CONFECTION
SUNFLOWER
Best Practices Guide
CONFECTION SUNFLOWER GROWERS ARE INDUSTRY LEADING

Planting sunflowers is a sign of a hard working, resourceful and successful grower. It's their attention to detail, agronomic know-how and ability to maximize market potential on every acre that sets them apart. We share that commitment to growing sunflowers.

Here at Nuseed® we want to help growers maximize the potential of every seed from one of our bags. It’s that commitment that drives our investment, research, hybrid development, service and support. We are helping sunflower growers continue to be industry leading with new hybrids, market development and agronomic resources.

This Confection Sunflower Best Practices Guide is just one of the ways we work to support the industry and help sunflower growers get their very best crop. Review this guide and remember the importance of a uniform stand. Proper planting depth and spacing of the larger, longer confection sunflower seed is critical to your success.
## Table of Contents

- Industry Expertise ........................................................................................................1
- Pre-Plant Planning ........................................................................................................2
- Planting ..........................................................................................................................4
- In-Season Crop Management ....................................................................................6
- Harvest ...........................................................................................................................8
- Checklist for Confection Sunflowers ........................................................................9
- Resources ...................................................................................................................13
- Market Overview .........................................................................................................14
- Notes ............................................................................................................................16

## Industry Expertise

A special thanks for the input and collaboration of sunflower industry experts from these organizations.
Pre-plant planning starts with assessing your farm’s entire crop plan. Managing crop rotation with herbicide resistance and efficacy plus balancing input costs with anticipated yields and market prices is challenging.

CONFECTION SUNFLOWER PRE-PLANT PLANNING INCLUDES:

**Rotation**
- Nuseed recommends planting confection sunflower only once every three years on the same field to reduce disease and weed pressure. This crop rotation increases use of herbicides with different modes of action and the use of nutrients and moisture from a deeper root zone than other crops reach.
- Corn or cereals are the best in rotation with confection sunflower.
- Avoid canola, rapeseed, dry edible beans, soybeans and any other crops susceptible to the same diseases, such as sclerotinia (*Sclerotinia sclerotiorum*).

**Fertilization**
- Fertilize confection sunflower for a realistic yield target based on geography, soil type and annual rainfall.
- Timing and method may vary from region to region and based on farming practices.
- DO NOT place fertilizer in the seed furrow.

**Seed Selection**
- Consider hybrids specific to the market the commercial grain will be sold to.
- Check with your Legend™ Seeds sales representative ([legendseeds.net](http://legendseeds.net)) for a Nuseed recommended hybrid specific to your region.
- Confirm your seed selection with your processor before planting.
At Nuseed your field is our focus. Our commitment to developing a complete portfolio of leading hybrids is demonstrated by our dedicated breeding facilities and team of sunflower experts devoted to supporting American growers and dealers. For an online copy of our *Sunflower Hybrid and Market Guide* visit [nuseed.com](http://nuseed.com) and click on sunflower under products.

**The NSA Daily Market News**

The National Sunflower Association provides a daily overview of all sunflower markets and includes sunflower price averages. Grain marketing is critical to your pre-plant planning; keep up to date by visiting [sunflowernsa.com/growers/Marketing/daily-market-news/#](http://sunflowernsa.com/growers/Marketing/daily-market-news/#).

**NDSU Nitrogen Calculator Available Online**


**New NDSU Calculator**

This new online tool allows you to select a region and compare variable costs, average yields and returns for different crops. Visit [ag.ndsu.edu/farmanagement/documents/2017-crop-compare/view](http://ag.ndsu.edu/farmanagement/documents/2017-crop-compare/view) for complete instructions and assess the advantages of growing oil or confection sunflower this season.
CRITICAL STEPS TO CONFECTION SUNFLOWER PLANTING SUCCESS

Confection sunflower seed is typically larger, longer and lighter in test weight with a much thicker hull than oilseed sunflower. These characteristics need to be considered when planting to ensure an evenly spaced, uniform emerging confection sunflower stand and maximum yields.

THESE ARE THE CRITICAL STEPS TO CONFECTION SUNFLOWER PLANTING SUCCESS:

1) Planter Maintenance
   • Replace any broken or worn out parts annually.
   • Focus on the in-furrow opening disc and seed tube wear that affect depth control.
   • Check to be sure the seed metering device and seed tubes are capable of planting the larger confection planting seed.
   • Use seed flow products, such as graphite or talcum powder, to mix with seed to improve seed flow. Recommendations vary by planter type, so refer to your operator’s manual for the appropriate seed flow product.

