



## Desiccation of Sunflowers

Confection and oilseed sunflower producers can potentially avoid harvest delays and yield loss due to inclement weather, disease, birds, lodging and seed shattering by applying a desiccant to the crop after physiological maturity occurs. This practice has become increasingly popular with sunflower producers. Benefits realized from desiccating the crop include:

- Reduced bird damage
- Reduced shattering and lodging
- Reduce or escape disease problems
- Help manage harvest of sunflowers and other crops
- Use of aeration for drying
- Reduced dockage

Improved plant health and stay-green characteristics of new hybrids may also require crop desiccation for timely harvest. Sharpen® is the newest product labeled for desiccating sunflowers. Sharpen provides rapid dry-down, stem desiccation and pre-harvest weed control as an alternative to paraquat or glyphosate.

Researchers in ND & SD conducted a 3 year study at 6 locations in ND and SD to investigate the effects of delayed harvest on sunflower yield and oil content. Their results showed that lodging, seed shattering and head rot caused 15-49% yield loss.

Blackbirds are a concern for many sunflower producers. Research indicates that up to half or more of the blackbird damage to ripening sunflower occurs in the first two weeks after petal drop. Blackbird migration usually starts in September and can extend into November if conditions are favorable. Desiccation enables early harvest which can help avoid bird damage. Burton Johnson of NDSU suggests that desiccation can advance harvest by 10 days, which he feels is the equivalent of a month under late season conditions.

Shattering and lodging losses which desiccation can help reduce include losses from heads banging in the wind, stalk damaging insects and diseases, and from combining.

According to NDSU, "when head rot of sunflower is present, early dry down of the plants may slow or stop the development of head rot and reduce total sclerotia and destruction of seeds".

Desiccation can help get sunflowers out of the field before corn harvest with the potential to use air drying rather than gas when air temperatures are high and humidity lower.

## Desiccant Use Guidelines

Once sunflowers reach maturity at 35% seed moisture, every day they stand in the field potentially increases harvest losses. Unfortunately, determining when the crop is mature can be challenging. Quick moisture checking devices have not proved to be effective which forces one to use plant characteristics as a guide to seed moisture and maturity. A number of visual cues have been used to predict maturity and desiccant application timing; backside of heads yellow, bracts turning brown, florets brush easily from head, etc. NDSU agronomist Kirk Howatt believes that the key to predicting physiological maturity is when the bracts begin to turn brown (Figure 1). Reducing moisture in the receptacle can be difficult with natural drying and something desiccants can help with. It's a good idea to talk with your seed representative to determine when individual hybrids reach physiological maturity.

Table 1 provides use information for the products labeled for use as harvest aids in sunflowers. Sharpen is the newest product available to sunflowers growers, representing a new, novel class of chemistry known as pyrimidinedione. Sharpen is an inhibitor of chlorophyll biosynthesis which results in rapid loss of membrane integrity, leading to cellular leakage and rapid plant death. Sharpen is readily absorbed by plant roots, shoots and leaves. Once absorbed, it is predominantly translocated via the xylem, with some movement in the phloem. Paraquat is a contact herbicide/desiccant that is not translocated. Although glyphosate is translocated within the plant, it works slower than Sharpen or paraquat, particularly under the cool temperatures in September-October.

The sooner harvest occurs, the less likely losses to blackbirds; wind, rain or snow; lodging due to insect or disease damage; seed shattering or an unevenly maturing crop that will compromise the marketability of the crop.

