SUNFLOWERS // PRODUCTS AND MARKETS
At Nuseed®, sunflowers are our top priority. We are committed to developing leading hybrids for North American growers and are demonstrating our commitment with dedicated breeding facilities and a team of sunflower experts devoted to supporting American farmers and dealers.
AN IMPORTANT AGRICULTURAL CROP

Sunflower is an important agricultural crop choice for U.S. producers in the Northern Plains of the Dakotas through Texas. While the vibrant, strong sunflower is recognized worldwide for its beauty, it is also an important food source. Sunflower oil is a valued and healthy vegetable oil, and sunflower seeds are enjoyed as a healthy snack and nutritious ingredient to many foods.

THE THREE SUNFLOWER MARKETS – OIL, CONFECTION, AND CONOIL

OIL // Approximately 75% of sunflowers grown in the U.S. are utilized for the oil that can be extracted from the seeds. Natural sunflower oil is a combination of monounsaturated, polyunsaturated, and low levels of saturated fat. Oil sunflowers are generally classified based on their oleic (monounsaturated fat) content.

PRIMARY CATEGORIES OF COMMERCIALLY AVAILABLE HYBRID SEEDS

NUSUN® = OLEIC LEVELS OF 55-75%
HIGH OLEIC = OLEIC LEVELS GREATER THAN 85%

CONFECTION // In the U.S., this highly recognizable black and white seed serves as a tasty and healthy snack or food addition. Confection sunflower hybrids are planted at a lower population in the field to grow longer more plump seeds. The largest of the seeds get sold to the in-shell market, what you eat at baseball games, while the smaller seeds are utilized in the dehull market, where they are sold as sunflower kernels for baked goods.

CONOIL // As a cross between confection and oil-type seed, conoils provide ultimate versatility. Conoils have a higher yield and oil content than traditional confection seed and, although they are usually dehulled for baking needs, they may also be used in the confection and oil markets.

HERBICIDE TOLERANT TRAITS

Sunflowers are considered a non-GMO crop, but herbicide tolerance has been established through years of selective breeding. Nuseed has introgressed the Clearfield® or DuPont™ ExpressSun® traits into a number of hybrids to help growers manage their weeds.

The Clearfield Production System for sunflowers provides growers with broad-spectrum residual grass and broadleaf weed control, including ACCase resistant weeds. The Clearfield system combines high-yielding sunflower hybrids with Beyond® herbicide for superior postemergence weed control in no-till, minimum or conventional-tillage systems.

DuPont ExpressSun sunflower hybrids are tolerant to Express+ SG herbicide. This revolutionary production system offers broad-spectrum control or suppression of broadleaf weeds, a simplified approach to weed control in sunflowers, improved yield potential through enhanced weed control, a cost-effective crop management solution, and complete re-cropping flexibility the following year.
High oleic seed was developed through traditional breeding methods to deliver much higher levels of monounsaturated fats (oleic content) than traditional oil sunflower seeds. High oleic sunflower oil has a longer, more stable shelf-life, neutral taste profile, and heart healthy benefits that make it attractive for commercial cooking applications. A typical fatty acid ratio for high oleic oil is 85% oleic acid, 8% linoleic acid and 7% combined saturates with some hybrids producing as much as 90% oleic acid.

### COBALT II
Cobalt II is early, short, and has a phenomenal disease tolerance package. Cobalt II’s uniformity at flowering, resistance to multiple races of downy mildew, standability and test weight make it a popular hybrid for high oleic growers.

### DAYTONA
Daytona’s shorter stature, maturity, and wide adaptation makes it a perfect hybrid for all areas of U.S. sunflower production. Daytona exhibits very good stalk and root strength, high oil content, and improved tolerance to phoma, phomopsis, and sclerotinia head rot.

### HORNET
Hornet’s medium maturity provides outstanding yield potential for high oleic growers. This complete product includes herbicide tolerance and resistance to multiple races of downy mildew.

### SIERRA
Sierra is a high yielding, high oleic hybrid best suited to full season environments. This consistent performer offers an excellent option for growers interested in a more economical, high oleic seed.

