in 2024 totaled 1.15 billion pounds , according to the USDA — an sharp decline of nearly 49% from the 2.26 billion pounds of 2023. At 947,060 million pounds, production of oil-type sunflower was down nearly 52% from the prior year's crop, while at 198,545 million pounds, the 2024 confection crop was almost 33% below that of 2023.

North Dakota retained its top spot among states in 2024. North Dakota's growers harvested a total of 518.6 million pounds of sunflower, while South Dakota came in second at 466.3 million pounds. Those two levels were, respectively, 43.3% and 57% below those of 2024. Like the Dakotas, all other surveyed states produced less sunflower in 2024 compared to the previous year.

Drought was again a factor in several states in 2024, while damage from the red sunflower seed weevil had a significant impact once again in South Dakota.

Average yield among oil-type sunflower acres in 2024 was 1,664 pounds per acre — 85 pounds lower than the 2023 average. Minnesota led at 1,900 pounds per acre, followed by North Dakota (1,800 pounds) and South Dakota (1,700 pounds). On the lower end were Colorado (820 pounds) and Texas (900 pounds).

With confection sunflower, South Dakota averaged 2,100 pounds per acre in 2024, while Minnesota came in at 1,700 pounds.

U.S. Sunflower Production

(1,000s of Pounds)

	2021	2022	2023	2024
Oil	1,738,160	2,566,400	1,963,075	947,060
Nonoil	167,125	242,155	294,615	198,545
Total	**1,905,285**	**2,808,555**	**2,257,690**	**1,145,605**

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

(1,000s of Hectares)

State	2017	2018	2019	2020	2021	2022	2023	2024
Colorado	29.9	19.8	17.8	13.0	15.8	17.4	9.3	7.3
Kansas	20.2	16.6	14.2	21.0	9.7	11.3	10.5	3.6
Minnesota	13.4	17.8	20.6	27.1	21.4	27.1	19.4	12.1
Nebraska	11.5	9.7	10.5	15.8	13.4	18.6	12.1	9.7
North Dakota	155.4	153.8	178.1	255.0	182.1	261.0	198.3	91.1
South Dakota	210.4	196.3	186.2	226.6	188.2	234.7	178.1	95.5
Texas	12.1	7.7	10.5	12.1	13.4	15.8	15.4	4.9
Other	21.4	23.1	19.8	17.2	18.0	12.5	11.2	6.2
Total	**474.3**	**444.8**	**457.7**	**587.8**	**462.0**	**598.4**	**454.3**	**230.4**

2024 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2024 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 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) 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 content of 42.8%, which compares to the 2023 average of 44.9%. Test weight averaged 30.2 pounds per bushel — 0.6 pound below the 2023 samples. Foreign material, at 4.7%, was 1.0% higher than the 2023 samples. At 8.2%, moisture was 0.7% lower than the average of 2023's samples.

The percentage of confection (nonoil) seeds over 20/64 in size averaged 85.3% among the 2024 crop year samples — 4.4% above the 2023 average of 80.9%.

Foreign material in the nonoils averaged 11.6% in 2024, 0.8% below the 2023 average. At 22.7 pounds per bushel, average 2024 nonoil test weight was 1.2 pounds above that of the 2023 samples. At 10.7%, nonoil average moisture was 1.0% above that of 2023's seed samples.

Oil-Type Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Oil (%)
2024	30.2	8.2	4.7	42.8
2023	30.8	8.9	3.7	44.9
2022	30.4	8.6	4.6	44.3
2021	31.7	8.8	4.4	44.4
2020	29.0	9.1	4.4	42.2

Nonoil Sunflower Seed Quality

Year	Test Weight (Lbs/Bu)	Moisture (%)	Foreign Material (%)	Seeds Over 20/64 Size (%)
2024	22.7	10.7	11.6	85.3
2023	21.5	9.7	12.4	80.9
2022	24.0	9.4	11.7	82.6
2021	21.4	9.0	12.8	85.4
2020	21.1	8.9	12.2	80.2

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.

2024 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 2024 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 68.66% oleic average of 2024 NuSun® (mid-oleic) samples was well above 2023's mid-oleic average of 66.12%.

The 2024 high-oleic seed samples averaged an oleic acid content of 86.84%. That compares to an 86.12% average of the 2023 high-oleic seed samples and an 85.55% average in 2022.

