

Sipha maydis: A Potential Threat to Colorado Wheat Production

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Sipha maydis is an exotic grass feeding aphid widely distributed within its native range in Europe, the Middle East, Asia and parts of Africa. It was introduced to Argentina in the early 2000's when it quickly spread to all of the wheat producing regions of the country and became a significant pest of small grains.

S. maydis is easily recognized by the black coloration, white hairs covering the abdomen, and short pore like cornicles. Mature wingless aphids appear to have a hardened, sclerotized abdomen and have a glossy black coloration (Figure 1, Top). Winged forms are produced from established colonies, and were very common in one of the February 2015 collections from Mesa County CO (Figure 1, Bottom).



Figure 1. (Top) *S. maydis* is easily identified by the black coloration, white hairs, sclerotized-appearing abdomen, and short pore-like cornicles. (Bottom) Winged forms of *S. maydis* are produced from established colonies, sometimes in great numbers. They are the dispersal form of the aphid.



Figure 2. Mid and late season infestation on maturing plants are concentrated at the base of leaves. There is chlorosis associated with the aphid feeding. This picture was taken in oats at the fall 2014 collection site in Albuquerque.

S. maydis was found by Tessa Grasswitz, a New Mexico State University entomologist, in an oat cover crop in a small acreage farm setting in Albuquerque NM in the fall of 2014. The aphids discovered on the oat cover crop were feeding at the base of leaves and causing a yellowing of the tissue at the feeding site (Figure 2). A short article detailing that discovery was published in [Entomology Today](#) in February 2014. That article triggered a search for the aphid in western Colorado, where it was found almost immediately.

As of the last week of February, 2015, *Sipha maydis* has been collected at three sites in Mesa County Colorado in addition to the Albuquerque collection. All three Mesa County collections were made in winter annual grasses. The initial collection was made along the edge of a winter wheat field

about 4 miles east of Fruita CO. Many dead *S. maydis* were found on currently unidentified winter annual grasses, two large healthy colonies were then found on plants of annual wheatgrass, *Eremopyrum triticeum*.

The colonies were found on a steep south facing slope associated with a field drain ditch. The south facing slope created a warm microclimate which allowed constant reproduction of the aphids during the winter months (Figure 3). *S. maydis* was found in association with Russian wheat aphid, *Diuraphis noxia*, bird cherry oat aphid, *Rhopalosiphum padi*, rose grass aphid, *Metopolophium dirhodum*, and brown wheat mite, *Petrobia latens*.



Figure 3. The large *S. maydis* colonies found in February 2015 western Colorado collections were made on winter annual grasses located on south-facing slopes associated with irrigation ditches (arrow points to collection site). *S. maydis* populations on other slopes were much less established.

A second collection was made about 2 miles north of the original site Feb 23, 2015. This collection was made from downy brome, *Bromus tectorum*, another winter annual grass. The infested plants were located on a south facing slope associated with a large drainage ditch.

A third collection was made on Feb 25, 2015, from hare barley, *Hordeum murinum* ssp. leporinum, located in an open lot at the

Mesa County Fairground, about 15 miles SE of the original collection site. This site is far removed from any small grain production, but supports scattered plants of winter annual grasses.

Life history

Sipha maydis does not have a generally used common name at this time. In Argentina, where it has been established since 2002, it is referred to as “pulgon negro”, or black aphid. The scientific literature is very limited on *S. maydis*, with some publications in Asian languages, and the Argentina literature in Spanish. Corrales et.al. 2007 summarizes the distribution and host range of the aphid in Argentina and this publication is at present the greatest source of printed information available. The paper states that an outbreak of *S. maydis* in the late spring of 2005 was devastating to mature wheat plants on the prairies of the Buenos Aires province. *S. maydis* feed exclusively on grasses and is recorded from many genera including *Agropyron* (wheatgrasses), *Agrostis* (bentgrass), *Alpecurus*, *Avena* (oat), *Bromus* (brome), *Dactylus* (orchardgrass), *Elymus* (wildrye), *Hordeum* (barley), *Luzula* (woodrush), *Poa* (bluegrass), *Trisetum*, and *Zea* (corn). Our observations of overwintering *S. maydis* in Mesa County CO to date have been on *Bromus tectorum* (downy brome), *Hordeum murinum* ssp. leporinum (hare barley), and *Eremopyrum triticeum* (annual wheatgrass).

Corrales et al. (2007) reports that *S. maydis* is found on the youngest leaves of the plants in the fall, and that it prefers mature stages of cereals. It infests the ligula area of flag leaves in late spring. *S. maydis* causes a yellowing or chlorosis of the plant leaf near the feeding site. The aphid feeding damages mature cereals in the late spring by reducing functional leaf area and inhibiting head growth. (Figure 4)

This aphid reportedly has a holocyclic life cycle in Argentina. This means there is a sexual stage in which eggs are laid as the overwintering stage, with a limited range of host plants. We believe that we have observed non-sexual overwintering in Mesa County, with large populations seen on winter annual grasses in mid February at one site.



Figure 4. *S. maydis* colonies found in February were spread over the lower half of young leaves. There was some chlorosis associated with moderately to heavily infested leaves, but few symptoms on leaves with only one or two aphids present.

Management

Management to protect the flag leaf from feeding damage is essential to protect yield. It is not known how *S. maydis* responds to insecticides currently used for aphid control in small grains. Insecticide evaluation is considered high priority research. Researchers in Argentina are currently developing resistant wheat varieties. There is no cross resistance to genes developed for Russian wheat aphid or greenbug.

References cited

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