### SUNFLOWER FACT
Sunflowers are one of the very few plants domesticated in North America.

### NUSEED HIGH OLEIC HYBRIDS

<table>
<thead>
<tr>
<th>HYBRID</th>
<th>MATURITY</th>
<th>DROUGHT TOL.</th>
<th>UNIFORMITY</th>
<th>TEST WEIGHT</th>
<th>DRY MAT.</th>
<th>OIL CONT.</th>
<th>OIL WEIGHT</th>
<th>YIELD FOR MATURITY</th>
<th>PLANT HEIGHT</th>
<th>STALK</th>
<th>ROOT</th>
<th>DROUGHT</th>
<th>PREMAT. RIPENING</th>
<th>SELF COMPAT.</th>
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**MARKET** High Oleic // **TRAIT** Clearfield® // **DMR** Yes

**MARKET** High Oleic // **TRAIT** Clearfield® // **DMR** No

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**MARKET** High Oleic // **TRAIT** Clearfield® // **DMR** Yes

**MARKET** High Oleic // **TRAIT** Clearfield® // **DMR** Yes

**MARKET** High Oleic // **TRAIT** Clearfield® // **DMR** No
The NuSun® sunflower oil profile was developed by the U.S. National Sunflower Association, in coordination with the USDA, to create an oil essential for the food industry. NuSun oil has a naturally high smoke point and does not require trans-fat creating hydrogenation to remain stable at high temperatures. It has a good shelf life and neutral taste profile making it an excellent choice for frying oil. A typical fatty acid ratio is 65% oleic acid, 26% linoleic acid and 9% combined saturates.

// NUSeed NuSun® hybrids //

**Camaro II**

Camaro II is NuSeed’s most popular, and consistently high performing, NuSun® hybrid. This highly versatile product performs in multiple environments with excellent plant health and herbicide tolerance.

**Duet**

Duet is a high yield, medium maturity, Clearfield® hybrid. This very uniform hybrid has exceptional stalk and root strength, very good oil content, and is resistant to multiple races of downy mildew.

**Falcon**

Falcon is a DuPont™ ExpressSun® hybrid with excellent test weight and strong agronomics. Falcon’s high root and stalk ratings combined with great drydown makes this hybrid powerful in the field.

**Talon**

Talon offers great flexibility to sunflower growers. Whether targeting the dehull, oil, or bird food market, Talon offers a plump, black seed desired for multiple applications.

**Torino**

Torino is a medium full maturing NuSun® hybrid with Clearfield® technology. Torino offers very high yield potential with excellent late season plant health and improved sclerotinia head rot tolerance. Plant Torino in fuller season environments for NuSun® oil and bird food markets.

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**MARKET** NuSun® // **TRAIT** Clearfield® // **DMR** Yes

**MARKET** NuSun® // **TRAIT** Clearfield® // **DMR** Yes

**MARKET** NuSun® // **TRAIT** DuPont® ExpressSun® // **DMR** No

**MARKET** NuSun® // **TRAIT** DuPont® ExpressSun® // **DMR** No

**MARKET** NuSun® // **TRAIT** Clearfield® // **DMR** No

**MARKET** NuSun® // **TRAIT** Clearfield® // **DMR** No

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**HYBRID** | **MATURITY** | **DROUGHT TOL.** | **UNIONED SEED** | **TEST WEIGHT** | **DRY DOWN** | **OILY/DARK** | **WEDGES FOR MATURITY** | **PLANT HEIGHT** | **STALK RATING** | **ROOT RATING** | **PREMAT. RIPENING** | **KERNEL COMPO.**
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
Camaro II | MED | 8 | 9 | 9 | 7 | 8 | 9 | 7 | 8 | 7 | 8 | 8
Duet | MED | 9 | 9 | 8 | 7 | 9 | 7 | 8 | 8 | 8 | 8 | 8
Falcon | MED | 8 | 9 | 9 | 8 | 7 | 8 | 6 | 8 | 8 | 8 | 8
Talon | EARLY | 7 | 9 | 8 | 8 | 6 | 8 | 6 | 8 | 7 | 8
Torino | MED-FULL | 9 | 7 | 8 | 7 | 8 | 8 | 7 | 7 | 6 | 7 | 7

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**// SUNFLOWER FACT**

Sunflowers contain more Vitamin E than any other vegetable oil.
CONFECTION SEED

In the U.S., confection sunflower production is divided into three markets by the size of the seed grown. The largest of the seeds are sold in the shell. These are the familiar snacking seeds in a heavy black shell with a characteristic white stripe. They are generally over half an inch in length with half their weight coming from the kernel. The medium-sized seeds are mechanically hulled by the processor and sold into the kernel market. They can be sold raw, roasted as a snack or used as an ingredient. The smallest of the sunflower seeds are used in the bird feed and pet food market.

// SUNFLOWER FACT

BETWEEN 10% AND 20% OF MODERN U.S. SUNFLOWER PRODUCTION IS GROWN FOR CONFECTION.

// NUSeed Confection Hybrids //

**JAGUAR II**

Jaguar II is a medium maturing hybrid with tolerance to Beyond® herbicide and great standability. Jaguar II offers an appealing seed size and color that is sought after for the in-shell market.

- Beyond® herbicide tolerant
- Improved seed size, length and color
- Good standability
- Improved downy mildew protection

**MARKET** Confection // **TRAIT** Clearfield® // **DMR** No

**JAGUAR DMR**

Jaguar DMR is an early maturing, highly uniform, Clearfield® hybrid. Jaguar DMR offers resistance to multiple races of downy mildew and produces the long, dark seeds that are preferred for the in-shell sunflower market.

