

~ 2019 ~

U.S. Sunflower Crop Quality Report



Regarding the 2019 Sunflower Crop Quality Report . . .

The 2019 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 2019 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: www.sunflowernsa.com.

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

— Table of Contents —

| | |
|--|---|
| Regarding the 2019 Report | 2 |
| 2019 Acreage & Production | 3 |
| Seed Quality / Confection Kernel Specifications | 4 |
| Oil Quality Analysis / Oil Traits & Rules | 5 |
| Sun Oil & Sun Meal Exports | 6 |
| U.S. Supply & Disappearance | 7 |
| World Supply & Disappearance | 8 |
| About the National Sunflower Association / Contact | 9 |



2019 U.S. Sunflower Acreage & Production

United States sunflower production totaled just over 1.94 billion pounds in 2019, about 7% less than the 2018 crop's size and 9% below that of 2017.

The U.S. average yield in 2019 — 1,562 pounds per acre — was 169 pounds below the average yield produced in 2018. The 2018 yield had tied with that achieved in 2016 for the highest on record.

For the fourth consecutive year, South Dakota was the top sunflower-producing state. Its growers produced 831.6 million pounds of sunflower in 2019, down 14% from 2018. Compared with 2018, harvested area in South Dakota decreased 6.5% while average yield declined 146 pounds to 1,694 pounds per acre.

North Dakota produced

740.7 million pounds of sunflower in 2019, an increase of 1% from the previous season.

United States production of nonoil sunflower varieties in 2019 is estimated at 197 million pounds, a drop of more than 10% from 2018. Area harvested, at 126,500 acres, was up by 1% from 2018. The average nonoil yield, however, decreased by 223 pounds from 2018 to 1,558 pounds per acre.

Production of oil-type sunflower varieties in 2019, at nearly 1.75 billion pounds, was more than 7% below 2018. Compared with the previous year, oil-type harvested acreage was 1% higher. But the average yield declined by 163 pounds compared to 2018, ending up at 1,562 pounds per acre.



U.S. Sunflower Production

(1,000s of Pounds)

| | 2016 | 2017 | 2018 | 2019 |
|--------------|------------------|------------------|------------------|------------------|
| Oil | 2,369,015 | 1,847,525 | 1,877,260 | 1,746,350 |
| Nonoil | 282,620 | 290,225 | 219,785 | 197,085 |
| Total | 2,651,635 | 2,137,750 | 2,097,045 | 1,943,435 |

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

(1,000s of Hectares)

| State | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Colorado | 24.7 | 15.8 | 13.0 | 23.1 | 23.1 | 29.9 | 19.8 | 17.8 |
| Kansas | 26.3 | 20.2 | 17.0 | 21.4 | 17.0 | 20.2 | 16.6 | 13.0 |
| Minnesota | 15.0 | 13.0 | 18.2 | 30.4 | 25.9 | 13.4 | 17.8 | 20.6 |
| Nebraska | 11.9 | 10.3 | 10.1 | 10.9 | 11.3 | 11.5 | 9.7 | 10.5 |
| North Dakota | 305.5 | 163.9 | 206.4 | 244.8 | 246.9 | 155.4 | 153.8 | 174.0 |
| South Dakota | 226.6 | 218.5 | 161.9 | 230.7 | 200.3 | 210.4 | 196.3 | 186.2 |
| Texas | 13.4 | 24.3 | 16.2 | 35.2 | 11.3 | 12.1 | 7.7 | 10.5 |
| Other | 20.8 | 23.6 | 18.3 | 14.6 | 18.0 | 21.4 | 23.1 | 19.8 |
| Total | 644.2 | 489.6 | 461.1 | 611.1 | 553.8 | 474.3 | 444.8 | 452.4 |

2019 Seed Quality/Confection Kernel Specifications

Seed quality and kernel specifications of the 2019 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 42.6%, compared to the 2018 average of 42.8%. Test weight averaged 29.5 pounds per bushel — 0.9 pound below the 2018 samples. Foreign material, at 5.6%, was significantly higher than the 2018 average of 3.6%.