2) Seeding Rate
   • Nuseed recommends specific seeding rates for each Nuseed product. Recommended seeding rates are based on commercial grain characteristics desired by specific end use markets. *(See chart on next page)*
   • Actual seeding rates may need to be adjusted according to soil type and available moisture. For example, in geographies where available moisture is limited, the seeding rate should be reduced by as much as 20% to produce desirable commercial grain.

3) Seeding Depth
   • Confection sunflower seed generally requires more available moisture to germinate and emerge than oilseed sunflower due to the larger, thicker shell. Nuseed recommends planting into adequate moisture.
   • Confection sunflower should NEVER be planted deeper than 2 inches.

4) Planting Speed
   • Slow down! The large size and light test weight make confection sunflower more challenging to plant. Slowing the planter down allows the seed metering device to work properly and more accurately.
   • Each planter is different but a good general starting speed is 5 mph.

*Planting is the most critical step in producing a successful crop of confection sunflower. It is critical to produce a uniform stand that emerges all at the same time. Remember you only get one chance to get it right!*
5) Seed Placement

- Singulation (having one seed per location) is very important. Having multiple seeds in a location will create competition between plants resulting in smaller commercial grain.

<table>
<thead>
<tr>
<th>Product</th>
<th>Market</th>
<th>Recommended Seeding Rate**</th>
<th>Target Final Plant Population</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Seeds/Acre</td>
<td>Plants/Acre</td>
<td></td>
</tr>
<tr>
<td>6946DMR</td>
<td>16,000-17,000</td>
<td>14,400-15,300</td>
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<td>Panther DMR</td>
<td>16,000-17,000</td>
<td>14,400-15,300</td>
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<td>Jaguar II</td>
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<td>LD5009</td>
<td>15,000-16,000</td>
<td>13,500-14,400</td>
<td></td>
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<tr>
<td>X4334</td>
<td>16,000-17,000</td>
<td>14,400-15,300</td>
<td></td>
</tr>
<tr>
<td>N5LM307</td>
<td>18,000-20,000</td>
<td>16,200-18,000</td>
<td></td>
</tr>
<tr>
<td>Badger DMR</td>
<td>Dehull, bird food</td>
<td>16,200-18,000</td>
<td></td>
</tr>
<tr>
<td>Talon</td>
<td>19,000-20,000</td>
<td>17,100-18,000</td>
<td></td>
</tr>
</tbody>
</table>

* assumes germination rate of 90%
** assumes seeded in areas with adequate moisture. In dry climates the seeding rate should be reduced by 10-20%

For more information on specific planter manufacturer recommendations see the *Confection Sunflower Planting Guide* insert in this guide or online at nuseed.com.
IN-SEASON CROP MANAGEMENT

After pre-plant planning and ensuring your seed placement is singulated and at a proper distance and depth (NOT deeper than 2 inches) you now need to protect your confection sunflower crop to maximize your yields while managing your input costs.

HERE ARE KEY REMINDERS AND RESOURCES TO HELP YOU IN-SEASON:

Weed Control

- Nuseed recommends using a labeled pre-plant incorporated herbicide for early season weed control.
- In reduced tillage systems use a labeled burn-down herbicide.
- When possible select a herbicide tolerant hybrid to provide additional weed control options.

Disease Control

- Following the recommended crop rotations (see page 2) will result in overall reduced disease incidence.
- The presence of diseases varies by geography so mandatory application of fungicides is not required.
- In areas where sunflower rust (Puccinia helianthi) can occur use an approved fungicide applied at the R5.1 stage to reduce rust levels if the upper 4 leaves have a 1% infection level or higher.

Insect Control

- Where approved for use a seed applied insecticide will reduce below ground insects that damage emerging seedlings.
- Nuseed also recommends an in-furrow insecticide applied at planting to control chewing insects that can reduce stands.
- In some growing regions seed boring insects can be controlled during the bloom stage with approved insecticides.
- Always check local regulations before applying a herbicide, fungicide or insecticide.
**NDSU PEST MANAGEMENT APP AVAILABLE**

Thanks to funding from several commodity groups, including the NSA, the *NDSU Pest Management App* is available free for both Apple and Android devices – just search NDSU Pest Management.

