OBJECTIVES: 9802853. The objective of this research is to evaluate the efficacy of entomopathogenic nematodes for suppressing filth flies in the feedlot environment. Strains of Steinernema species will be tested on house and stable fly populations in laboratory and feedlot trials. Pathogenicity and persistence will be assessed, including carryover in manure spread on cornfields.

APPROACH: This study will test several strains of Steinernema feltiae in laboratory and feedlot trials. Mass reared nematodes will be applied at a rate of 1 x 106 nematodes/m2 of manure on 10 m2 feedlot plots. Weekly sampling will monitor house and stable fly numbers post treatment. Monthly sampling of feedlots will provide substrate for nematode persistence studies using wax moth larvae. In the fall 4m2 corn plots will be treated with manure, including a treatment containing a fresh application of nematodes to evaluate potential corn insect control. Throughout the study period new strains of nematodes will be evaluated in filter paper assays for pathogenicity.

NON-TECHNICAL SUMMARY: Filth flies in feedlots are difficult to control. A benign biocontrol method with a beneficial nematode may be effective. To determine the persistence of the beneficial nematode Steinernema feltiae, including carryover in manure spread on corn fields. Populations of filth flies will be monitored.

PROGRESS: 1998/10 TO 2000/09
Steinernema feltiae SN was the most effective nematode strain, causing 52% fly mortality at a 1000 nematode application rate in cattle manure in controlled environments. Host age affected the virulence of S. feltiae, with 2 and 3 day old house fly larvae most susceptible. Nematode application caused significant fly mortality for 2-3 weeks regardless of application rate. Manure moisture had an impact on nematode persistence and virulence. High fiber content in cattle
manure resulted in increased fly mortality. Stable fly and house flies did not differ in mortality in laboratory tests.

**IMPACT:** 1998/10 TO 2000/09
House fly and stable fly infestations cause millions of dollars each year in losses due to annoyance and interrupted feeding of cattle. Urban expansion is increasing human contact with stable flies. Our laboratory tests demonstrate that nematodes could serve to reduce populations of both fly species. However, environmental conditions and disturbance in the feedlot environment indicate that nematodes alone will not serve as an effective means of fly suppression.

**PUBLICATIONS:** 1998/10 TO 2000/09