

Gray Sunflower Seed Weevils

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Introduction

In recent years, the gray sunflower seed weevil, *Smicronyx sordidus* (LeConte) (Coleoptera: Curculionidae) has become somewhat rare in commercial sunflower fields throughout South Dakota. However, recent research noted that their populations were more abundant on wild sunflowers than commercial sunflowers in South Dakota (Prasifka 2026, personal communication). Although typically present at low population densities, the gray sunflower seed weevil has been identified as a potential economic pest of sunflowers. Large populations were noted in an insecticide efficacy study conducted in Northeast South Dakota during 1983, and an average of 13 gray sunflower seed weevil adults per head were observed during a study in 1985 (Gednalske and Walgenbach 1984, Byers 1987). These observations suggest that gray sunflower seed weevils have the potential to reach economically damaging populations in South Dakota.

Lifecycle

One of the key differences between the red sunflower seed weevil and the gray sunflower seed weevil, aside from size and appearance, is that female gray sunflower seed weevils do not require a pollen meal to promote oogenesis (Rana and Charlet 1997). Instead, gray sunflower seed weevils acquire the necessary nutrients from leaves, preanthesis buds, and extrafloral nectaries (Rana and Charlet 1997).

Adult gray sunflower seed weevils emerge from July through early August (Gednalske and Walgenbach

1984). Their peak emergence usually occurs 5-10 days before the red sunflower seed weevil peak emergence (Gednalske and Walgenbach 1984). Female gray sunflower seed weevils lay eggs in the distal end of unopened florets (Brewer 1991). A single larva hatches in the corolla tub, migrates down and chews into the achene. The larva then moves to the base of the developing seed and begins feeding, eventually resulting in the destruction of the embryo. As the plant matures, achenes that are infested by gray sunflower seed weevils increase in size compared to those that remain uninfested. After plants begin to senesce, the gray sunflower seed weevil larvae fall to the ground from tipped sunflower heads and overwinter in the soil (Byers 1987).

Identification

Larvae (Byers 1987, McLeod 1994, Michaud 2013):

- Cream colored and 2 mm long
- Legless
- C-shaped
- *Previous studies have reported that there is no morphological difference between red and gray sunflower seed weevil larva*

Adults (Anderson 1962) (Figure 1):

- Elongate mouthparts (rostrum) are black in color
- Antennae originate from the rostrum and are very dark red/black in color
- Body is black in color
- Body covered with white to gray dense hairs

- Average adult male and female length are 4.85 mm and 5.6 mm long, respectively (front of rostrum to back of abdomen) with females being noticeably larger than males (Figure 2)
- Rostrum of females is longer and narrower when compared to males (Figure 2)



Figure 1. Gray sunflower seed weevil female. Photo courtesy of Adam Varenhorst.



Figure 2. Gray sunflower seed weevil female (top) and male (bottom). Photo courtesy of Adam Varenhorst.



Figure 3. Size comparison of female gray sunflower seed weevil and female red sunflower seed weevil. Photo courtesy of Adam Varenhorst

Scouting

Gray sunflower seed weevils are easily distinguished from red sunflower seed weevils due to their coloration and much larger size (Figure 3). Unlike the red sunflower seed weevil, gray sunflower seed weevils feed on leaf tissue for nutrients (Rana and Charlet 1997). This feeding injury appears as small puncture holes that can be observed while scouting (Rana and Charlet 1997). Seeds that are infested by the gray sunflower seed weevil are enlarged and protrude above neighboring uninfested seeds; this makes scouting for infestations relatively easy (Brewer 1991).

Management

No economic thresholds have been developed for gray sunflower seed weevils. Their populations in sunflower remain scarce and below levels that could cause economically significant damage (Michaud 2013). As a result, management is generally not recommended for gray sunflower seed weevils.

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