The 2019 samples' average moisture of 10.9% was also significantly higher than the 9.1% average of the 2018 samples.

The percentage of con-

fection (nonoil) seeds over 20/64 in size averaged 80.6% among the 2019 samples, compared to the 2018 average of 86.4%.

Foreign material in the nonoils averaged 13.0% in 2019, which was up from 2018's average of 12.7%.

At 21.7 pounds per bushel, average 2019 nonoil test weight was 0.6 pound below than that of the 2018 samples. At 9.5%, moisture was lower than the 10.3% average of the 2018 nonoil sunflower crop.

Oil-Type Sunflower Seed Quality

| Year | Test Weight (Lbs/Bu) | Moisture (%) | Foreign Material (%) | Oil (%) |
|------|-------------------------|-----------------|-------------------------|------------|
| 2019 | 29.5 | 10.9 | 5.6 | 42.6 |
| 2018 | 30.4 | 9.1 | 3.6 | 42.8 |
| 2017 | 30.0 | 9.1 | 5.1 | 41.6 |
| 2016 | 31.0 | 8.8 | 4.4 | 43.2 |
| 2015 | 31.0 | 8.6 | 5.4 | 42.5 |

Nonoil Sunflower Seed Quality

| Year | Test Weight (Lbs/Bu) | Moisture (%) | Foreign Material (%) | Seeds Over 20/64 Size (%) |
|------|-------------------------|-----------------|-------------------------|---------------------------------|
| 2019 | 21.7 | 9.5 | 13.0 | 80.6 |
| 2018 | 22.3 | 10.3 | 12.7 | 86.4 |
| 2017 | 20.2 | 9.8 | 16.3 | 87.1 |
| 2016 | 20.1 | 9.6 | 12.3 | 82.4 |
| 2015 | 20.6 | 9.7 | 12.8 | 84.8 |

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 Meets all state & federal regulatory requirements |
| Pesticide Residues | - Only FDA-approved fumigants may be used as considered necessary. Residues may not exceed FDA approved tolerances |
| Fumigants | - |
| <i>Quality and type of kernel is determined with the following factors to meet specific customer needs:</i> | |
| Size | - Defined as kernel count per oz Includes shells and unshelled seed; defined as percentage or count per unit of weight |
| Foreign Material | - Defined as a percentage at or below 8% |
| Moisture | - Distinctly discolored kernel or insect damage. Each defined as a percentage |
| Damage | - Any portion less than 1/2 kernel; defined as a percentage |
| Broken or Chip | - Kernel with a piece of shell adhering; defined as count per unit of weight. |
| Sticktites | - |

2019 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 2019 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 70.19% oleic average of 2019 NuSun® (mid-oleic) samples was slightly above the 70.04% average of the 2018 crop, but below 2017's 70.67%.

The 2019 high-oleic seed samples averaged an oleic acid content of

85.21%. That compares to an 85.04% average of the 2018 high-oleic seed samples and 86.37% in 2017.

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

| | Palmitic | Stearic | Oleic | Linoleic | Linolenic |
|------|----------|---------|-------|----------|-----------|
| Year | 16:0 | 18:0 | 18:1 | 18:2 | 18:3 |
| 2019 | 3.38 | 3.39 | 85.21 | 5.85 | 0.21 |
| 2018 | 3.37 | 3.37 | 85.04 | 6.09 | 0.12 |
| 2017 | 3.27 | 3.11 | 86.37 | 4.86 | 0.17 |
| 2016 | 3.43 | 3.17 | 85.60 | 5.51 | 0.19 |
| 2015 | 3.47 | 3.20 | 84.23 | 6.70 | 0.27 |

