Nephrotoma Meigen, 1803 (Diptera, Tipulidae) as potential agricultural pests in Norway

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Two Malaise traps were set up at Ås, Southern Norway, during the growing seasons 1992–1997, one trap in an organic grown barley field and one in its boundary. Totally 23 species of Tipulidae (Diptera) were identified, of these eight species belonged to the genus *Nephrotoma* Meigen, 1803. Of the total specimens collected 93% of the males and 88% of the females belonged to this genus. Comparing the two traps, 80% of the *Nephrotoma* specimens were recorded in the organic field. It is discussed if larvae of *Nephrotoma* spp. in Norway can be potential pests in agricultural crops as reported from other countries.

Key words: *Nephrotoma*, Tipulidae, agricultural pests

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Introduction

Larvae of some species of Tipulidae (Diptera) are considered as agricultural pests in many crops, especially the species in the subgenus *Tipula* Linnaeus, 1758. In Norway, larvae of *Tipula (Tipula) paludosa* Meigen, 1830 are regarded as the most important pest, especially in cereals and grasslands along the coast of Western Norway (Hofsvang 1981). In other countries larvae of the genus *Nephrotoma* Meigen, 1803 have also been reported as pests in many crops (Forsslund 1954, Chriswell 1956, Theowald 1957, Oosterbroek 1978, 1979, Jones & Jones 1984, Alford 1991, 2007, Blackshaw & Coll 1999). However, plant damage from *Nephrotoma* larvae has never been reported from Norway.

Material and methods

The study was carried out in a 15.5 ha organically grown field and its boundary at the Norwegian University of Life Sciences at Ås, AK (EIS 28) during six years (1992–1997). Each year one Malaise trap was placed in the spring barley crop (one sixth of the field) 60 m from the wooded boundary. A second Malaise trap was placed along the boundary, except for 1994. Because of crop rotation, the traps changed position every year. The collecting bottles contained 70% alcohol, and the traps were emptied a least once a week during the growing season (May–November). Adult Tipulidae were sorted out and stored at 70% alcohol. More information about the crop rotation, boundary vegetation, and the exact position of the Malaise traps are given in Hågvar et al. (1998), where also the average monthly temperature and precipitation from an automatic weather station 1 km away are given.

Results

Table 1 shows the 23 species of Tipulidae recorded in the barley field or in the boundary during the six years. Only males were identified to species level. Males dominated and constituted 72.5% of the