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
2024	3.26	3.28	86.84	4.43	0.14
2023	3.30	3.22	86.12	5.01	0.16
2022	3.34	3.24	85.55	5.74	0.16
2021	3.30	3.37	83.87	7.13	0.23
2020	3.28	3.39	84.26	6.76	0.22

Sunflower Oil Quality / NuSun®

Percent

Year	Palmitic 16:0	Stearic 18:0	Oleic 18:1	Linoleic 18:2	Linolenic 18:3
2024	3.87	3.29	68.66	22.18	0.14
2023	4.01	3.18	66.12	24.55	0.23
2022	3.81	3.31	73.85	16.96	0.28
2021	3.97	3.50	68.41	21.83	0.35
2020	3.95	3.48	68.84	21.39	0.38

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)

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) 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 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** sunflower 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. Three types of sun meal, identified by their respective protein contents (28, 32 and 35%), are produced in the United States.

U.S. Sunflower Oil Exports

(October-September, in Metric Tons)

Country	2020/21	2021/22	2022/23	2023/24
Australia	392	382	273	651
Canada	26,370	40,498	21,348	17,169
Columbia	46	21	24	15
Honduras	240	313	480	0
Japan	1,257	509	467	282
Malaysia	2,261	0	16	1,040
Mexico	10,300	7,268	4,999	3,448
Netherlands	228	594	456	287
South Korea	1,692	3,828	2,917	1,613
Taiwan	540	815	551	416
Vietnam	15	26	97	22
Other	1,839	1,988	1,394	1,449
Total MT	**45,180**	**56,242**	**33,022**	**26,392**

U.S. Sunflower Meal Exports

(October-September, in Metric Tons)

Country	2020/21	2021/22	2022/23	2023/24
Cambodia	0	0	512	498
Canada	27,080	23,526	13,126	12,871
Indonesia	0	0	899	475
Mexico	663	0	0	356
Thailand	0	0	0	7,608
Vietnam	419	4,146	0	193
Other	0	64	2,507	592
Total MT	**28,162**	**27,736**	**17,044**	**22,593**

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

Item	2019/20	2020/21	2021/22	2022/23	2023/24 *Revised*	2024/25 *Forecast*
NONOIL SUNFLOWER						
Area Harvested (1,000 HA)	50	86	42	52	57	47
Area Harvested (1,000 AC)	123	214	104	129	141	117
Yield (MT/HA)	1.74	1.92	1.80	2.11	2.34	1.90
Yield (LB/AC)	1,555	1,711	1,602	1,884	2,089	1,698
Stocks, Oct. 1	33	26	43	34	12	31
Production	86	166	76	110	134	90
Seed Import	98	83	90	73	73	68
TOTAL SUPPLY	**217**	**275**	**209**	**217**	**219**	**189**
Disappearance	191	232	175	205	188	170
Ending Stocks	26	43	34	12	31	19
OIL SUNFLOWER						
Area Harvested (1,000 HA)	458	588	462	595	454	230
Area Harvested (1,000 AC)	1,131	1,452	1,142	1,471	1,123	569
Yield (MT/HA)	1.75	2.02	1.71	1.96	1.96	1.87
Yield (LB/AC)	1,561	1,802	1,523	1,745	1,749	1,664
Stocks, Oct. 1	65	57	103	66	123	191
Production	801	1,187	789	1,165	891	430
Seed Import	43	45	39	28	35	50
TOTAL SUPPLY	**909**	**1,289**	**931**	**1,259**	**1,048**	**671**
Oilseed Crushed	389	504	435	411	378	315
Planting Seed, Birdfood, Domestic Use	447	659	405	697	463	320
Exports	16	23	25	28	16	8
Disappearance	852	1,186	865	1,136	857	643
Ending Stocks	57	103	66	123	191	28
SUNFLOWER OIL						
Stocks, Oct. 1	18	22	27	29	39	26
Oil Imports	169	134	205	153	168	160
Oil Production	163	212	183	173	159	132
TOTAL SUPPLY	**350**	**368**	**415**	**355**	**366**	**318**
Domestic Oil Use	288	296	329	283	314	275
Oil Exports	40	45	56	33	26	20
Total Use	328	341	385	316	340	295
Ending Stocks	22	27	29	39	26	23
SUNFLOWER MEAL						
Stocks, Oct. 1	3	3	3	3	3	3
Production	198	257	222	210	193	161
TOTAL SUPPLY	**201**	**260**	**225**	**213**	**196**	**163**
Domestic Use	178	229	194	193	170	145
Exports	20	28	28	17	23	15
Total Use	198	257	222	210	193	160
Ending Stocks	2	3	3	3	3	3