## References

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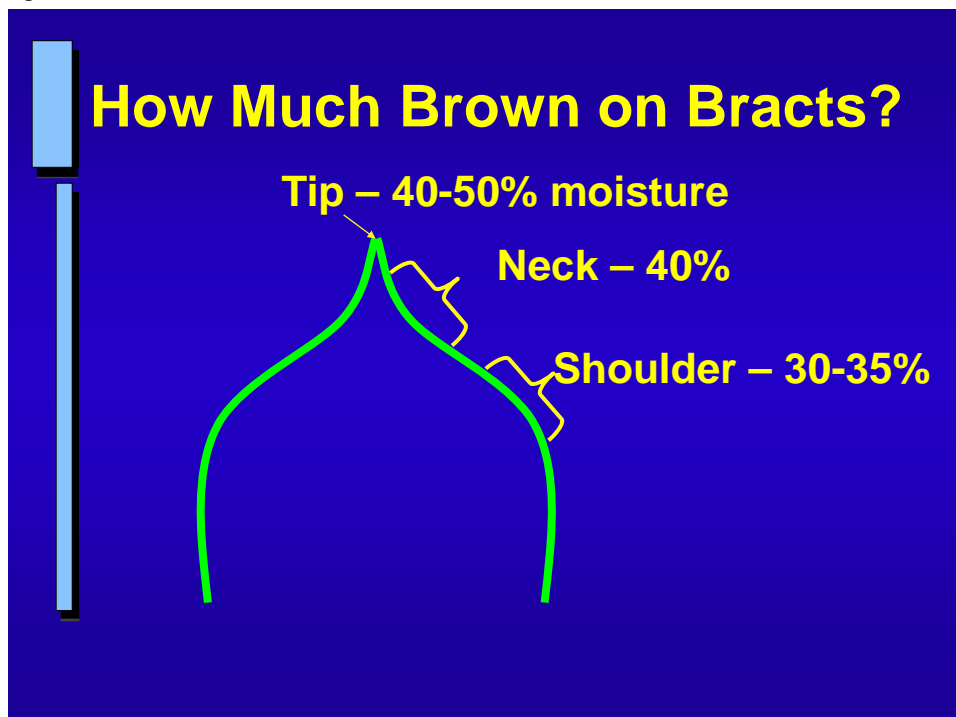
Sharpen - <http://www.cdms.net/LDat/ld99E000.pdf>

Gramoxone - <http://www.cdms.net/LDat/ld77A061.pdf>

Roundup - <http://www.cdms.net/LDat/ld5UJ032.pdf>

[http://www.sunflowernsa.com/uploads/Zolling\\_Howatt\\_Desiccation\\_SS10.pdf](http://www.sunflowernsa.com/uploads/Zolling_Howatt_Desiccation_SS10.pdf)

Figure 1.



Source – NDSU Kirk Howatt presentation 2010 summer NSA – Opportunities in Sunflowers – Desiccation/Weeds

Table 1.

Approved Preharvest Products for Confection & Oil-type Sunflowers

Technology in your seed.

SEEDS 2000 / P. O. Box 200 / 115 3rd Street North / Breckenridge, MN 56520 / [www.seeds2000.net](http://www.seeds2000.net)

Product	Active Ingredient	Timing	Rate	Adjuvants	PHI
Sharpen®	saflufenacil	<36% seed moisture; backside of head yellow, bracts turning brown	2 fluid oz/A or 1.5 fluid oz/A + labeled rate gly- phosate 5 GPA air  10 GPA ground	MSO 1 gal/100 gal  + AMS 8.5-17 lbs/100 gal	7 days
Gramoxone Inteon®	Paraquat di- chloride	<35% seed moisture; backside of head yellow, bracts turning brown	1.2 – 2 pt/A 5 GPA air 10 GPA ground	NIS 2 pt/100 gal or  COC 1 pt/A	7 days
Drexel Defol®	Sodium chlo- rate	<35% seed moisture; backside of head yellow, bracts turning brown	3.2 qt/A 5-10 GPA air 20-30 GPA ground	NIS or COC (rates not specified)	7 days
Roundup®	glyphosate	<35% seed moisture; backside of head yellow, bracts turning brown	22 fluid oz/A for preharvest weeds 3-15 GPA air 3-40 GPA ground		7 days

Consult with manufacturer's representatives and individual product labels for complete use instructions and local recommendations. Sharpen® is a registered trademark of BASF, Gramoxone Inteon® is a registered trademark of a Syngenta Group Company, Roundup® is a registered trademark of, and used under license from, Monsanto Technology LLC.

PHI – Preharvest Interval

GPA – gallons per acre

MSO – methylated seed oil

AMS – ammonium sulfate

NIS – nonionic surfactant

COC – crop oil concentrate

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