**The Compendium of Sunflower Diseases and Pests**

This all-new disease and insect compendium includes nearly 300 images and research-based management recommendations for scouting, identification and management of a range of diseases and insect pests. This all-new compendium can be ordered online at: [apsnet.org/apsstore/shopapspress/Pages/45072.aspx](http://apsnet.org/apsstore/shopapspress/Pages/45072.aspx)

**NDSU Extension Bulletin 25**

[sunflowernsa.com/about/store/mh01/](http://sunflowernsa.com/about/store/mh01/)

This publication is known as “The Sunflower Bible.” It is a detailed production and pest management guide for sunflower growers.

**High Plains Sunflower Production Handbook**

[sunflowernsa.com/about/store/mh02/](http://sunflowernsa.com/about/store/mh02/)

This handbook is produced by Colorado State University, Kansas State University, University of Nebraska, University of Wyoming, and USDA ARS Central Great Plains Research Station. It covers basic sunflower hybrid selection, production and protection practices, emphasizing the growing conditions and requirements within the Western High Plains region.
DESICCANTS

- Are a common pre-harvest aid that enables an earlier confection sunflower harvest.
- Reduce the potential losses due to bird depredation, lodging and weather related quality issues.
- Check local regulations for a list of desiccants approved for use on confection sunflower prior to application.
- Ensure grain moisture is 35% or less before desiccant application. Check the moisture when the back of the sunflower head is yellow and the bracts around the head are brown. It is very important the crop is physiologically mature prior to desiccant application.

HARVEST EQUIPMENT

- Proper calibration of harvest equipment is necessary to reduce foreign materials in the commercial grain, removal of empty seeds and to reduce cracking of the outer shell.
- Open the concave of the harvester and reduce the cylinder speed to reduce damage from the harvester.

STORAGE

- Be sure commercial grain is clean from foreign material and dry prior to placing into storage. The moisture content should be 9% or less for long-term storage.
- Maintain the integrity of your confection sunflower crop. Do not mix confection sunflower with other sunflower or commercial grains.
- Monitor the commercial grain moisture in storage to avoid molds and spoilage that can affect grain quality and the price you receive from the buyer. Have your bins probed and tested regularly.
PRE-PLANT PLANNING AND PLANTING DOS

FERTILIZATION:
√ Fertilize to your yield target based on geography, soil type and rainfall

ROTATION:
√ Plant confection sunflowers only once every three years on the same field to:
  • Decrease disease
  • Decrease weed pressure
  • Increase herbicide rotation options
  • Increase available nutrients and moisture due to deeper root zone
√ Rotate with corn and cereals

SEED SELECTION:
√ Check with your Legend Seeds Representative for the Nuseed hybrid and seeding rate recommendation specific to your region and the market(s) you plan to sell to
√ Confirm your seed selection with your contract/processor

PLANTER MAINTENANCE:
√ Replace broken/worn parts annually
√ Ensure that your metering device and seed tubes can handle the larger confection seeds
√ Use a seed flow product (graphite/talcum) recommended by your planter manufacturer

PLANTING:
√ Follow Nuseed recommended planting rates adjusted to soil type and available moisture
√ Ensure consistent seed depth, spacing and seed singulation (one seed per location when planting) for a uniform emergence, stand and grain size
√ Slow your planting speed to approx 5 mph
CHECKLIST FOR CONFECTION SUNFLOWERS

PRE-PLANT PLANNING AND PLANTING DON'TS

FERTILIZATION:
X Do not place fertilizer in the seed furrow

ROTATION:
X Do not rotate with canola, dry edible beans, soybeans or other crops susceptible to the same diseases like sclerotinia

SEED SELECTION:
X Do not proceed with seed purchase before confirmation with your processor

PLANTER MAINTENANCE:
X Do not allow in-furrow opening disc and seed tube wear to affect depth control, maintain equipment annually

PLANTING:
X Do not plant confection sunflowers deeper than 2 inches
CHECKLIST FOR CONFECTION SUNFLOWERS

IN-SEASON AND HARVEST DOS

✓ Always check local regulations before applying any herbicide, fungicide or insecticide

WEED CONTROL:

✓ Use a labeled pre-plant incorporated herbicide for early season control
✓ Use a labeled burn-down herbicide in reduced tillage systems
✓ Select a herbicide tolerant hybrid for additional control options

DISEASE CONTROL:

✓ Plant only 1 every 3 years in rotation with corn or cereals
✓ Apply an approved fungicide at the R5.1 stage to reduce rust levels in high risk areas

INSECT CONTROL:

✓ Use approved seed applied insecticides to reduce insect damage to emerging seedlings
✓ Use an in-furrow insecticide applied at planting to reduce chewing insect damage to stands
✓ Protect against seed boring insects with approved insecticides in regions at risk during the bloom stage only

HARVEST:

✓ Check local regulations for approved desiccants prior to application
✓ When grain is mature and moisture is 35% or less (look for yellow heads and brown bracts) reduce yield and quality losses due to birds, lodging and weather damage with a desiccant application approved for the region
✓ Properly calibrate harvest equipment to reduce cracking of the outer shell and remove unwanted/foreign material including empty seeds
IN-SEASON AND HARVEST DON'TS

DISEASE CONTROL:
X Do not assume a fungicide application is required as presence of disease varies by geography

STORAGE:
X Do not put crop into long-term storage when moisture content is more than 9%
X Do not mix confection sunflower with other sunflower or grains
X Do not leave grain in storage unmonitored, excess moisture can cause mold and spoilage
NDSU Nitrogen calculator:
ndsu.edu/pubweb/soils/sunflower/

NDSU Fertilization Of Sunflower Circular:

NSA Planter Considerations videos:
sunflowernsa.com/growers/planting/

NSA Top Ten Sunflower Planting Pointers:
sunflowernsa.com/magazine/articles/default.aspx?articleid=2964

NSA Field Guide:
apsnet.org/apsstore

NDSU Pest Management App:
ag.ndsu.edu/potatoextension/ndsu-pest-management-app-for-smartphones-and-tablets
Confection sunflower production has three markets:

- **In-shell** – large seeds (> 13 mm in length with kernel consisting of half the weight) with heavy black shell and white stripe sold in-shell for snacking
- **Dehull** – medium sized seeds mechanically hulled with the kernel consumed as a snack or food ingredient
- **Bird Food** – smallest seeds sold for bird feed/pet food

Review the market and agronomic performance tables below and confirm your hybrid choice with your processor/contractor prior to securing your Nuseed sunflower hybrids.

### Confection Sunflower Market and Agronomic Overview

<table>
<thead>
<tr>
<th>Hybrid</th>
<th>Market</th>
<th>Maturity</th>
<th>Seed Type</th>
<th>Maturity</th>
<th>Drought TOL</th>
<th>Uniform At Flower</th>
<th>Test Weight</th>
<th>Dry Down</th>
<th>Yield For Maturity</th>
<th>Plant Height</th>
<th>Stalk Rating</th>
<th>Root Rating</th>
<th>Late Season Plant Health</th>
<th>Emergence</th>
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<tbody>
<tr>
<td>6946 DMR</td>
<td>In-shell</td>
<td>Early</td>
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<tr>
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<td>Early</td>
<td>LT</td>
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<tr>
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<td>LT</td>
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<td>Jaguar II</td>
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<td>Med</td>
<td>LT</td>
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<tr>
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**HYBRID RATING SCALE** // 1 = Poor, 9 = Excellent (excluding Plant Height)

**PLANT HEIGHT RATING SCALE** // 1 = Shortest, 9 = Tallest

### Conoil/Dehull Sunflower Market and Agronomic Overview

<table>
<thead>
<tr>
<th>Hybrid</th>
<th>Maturity</th>
<th>Seed Type/Market</th>
<th>Drought TOL</th>
<th>Uniform At Flower</th>
<th>Test Weight</th>
<th>Dry Down</th>
<th>Yield For Maturity</th>
<th>Plant Height</th>
<th>Stalk Rating</th>
<th>Root Rating</th>
<th>Late Season Plant Health</th>
<th>Emergence</th>
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<tbody>
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</tr>
<tr>
<td>Badger DMR</td>
<td>Med</td>
<td>Striped conoil dehull/bird food</td>
<td>7</td>
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<tr>
<td>Talon</td>
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<td>Oilseed dehull</td>
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