Sunflower Oil Quality / NuSun®

Percent

| | Palmitic | Stearic | Oleic | Linoleic | Linolenic |
|------|----------|---------|-------|----------|-----------|
| Year | 16:0 | 18:0 | 18:1 | 18:2 | 18:3 |
| 2019 | 3.99 | 3.38 | 70.19 | 20.32 | 0.27 |
| 2018 | 4.06 | 3.55 | 70.04 | 19.89 | 0.32 |
| 2017 | 3.97 | 3.34 | 70.67 | 19.51 | 0.26 |
| 2016 | 4.13 | 3.57 | 66.06 | 23.80 | 0.40 |
| 2015 | 4.25 | 3.56 | 63.77 | 26.02 | 0.36 |

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)

2019 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** 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. 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 | 2015/16 | 2016/17 | 2017/18 | 2018/19 |
|-----------------|---------------|---------------|---------------|---------------|
| Australia | 77 | 51 | 492 | 1,511 |
| Canada | 18,996 | 17,869 | 20,282 | 20,402 |
| Columbia | 534 | 2,694 | 7 | 109 |
| Costa Rica | 82 | 36 | 354 | 0 |
| Germany | 0 | 2 | 6 | 4,569 |
| Japan | 4,442 | 2,530 | 597 | 1,104 |
| Malaysia | 5 | 0 | 2,083 | 6,721 |
| Mexico | 10,721 | 4,874 | 12,572 | 17,015 |
| Netherlands | 303 | 258 | 224 | 35 |
| Singapore | 4 | 0 | 41 | 153 |
| South Korea | 170 | 152 | 236 | 157 |
| Taiwan | 650 | 1,066 | 611 | 616 |
| Vietnam | 692 | 388 | 1,230 | 1,415 |
| Other | 2,144 | 2,540 | 1,649 | 1,613 |
| Total MT | 38,820 | 32,460 | 40,384 | 55,420 |

U.S. Sunflower Meal Exports

(October-September, in Metric Tons)

| Country | 2015/16 | 2016/17 | 2017/18 | 2018/19 |
|-----------------|---------------|--------------|--------------|---------------|
| Canada | 3,781 | 3,503 | 3,006 | 13,206 |
| Costa Rica | 0 | 0 | 38 | 0 |
| Indonesia | 406 | 0 | 194 | 155 |
| Mexico | 1,070 | 300 | 35 | 0 |
| Thailand | 5,139 | 288 | 0 | 834 |
| Venezuela | 1,177 | 0 | 0 | 0 |
| Vietnam | 0 | 0 | 2,550 | 156 |
| Other | 200 | 13 | 0 | 0 |
| Total MT | 11,773 | 4,104 | 5,823 | 14,351 |



