# Planting Date and Early Maturing Hybrids as Alternative Management Options for Red Sunflower Seed Weevil

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## Introduction

In the Dakotas, the red sunflower seed weevil (Figure 1), *Smicronyx fulvus* (LeConte) (Coleoptera: Curculionidae), is the most damaging insect pest of commercial sunflowers (Cluever et al. 2025). Recent research has confirmed that red sunflower seed weevil populations from the major sunflower production areas in South Dakota are resistant to three pyrethroid insecticide active ingredients (i.e., lambda-cyhalothrin, esfenvalerate, cypermethrin) (Hargens et al. 2026). Insecticide products from the non-pyrethroid classes for managing red sunflower seed weevils in sunflowers are limited (i.e., Malathion and Harvanta). For this reason, the adoption and implementation of alternative pest management strategies are necessary for effective management of red sunflower seed weevils. These strategies will mitigate the resistance selection pressure on the remaining insecticide options. One alternative strategy is the use of early-planted sunflowers or early-maturing sunflower hybrids. This strategy was recently evaluated in North Dakota and South Dakota and found to be effective (Prasifka et al. 2026). The use of planting dates to manage red sunflower seed weevil infestations isn't a new concept, as it was originally tested in North Dakota in the late 1980's (Oseto et al. 1987). Early planting dates and early maturing hybrids are effective because red sunflower seed weevils are attracted to sunflowers during the bloom period (Oseto et al. 1987, Brewer 1991, Prasifka et al. 2026). In addition, red sunflower seed weevil females require a pollen meal for egg development (Korman and Oseto 1989). For these reasons, desynchronizing the seasonal timing of sunflower bloom and the emergence of red sunflower seed weevils (i.e., mid or late July) can reduce infestations, thus translating to fewer damaged seeds and higher oil content (Oseto et al. 1987, Prasifka et al. 2026).

Figure 1. Red sunflower seed weevil adult. Photo courtesy of Adam Varenhorst.

## Impact of Early Planting Date and Early Maturing Sunflower

To determine the impact of planting dates on red sunflower seed weevil damage, we will be referencing the Prasifka et al. (2026) study. In general, sunflowers planted in late April and early May had approximately an 84% reduction in damaged seeds compared to the same hybrids planted in early to late June (Prasifka et al. 2026). In some instances, mid-to-late May planting dates had higher rates of seed damage but were still much lower than those for June planting dates (Prasifka et al. 2026). The importance of early versus late-maturing hybrids varied by year and location. At the Sturgis, SD, location in 2023, the early-maturing hybrid had approximately 54% more damaged seeds than the later-maturing hybrid. In contrast, at the Pierre, SD, location in 2024, the early-maturing hybrids planted on April 25th, May 20th, and June 6th had fewer damaged seeds (approximately 62%, 55%, and 40% less damage, respectively) (Prasifka et al. 2026).

Variation in yield was minimal among the different hybrids and the planting dates. At the Pierre SD 2023 location, both hybrids planted on June 15th yielded 25% less than those planted earlier (Prasifka et al. 2026). In contrast, at the Pierre SD 2024 location, the highest-yielding plots were the late-maturing hybrid planted on May 20th, and the early-maturing hybrid planted on June 6th. Compared with the May 20th-planted sunflowers, both hybrids planted on June 19th yielded approximately 70% less (Prasifka et al. 2026).

Unsurprisingly, the oil content of the Pierre sunflowers decreased by approximately 20% across all three years of the study as red sunflower seed weevil damage increased from 10% to approximately 90% (Prasifka et al. 2026).

## Early Planting Date and Early Maturing Sunflower Conclusions

There is strong evidence that adopting earlier planting dates (early to mid-May) can reduce damage from red sunflower seed weevils. One of the hurdles that will reduce the effectiveness of this strategy is seasonal weather variation. Prasifka et al. (2026) observed variations in yield across all planting dates during 2024. This was likely due to drier conditions. Although earlier planting dates will not always yield more than later planting dates, research by both Oseto et al. (1987) and Prasifka et al. (2026) indicates that the reductions are not due to increased red sunflower seed weevil damage. As the red sunflower seed weevil is currently the most economically damaging insect pest in both oilseed and confection sunflowers, reducing its impact on sunflower production is necessary. The recommendation from SDSU and NDSU is to adopt earlier planting dates that match the anticipated seasonal conditions (e.g., forecasted or ongoing drought). Insecticidal management of red sunflower seed weevils will still be necessary, even for early-planted sunflowers, as the lowest damage in the Prasifka et al. (2026) study was approximately 3%.

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