- Beyond® herbicide tolerant
- Large, long, dark seed
- Great stalk and root strength
- Resistant to multiple races of downy mildew
- Widely adapted

**MARKET** Confection // **TRAIT** Clearfield® // **DMR** Yes

**PANTHER DMR**

Panther DMR offers northern growers excellent yield potential and a long-type kernel with an appealing dark seed color. Panther is known for its plant health and resistance to multiple races of downy mildew.

- High yield potential
- Resistant to multiple races of downy mildew
- Very early maturity, shorter height, uniform plant type
- Outstanding late season plant health

**MARKET** Confection // **TRAIT** No // **DMR** Yes

**9180 DMR**

9180 DMR is the first-to-market Express® tolerant confection hybrid adapted for the northern growing areas. 9180 DMR is a uniform, single-cross hybrid with genetic resistance to multiple races of downy mildew and impressive late season health.

- Express® herbicide tolerant
- Resistant to multiple races of downy mildew
- Very early maturity with above average test weight
- Excellent late season plant health

**MARKET** Confection // **TRAIT** DuPont® ExpressSun® // **DMR** Yes

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<tr>
<th>HYBRID</th>
<th>MATURITY</th>
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<th>DROUGHT TOL</th>
<th>UNIFORM ATTACH</th>
<th>TEST WEIGHT</th>
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<th>STALK</th>
<th>ROOT DURABILITY</th>
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CONOIL SEED

The conoil is the most versatile of the sunflower seed types and offers opportunities across multiple markets including kernel, oil and confection. This seed is generally higher in oil content than confection seeds and realizes a greater yield.

Most conoil production is sold into the kernel market where the seeds are mechanically dehulled by a processor. This is more easily accomplished with conoil seeds as the shell is loosely attached to the meat and readily separates. The largest consumption of conoil seed comes from wholesalers, bakeries and sunbutter manufacturers.

BADGER CL

Badger CL is a medium maturity, uniform, Clearfield® hybrid with very high yield potential. Badger CL has excellent root strength, standability, and exhibits strong end-of-season plant health. Badger CL has excellent hullability and meat-to-hull ratio that processors demand.

BADGER DMR

Badger DMR adds resistance to multiple races of downy mildew to the Badger line. This versatile product is a proven performer in the conoil market.

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<tr>
<th>HYBRID</th>
<th>MATURITY</th>
<th>DROUGHT TOL</th>
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<th>DRY DOWN</th>
<th>OIL CONTENT</th>
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<th>YIELD</th>
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MARKET Conoil // TRAIT Clearfield® // DMR No
- Beyond® herbicide tolerant
- Uniform single-cross
- Excellent hullability and meat-to-hull ratio
- Excellent standability
- Excellent end-of-season plant health

MARKET Conoil // TRAIT Clearfield® // DMR Yes
- Beyond® herbicide tolerant
- Uniform hybrid
- Excellent hullability and meat-to-hull ratio
- Excellent standability
- Excellent end-of-season plant health
- Resistant to multiple races of downy mildew

SUNFLOWER FACT

CONOIL SEEDS ARE A HYBRID THAT WAS CREATED FROM OIL-TYPE AND CONFECTION PARENTAGE.

SUNFLOWERS PRODUCE AS MUCH AS 1,400 POUNDS OF OIL PER ACRE – MORE THAN COTTON, SOYBEAN OR CORN.
AT NUSEEED, SUNFLOWERS ARE OUR TOP PRIORITY

With the many ways sunflowers can impact lives around the world through healthier food solutions, it’s easy to understand why our team at Nuseed® cares so much about the future of this plant.

WE ARE A DIFFERENT KIND OF SEED COMPANY

We believe in adding value beyond yield and our commitment to better the world through innovative sunflower seed solutions is evident in our culture and organization.

The Nuseed research and development team includes sunflower breeders from around the world. Our advanced breeding programs in Australia, Argentina, Serbia and the United States are combined with a true understanding of regional growing needs to develop superior seed genetics with the power to overcome specific regional market and geographic challenges.

Once perfected, sunflower hybrids are grown from confirmed genetically pure parents – ensuring our seed will inherit the same superior genes, hybrid vigor, and traits that our plant breeding team saw during the R&D phase. Our seed production and processing sites are located in California and Washington.

Currently, we offer a variety of sunflower hybrids across the oil, confection and conoil markets, and our pipeline is rich with new products to meet the needs of the end-consumer. Distributed by Legend™ Seeds, Nuseed hybrids can be found throughout their dealer network in all core sunflower growing areas.

VISIT NUSEEED.COM TO LEARN MORE