2019 U.S. Sunflower Crop Quality Report

7

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

| Item | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 <i>Revised</i> | 2019/20 <i>Forecast</i> |
|---------------------------------------|------------|--------------|--------------|--------------|---------------------------|----------------------------|
| NONOIL SUNFLOWER | | | | | | |
| Area Harvested (1,000 HA) | 150 | 117 | 66 | 67 | 50 | 51 |
| Area Harvested (1,000 AC) | 371 | 289 | 164 | 166 | 123 | 127 |
| Yield (MT/HA) | 1.68 | 2.09 | 1.94 | 1.96 | 2.00 | 1.75 |
| Yield (LB/AC) | 1,497 | 1,865 | 1,729 | 1,750 | 1,781 | 1,558 |
| Stocks, Oct. 1 | 30 | 71 | 71 | 38 | 49 | 39 |
| Production | 252 | 245 | 129 | 132 | 100 | 89 |
| Seed Import | 37 | 35 | 36 | 41 | 50 | 65 |
| TOTAL SUPPLY | 319 | 351 | 235 | 211 | 199 | 193 |
| Disappearance | 248 | 280 | 197 | 162 | 160 | 165 |
| Ending Stocks | 71 | 71 | 38 | 49 | 39 | 28 |
| OIL SUNFLOWER | | | | | | |
| Area Harvested (1,000 HA) | 461 | 611 | 554 | 473 | 443 | 452 |
| Area Harvested (1,000 AC) | 1,140 | 1,510 | 1,369 | 1,168 | 1,094 | 1,118 |
| Yield (MT/HA) | 1.64 | 1.77 | 1.94 | 1.77 | 1.93 | 1.75 |
| Yield (LB/AC) | 1,460 | 1,579 | 1,731 | 1,582 | 1,725 | 1,562 |
| Stocks, Oct. 1 | 15 | 34 | 106 | 186 | 97 | 65 |
| Production | 755 | 1,082 | 1,075 | 838 | 856 | 792 |
| Seed Import | 23 | 18 | 21 | 31 | 36 | 35 |
| TOTAL SUPPLY | 793 | 1,133 | 1,201 | 1,055 | 989 | 892 |
| Oilseed Crushed | 351 | 495 | 508 | 475 | 485 | 480 |
| Planting Seed, Birdfood, Domestic Use | 375 | 512 | 483 | 467 | 420 | 342 |
| Exports | 33 | 21 | 24 | 17 | 19 | 10 |
| Disappearance | 759 | 1,028 | 1,015 | 959 | 924 | 832 |
| Ending Stocks | 34 | 105 | 186 | 97 | 65 | 60 |
| SUNFLOWER OIL | | | | | | |
| Stocks, Oct. 1 | 18 | 21 | 34 | 41 | 33 | 19 |
| Oil Imports | 80 | 42 | 55 | 73 | 60 | 77 |
| Oil Production | 146 | 205 | 211 | 197 | 201 | 199 |
| TOTAL SUPPLY | 244 | 268 | 300 | 311 | 294 | 296 |
| Domestic Oil Use | 194 | 195 | 227 | 238 | 220 | 235 |
| Oil Exports | 29 | 39 | 32 | 40 | 55 | 38 |
| Total Use | 223 | 234 | 259 | 278 | 275 | 273 |
| Ending Stocks | 21 | 34 | 41 | 33 | 19 | 23 |
| SUNFLOWER MEAL | | | | | | |
| Stocks, Oct. 1 | 4 | 3 | 3 | 4 | 4 | 3 |
| Production | 179 | 252 | 259 | 242 | 247 | 245 |
| TOTAL SUPPLY | 183 | 255 | 263 | 246 | 251 | 248 |
| Domestic Use | 173 | 240 | 255 | 236 | 233 | 238 |
| Exports | 7 | 12 | 4 | 6 | 15 | 6 |
| Total Use | 180 | 252 | 259 | 242 | 248 | 244 |
| Ending Stocks | 3 | 3 | 4 | 4 | 3 | 4 |

