

SUNFLOWER SEASON-LONG CHECKLIST

From planting through to storage, this checklist will keep you on track to reach your yield and profit goals.

Nuseed Confection, Conoil and Dehull Oilseed Recommended Seeding Rates

Product	Market	Recommended Seeding Rate**
		Seeds/Acre
6946DMR	In-shell	16,000-17,000
Panther DMR	In-shell	16,000-17,000
Jaguar DMR	In-shell	16,000-17,000
Jaguar II	In-shell	16,000-17,000
LD5009	In-shell	15,000-16,000
4334	In-shell	16,000-17,000
N5LM307	Black In-shell, Dehull, Bird Food	18,000-20,000
Badger DMR	Dehull	18,000-20,000
Talon	Dehull, Bird Food	19,000-20,000

Nuseed's oilseed hybrid seeding rate recommendation is 18,000-24,000 seeds per acre.

* assumes germination rate of 90%

** assumes seeded in areas with adequate moisture

In dry climates the seeding rate should be reduced by 5-10%

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.

1. HYBRID SELECTION

- Choose hybrids with higher levels of tolerance or genetic resistance based on market, maturity, herbicide tolerance and genetic disease resistance. Nuseed has a sunflower hybrid right for every field and every market.

2. PLANTER BASICS

- Consult your planter manual for proper inflation and tire size. Unwanted population variation occurs with over or under inflation of the meter drive system tires
- Check closing wheel alignment
- Check disk openers for wear. For John Deere®, Kinze® and White 8000 and older planters the diameter of a new disk is 15". A disk worn smaller than 14.5" may create a W in the trench and cause a difference of up to 3/4" in seed depth. White 9000 planters are 16" openers and Case IH® planters are 14" openers when new
- Make sure drives are all in good working order (chains, bearings and shafts)
- Make sure all chains and sprockets are properly aligned to prevent binding
- Make sure all seed tubes and sensors are clean and functional
- Row cleaners are vital. They should float freely with maintained pivot point and bearings. Residue left in furrow can change soil temperature and cause delayed emergence

3. AIR SEEDER BASICS

- Check opener disks for wear – most manufacturers' disks are 18"; if they are 17" or less replace them
- Examine firming and closing wheel arms, check bushings
- Check the condition of the air delivery system, making sure the air system fan is operating at proper speed
- Check all hoses and distributors for wear, air leakage, cracks or blockage
- Make sure seed boots are within spec (if more than 1/2" is burned off the bottom of the boot it should be replaced. To check, use your tape measure and if the boot is less than 11.3" look into replacing the boot)
- Calibrate downforce to ensure the boot is running parallel with the ground (too much downforce will cause the seed boot to run

deeper in the trench, and it will not run parallel to the ground)

- Make sure all bearings are in good condition
- Check that you have the proper metering roll for the proper application. Also check the metering roll for wear and clean from any foreign material
- Check meter calibrations prior to entering the field and check your calibrations and seed usage after planting a few acres

4. BEFORE YOU PLANT

- Early-season weed control is crucial. Control early-season weeds with soil-applied herbicides to keep fields as free from weeds as possible for the first four to six weeks
- Use fungicide and disease seed treatments for disease control to reduce damage from below-ground insects
- When appropriate, plan for and use a registered in-furrow insecticide at planting to control chewing insects
- Proper seedbed preparation is required prior to seeding sunflowers. Whether using conventional-till or no-till, an even seedbed promotes uniform germination and emergence and good plant stand establishment
- In no-till situations, maintain clean fields with good pre-emergence control to get plants off to a strong start
- A minimum three-year rotation to reduce disease and weed pressure is also recommended. Rotate sunflowers with corn or cereals and out of canola, rapeseed, dry edible beans and soybeans, or other crops susceptible to the same diseases as sunflowers
- A minimum three-year rotation to reduced disease and weed pressure is also recommended. Avoid back to back rotation with canola, rapeseed, dry edible beans and soybeans, or other crops susceptible to the same diseases as sunflowers. Carefully plan your rotation to control problem weeds and also manage herbicide resistance, always follow registered uses and label instructions
- Meet the crop's specific nutrition requirements and fertilize for realistic targets according to geography, soil type and annual precipitation. Remember, over-fertilization can do more harm than good and fertilizer should never be placed in the seed furrow

