

SCIENTIFIC NOTE

**New record of *Eurytomocharis eragrostidis* species complex
(Chalcidoidea: Eurytomidae) infesting teff
(*Eragrostis tef*) in Oregon**

JENNIFER E. BERGH^{1,2} and SUJAYA RAO¹

Teff, *Eragrostis tef* (Zucc.) Trotter (Poaceae: Eragrostoidae), an annual warm season grass, is a major cereal crop in Ethiopia and a hay crop in other African countries (Twidwell *et al.* 2002). It was introduced to the United States for production and use as grain or fodder (McDaniel and Boe 1990; Stallknecht *et al.* 1993). It is being raised as a seed crop in the Willamette Valley, which is a key agricultural area in Oregon, stretching from Portland to Eugene between the Cascade and Oregon Coast mountain ranges.

In August 2008, examination of a poor stand of teff in a seed production field in Linn County, OR (Site 1: 44.5447° N, 123.1100° W) led to the detection of several 1-2mm insect emergence holes at the base of the stems (Fig. 1). Here we report the identity of the insect that emerged from these and other damaged stems.

In addition to the stand at Site 1 listed above, a second field was examined (Site 2: 44.4486° N, 123.2067° W). Infested plants from both sites were transported to the laboratory and individual stems were isolated, examined for signs of infestation, cut and placed in 4-dram glass vials to await emergence of the adult insects. Photoperiod in the lab was 14 hours and temperature averaged 30 °C. Representative adults were preserved in alcohol and sent for identification to the Systematic Entomology Laboratory, United States Department of Agriculture – Agricultural Research Service, in Washington, DC.

Adults emerged over a 7-day period after enclosure in vials. In all, 21 males and 27 females were recovered from Site 1, and

5 males and 9 females were recovered from Site 2. The adults were identified by Dr. Michael Gates, USDA-ARS, as *Eurytomocharis eragrostidis* species complex (Hymenoptera: Eurytomidae). Species separations are currently difficult and characters used for identification are variable intraspecifically (Gates personal communication). Voucher specimens are deposited with Dr. Gates at the Systematic Entomology Laboratory.

Damage varied at the two sites. At Site 1, approximately 70% of randomly sampled plants were infested. However, this field was not irrigated adequately at planting and the stand was poor; the crop may have been unusually vulnerable to infestation due to extended water stress on the seedlings. At Site 2, 10% of randomly sampled plants showed evidence of the pest, but the stand appeared well established and healthy.

This is the first record of the *E. eragrostidis* species complex in Oregon and the first record of damage to teff by an insect pest in the state. Teff has been raised in the Willamette Valley in Oregon for seed production for about 10 years, and no insect pest has previously been observed feeding on the crop.

Eurytomocharis eragrostidis, the species, was reported as a pest of teff in South Dakota in 1988 by McDaniel and Boe (1990). In that study, larvae were found in 30% of infested stems in late July at two widely separated locations. The presence of the pest resulted in stunted plant growth and 75% reduction in forage yield (McDaniel and Boe 1990). In all, 19 adults were recovered. The pest was observed only once in 5

¹ Department of Crop and Soil Science, Oregon State University, Corvallis, OR 97331

² Author to whom correspondence should be addressed

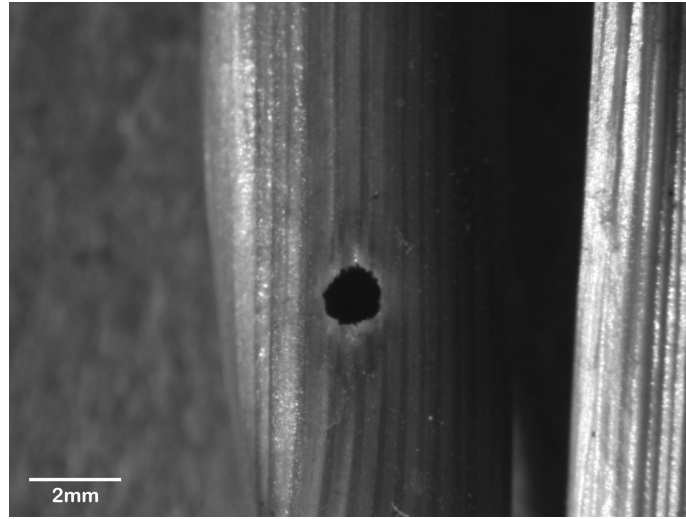


Figure 1. *Eurytomocharis eragrostidis* emergence hole at 10 cm from crown.

years of observation. In the Willamette Valley, the insect was detected because the grower was investigating the reason for a poor stand. It is possible that the wasp may be commonly present on teff and/or on an alternative host, perhaps controlled by natural enemies or causing damage below detection thresholds.

Teff has a niche market and several characteristics that make it attractive as a rotational crop for seed production in Oregon. Once established, it can be grown under a wide range of environmental conditions such as on marginal soils, water logged soils or under drought conditions (Stallknecht *et al.* 1993). It can produce a crop in a relatively short growing season and will produce grain for humans and fodder for cattle. Teff is low in gluten and is marketed in the US as a health food product and as late-planted emergency forage for

livestock (Stallknecht *et al.* 1993). It appears to have low susceptibility to disease and pests when compared to other grain crops such as wheat (Stallknecht *et al.* 1993). However, its susceptibility to the *E. eragrostidis* species complex and damage that could lead to losses could be a deterrent to commercial expansion of this crop. Future monitoring of teff in Oregon is required to determine whether the *E. eragrostidis* species complex is an occasional pest, as it was in South Dakota in 1988 (Twidwell *et al.* 2002), or an ongoing problem in the Willamette Valley.

We thank the growers for drawing our attention to the damage in teff and allowing us to survey their fields, Michael Gates at the Systematic Entomology Laboratory for identification of the wasp, and Glenn Fisher for manuscript review.

REFERENCES

- McDaniel, B. and A. Boe. 1990. A new host record for *Eurytomocharis eragrostidis* Howard (*Chalcidoidea: Eurytomidae*) infesting *Eragrostis tef* in South Dakota. *Proceedings of the Entomological Society of Washington* 92: 465-470.
- Stallknecht, G.F., K.M. Gilbertson, and J.L. Eckhoff. 1993. Teff: Food crop for humans and animals, pp. 231-234. *In* J. Janick and J.E. Simon (eds.), *New crops*. Wiley, New York.
- Twidwell, E.K., A. Boe, and D.P. Casper. 2002. Teff: a new annual forage grass for South Dakota. ExEx 8071. Cooperative Extension Service, South Dakota State University. Brookings, SD.