2019 U.S. Sunflower Crop Quality Report

World Sunflower Supply & Disappearance

Sources:
Oil World & USDA

| Item | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 <i>Revised</i> | 2019/20 <i>Forecast</i> |
|----------------------------------|---------------|---------------|---------------|---------------|---------------------------|----------------------------|
| Area Harvested (1,000 HA) | 24,708 | 25,242 | 26,964 | 26,885 | 27,265 | 27,521 |
| Yield (MT/HA) | 1.67 | 1.70 | 1.86 | 1.83 | 1.92 | 1.98 |
| SUNFLOWER SEED — | | | | | | |
| Production | | | | | | |
| Argentina | 3,000 | 2,830 | 3,300 | 3,400 | 3,730 | 3,400 |
| European Union | 9,006 | 7,769 | 8,641 | 10,058 | 9,484 | 9,465 |
| China | 2,380 | 2,698 | 2,750 | 2,580 | 2,550 | 2,500 |
| Russia | 9,000 | 9,700 | 11,600 | 11,000 | 12,756 | 14,600 |
| Ukraine | 10,250 | 12,100 | 15,100 | 13,400 | 15,250 | 15,750 |
| United States | 1,005 | 1,326 | 1,203 | 970 | 956 | 881 |
| South Africa | 736 | 755 | 874 | 862 | 681 | 800 |
| Turkey | 1,350 | 1,350 | 1,470 | 1,700 | 1,530 | 1,690 |
| Other | 4,607 | 4,386 | 5,130 | 5,086 | 5,353 | 5,354 |
| TOTAL | 41,334 | 42,914 | 50,068 | 49,056 | 52,290 | 54,440 |
| Seed Import | | | | | | |
| Turkey | 523 | 436 | 611 | 721 | 1,051 | 950 |
| European Union | 275 | 577 | 632 | 520 | 549 | 610 |
| Other | 1,078 | 1,100 | 1,396 | 1,322 | 1,397 | 1,674 |
| TOTAL | 1,876 | 2,113 | 2,639 | 2,563 | 2,997 | 3,234 |
| Seed Exports | | | | | | |
| Argentina | 63 | 302 | 74 | 58 | 149 | 95 |
| United States | 126 | 107 | 99 | 89 | 87 | 80 |
| Russia | 61 | 105 | 362 | 103 | 337 | 600 |
| Ukraine | 123 | 171 | 261 | 50 | 119 | 120 |
| Other | 1,462 | 1,467 | 1,804 | 2,234 | 2,496 | 2,189 |
| TOTAL | 1,835 | 2,152 | 2,600 | 2,534 | 3,188 | 3,084 |
| Oilseed Crushed | 36,581 | 38,177 | 44,845 | 44,863 | 47,218 | 49,568 |
| SUNFLOWER OIL — | | | | | | |
| Oil Opening Stocks | 1,989 | 1,903 | 2,015 | 2,731 | 2,404 | 2,697 |
| Oil Production | 15,241 | 15,936 | 18,933 | 18,820 | 19,971 | 20,949 |
| Oil Imports | | | | | | |
| Iran | 329 | 205 | 593 | 388 | 797 | 650 |
| Turkey | 789 | 766 | 801 | 517 | 529 | 560 |
| Egypt | 299 | 329 | 581 | 545 | 448 | 530 |
| European Union | 882 | 1,530 | 1,861 | 1,635 | 2,122 | 2,250 |
| India | 1,531 | 1,533 | 2,137 | 2,484 | 2,328 | 2,500 |
| Others | 3,486 | 3,989 | 4,494 | 4,613 | 5,166 | 5,827 |
| TOTAL | 7,316 | 8,352 | 10,467 | 10,182 | 11,390 | 12,317 |
| Oil Exports | | | | | | |
| Argentina | 443 | 630 | 729 | 737 | 968 | 920 |
| European Union | 411 | 369 | 454 | 522 | 482 | 462 |
| Russia | 1,406 | 1,611 | 2,223 | 2,258 | 2,762 | 3,300 |
| Ukraine | 3,734 | 4,602 | 5,892 | 5,278 | 6,041 | 6,180 |
| United States | 29 | 39 | 32 | 40 | 55 | 30 |
| Other | 1,231 | 1,212 | 1,341 | 1,150 | 1,257 | 1,293 |
| TOTAL | 7,254 | 8,463 | 10,671 | 9,985 | 11,565 | 12,185 |
| Disappearance | 15,327 | 15,824 | 18,217 | 19,147 | 19,678 | 20,917 |
| Ending Stocks | 1,903 | 2,015 | 2,731 | 2,404 | 2,697 | 2,729 |
| SUNFLOWER MEAL — | | | | | | |
| Meal Production | 16,634 | 17,082 | 19,917 | 20,046 | 20,960 | 22,013 |
| Meal Imports | 5,841 | 6,309 | 7,376 | 7,014 | 8,291 | 8,736 |
| Meal Exports | 5,854 | 6,339 | 7,504 | 6,944 | 8,222 | 8,743 |
| Disappearance | 16,688 | 17,076 | 19,696 | 20,088 | 20,926 | 22,052 |
| Ending Stocks | 251 | 227 | 321 | 348 | 451 | 405 |

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.

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