

The hoverfly fauna (Diptera, Syrphidae) from six years of Malaise trapping in an organic barley field and its boundary in southern Norway

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Two Malaise traps, one in an organically grown barley crop and one in its wooded boundary, were collecting syrphids throughout the season in six successive years, 1992-1997, in southern Norway. 88 syrphid species were collected, 95 % having aphidophagous larvae. There was a considerable annual turnover rate in the species complex, and only five of the 88 species were caught all years. Some species dominating one year were absent in other years. The fauna from the crop and from the boundary differed: only 20-40 % of the species were common each year. The abundance of syrphids was generally higher in the crop than in the boundary, but not always the species number. The samples were female biased, indicating that female flight behaviour makes females more vulnerable to Malaise traps than males. The study increases the present knowledge of phenology, habitat preferences and hibernation states of single species of syrphids. The main message from this study is that annual changes in the syrphid complex are considerable, both qualitatively and quantitatively. This is important to know when ecological studies on syrphid fauna are carried out for one season only.

Key words: Syrphidae, Malaise traps, species turnover, phenology, southern Norway

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INTRODUCTION

In 1992-1997 a large project on biodiversity in an organically managed field in Ås, southern Norway, was conducted (Andersen et al. 1999). A part of that project was the study of leaf mining flies (*Chromatomyia fuscula* (Zetterstedt)) in barley and their parasitoids (Hågvar et al. 1998, Hågvar et al. 2000). To register the leaf miners, their parasitoid species and their habitat use, two Malaise traps were collecting insects from the crop and the field border throughout the season for six years.

It is known that Malaise traps also collect syrphids rather efficiently, and specimens from this family were sorted out from the same traps mentioned above. The Norwegian syrphid fauna is fairly well known (Nielsen 1999, 2002, 2003, 2005), but permanent traps throughout the season in six succeeding years in crop and boundary may give additional information on seasonal, annual and sex ratio fluctuations, and also whether a crop and a boundary trap in the same field collect different species assemblages.