5. PLANTING CONSIDERATIONS

- Soil temperature needs to be at 50°F or more for your chosen soil depth (1.5 to 2.5 "). Planting sunflower seed into cold soils may cause seed to go into dormancy resulting in delayed germination
- If planting deeper than 2", consider increasing planting population. Percent emergence will decrease as planting depth is increased. Confection sunflowers should never be planted deeper than 2"
- For good seed to soil contact, make sure soil is pressed firmly against the seed at planting and the furrow is closed following seed placement. This is important in all crops, but particularly for sunflower. Moisture first needs to get through the woody hull and then to the seed. Poor seed to soil contact will result in uneven emergence
- When planting into no-till, stop and check incrementally that the planter is knifing into the soil. Planting into a field with wet residue can cause "hair pinning" – pushing straw into the seed slot instead of slicing through it. Row cleaners should be able to move residue away from the furrow to prevent hair pinning. With air drills, very little can be done; wait for better conditions
- Be willing to dig seeds to check placement
- Be prepared to switch plates, baffle settings, singulator or double eliminator settings, and vacuum or air pressure for desired singulation. Revisit settings between seed lots
- Use a lubricant, such as eFlow® 80/20 Seed Lubricant
- Ensure your vacuum is set properly as your skips and multiples should be close to equal (if more multiples, lower your vacuum; if more skips, increase your vacuum)
- Know the speed at which your planter's meters operate best for each seed lot. Some lots may require faster or slower speeds than normal
- Consider filling your planter hoppers half-full to reduce bridging potential
- Because seeding rates are based on commercial grain characteristics desired by specific end-use markets, review Nuseed seeding rate recommendations for the chosen hybrid

6. IN-SEASON

- Base herbicide decisions on the specific weeds present in fields at time of spraying
- Use of herbicide-tolerant sunflower hybrids in addition to soil-applied herbicides, will result in optimal weed control and help reduce resistant weed development risk
- Scout after herbicide spraying to confirm control of target weeds
- Scout before bloom for rust to manage it in-season
- Apply fungicide at R-5 stage on crops infected with one percent or more sunflower rust on upper four leaves
- Use integrated pest management strategies for optimal insect control. Correct pest identification is key. Scout fields weekly for pests in-season. Scout fields more often (twice per week) as key pests come into critical windows based on an insect scouting calendar
- Follow correct scouting protocols and base insecticide application decisions on economic thresholds
- In all regions, seed-boring insects can be controlled with insecticides during the bloom stage

7. PRE-HARVEST PREP

- Get the crop off early by applying a desiccant. Natural sunflower dry down can be slow and uneven. By speeding up the dry-down process, chemical desiccants decrease crop losses due to inclement weather, lodging, disease and bird depredation
- Desiccants can be applied to the crop once plants have reached physiological maturity. At this point, seed moisture is about 35 percent, the backs of the heads turn yellow, and bracts turn brown in color (R-9 stage). Applying desiccant before this stage may reduce test weight and seed quality. Remember to check local regulations for approved desiccants

8. HARVEST

- Sunflowers are ready for harvest when the backs of the heads turn from yellow to brown
- Prepare harvest equipment – minor adjustments to combines can make a big difference at harvest
 - Cylinder speeds should range from 300 to 500 revolutions per minute
 - Concave settings should be open
 - Use the slowest cylinder speed with the largest concave opening to reduce seed damage
 - Adjust the fan to accommodate sunflower seeds, which are lighter than other grains, so that air flow keeps only trash floating across the sieve. If fan speed is too high, seeds will be blown out the back of the combine. If fan speed is too low, empties will end up in the grain, which will affect test weight
- Combine when seed moisture reaches 20 percent or less – experts recommend 12 to 15 percent. Seed moisture can be brought under 10 percent by drying for storage
- Combine speed should average between five to six miles per hour. However, today's large combines often need to travel more than 5 miles per hour to keep full – ground speed should keep the combine full for optimal threshing
- The target for seeds thrown behind the combine is less than 10 seeds per square foot, which is 100 pounds of actual yield
- Check test weight when harvesting
- Keep a clean combine to reduce fire risk. Blow the combine down at least twice daily and have fire extinguishers on hand

9. DRYING AND STORAGE

- All grain drying fundamentals apply, no matter what method is being used to dry the grain
- Check drying rates as sunflowers dry quicker than other grains because there are fewer pounds of water to be removed
- When drying in a high-temperature dryer, constant monitoring is needed as the chaff, lint and other debris associated with sunflowers are highly combustible
- Oilseeds (at 40 percent oil content) should be stored at eight percent moisture, however that value is determined by the oil content. Oilseeds with higher oil contents (closer to 45 percent) should be stored between seven and eight percent. Typically, confection and non-oil seeds can be stored short term at 10 percent moisture content, but for long-term storage growers must dry grain to nine percent
- In storage, monitor grain every couple of weeks when outside temperatures are warm and every two to four weeks in the winter months

Sources:

- *Nuseed and Industry Experts*
- *Nuseed Sunflower Field Guide* (www.nuseed.com/wp-content/uploads/2017/05/2015-Sunflower-Field-Guide-LoRes-for-Website.pdf)
- *Nuseed Confection Sunflower: Best Practices Guide* (www.nuseed.com/wp-content/uploads/2017/05/5-1-17-NuseedBestPracticesGuide_US_online_version.pdf)
- *North Dakota State University Sunflower Production Guide* (www.ag.ndsu.edu/publications/landing-pages/crops/sunflowerproduction-a-1331)