World Sunflower Supply & Disappearance

Sources: Oil World & USDA

Item	2019/20	2020/21	2021/22	2022/23	2023/24 Revised	2024/25 Forecast
Area Harvested (1,000 HA)	**27,413**	**28,045**	**29,877**	**29,983**	**29,826**	**29,863**
Yield (MT/HA)	**2.03**	**1.81**	**1.95**	**1.87**	**1.98**	**1.80**
SUNFLOWER SEED —						
Production						
Argentina	3,020	3,200	3,360	4,130	3,760	4,100
European Union	9,469	8,969	10,389	9,520	9,892	8,666
China	2,680	2,750	2,880	2,930	3,000	3,100
Russia	15,379	13,420	15,660	17,100	18,600	16,900
Ukraine	16,500	13,900	16,900	12,680	14,900	12,500
United States	887	1,353	864	1,276	1,024	520
South Africa	810	678	846	720	636	810
Turkey	1,700	1,580	1,750	1,730	1,280	1,300
Other	5,202	4,995	5,652	5,947	5,931	5,954
TOTAL	**55,647**	**50,845**	**58,301**	**56,033**	**59,023**	**53,850**
Seed Import						
Turkey	1,058	844	673	981	294	270
European Union	1,057	817	1,807	1,466	833	515
Other	1,451	1,308	1,639	1,492	1,497	1,266
TOTAL	**3,566**	**2,969**	**4,119**	**3,939**	**2,624**	**2,051**
Seed Exports						
Argentina	214	178	158	91	80	82
United States	64	72	69	63	46	35
Russia	1,278	528	280	285	324	320
Ukraine	76	186	1,793	1,685	302	77
Other	1,980	1,907	1,875	1,755	1,966	1,503
TOTAL	**3,612**	**2,871**	**4,175**	**3,879**	**2,718**	**2,017**
Oilseed Crushed	**50,300**	**45,568**	**48,315**	**52,180**	**55,527**	**50,420**
SUNFLOWER OIL —						
Oil Opening Stocks	**2,818**	**2,817**	**2,294**	**3,509**	**4,353**	**4,142**
Oil Production	**21,532**	**18,891**	**20,481**	**22,067**	**23,627**	**21,114**
Oil Imports						
Iran	527	903	668	729	742	640
Turkey	772	719	1,065	1,262	1,106	1,120
Egypt	398	204	281	368	680	320
European Union	2,479	1,720	2,322	2,584	3,200	3,300
India	2,514	1,958	1,956	2,988	3,516	2,900
Others	6,881	5,872	4,968	6,276	6,601	5,590
TOTAL	**13,571**	**11,376**	**11,260**	**14,187**	**15,845**	**13,870**
Oil Exports						
Argentina	675	796	894	947	1,158	1,230
European Union	875	671	846	1,196	996	830
Russia	3,706	3,228	3,193	4,279	5,380	4,850
Ukraine	6,763	5,250	4,725	5,447	6,272	4,910
United States	40	45	56	33	26	20
Other	1,640	1,337	1,697	2,018	2,233	1,890
TOTAL	**13,699**	**11,327**	**11,411**	**13,920**	**16,065**	**13,730**
Disappearance	**21,533**	**19,414**	**19,287**	**21,223**	**23,838**	**22,181**
Ending Stocks	**2,817**	**2,294**	**3,509**	**4,353**	**4,142**	**3,075**
SUNFLOWER MEAL —						
Meal Production	21,972	20,285	21,443	23,096	24,260	22,106
Meal Imports	9,009	8,048	8,274	9,585	11,135	9,880
Meal Exports	8,991	8,092	8,432	9,562	10,955	9,870
Disappearance	21,967	20,278	20,925	22,937	22,853	22,418
Ending Stocks	**272**	**308**	**693**	**935**	**1,086**	**784**

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 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, 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.

National Sunflower Association

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