

7. Flies on pastured cattle

7.1 Effects of synthetic pyrethroids against *Neomyia cornicina* (Fabricius)

In cooperation with Dr. C. Sommer, The Royal Veterinary and Agricultural University, Copenhagen a study was conducted to evaluate the effects against the non-target dung fly *Neomyia cornicina* (Fabricius) (Diptera: Muscidae) of synthetic pyrethroids given as pour-ons to cattle. The dung from calves treated with synthetic pyrethroids negatively influences - in varying degrees - survival, reproduction, size and behaviour of the common dung fly *Neomyia cornicina*. This was documented in assays where the larvae and imagines of *N. cornicina* were exposed to dung collected from calves treated with recommended pour-on doses of deltamethrin, flumethrin, cyfluthrin, or α -cypermethrin. With some of the pour-ons pre-imaginal mortality was significantly increased in dung collected up to at least 7 days after treatment. Nulliparous flies given 6-day access to dung collected 3 days after treatment with α -cypermethrin or deltamethrin showed little or no ovarian development (tendency for a comparable effect of flumethrin). The study strongly indicates that the use of synthetic pyrethroids affects the insect dung fauna. A paper on the subject is submitted.

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7.2 Microbial control of flies on pastured cattle

This project, initiated in 1997, has now reached the stage where fungal isolates are screened in the laboratory for activity against adult face flies (*Musca autumnalis*) and horn flies (*Haematobia irritans*). Due to problems with high control mortality in the latter species, all tests in 1999 were made with *M. autumnalis*. Male and female flies were immersed in spore suspensions of ten different fungal isolates. At a concentration of 1×10^7 spores per ml, an isolate of *Metarhizium anisopliae* was the most virulent against both male and female flies, and caused mean mortalities of 56% and 88%, respectively, after 7 days. It appeared that females in general were more susceptible to infection compared to males. The tests will be repeated in the following year. In contrast to the results from the immersion test, isolates of *Beauveria bassiana* and *Paecilomyces fumosoroseus* caused the highest mortality when fungi were applied as inoculated sugar baits.

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