

Detecting a difference in reaction norms for size and time at maturation: pheromone strains of the European corn borer (*Ostrinia nubilalis*: Lepidoptera, Crambidae)

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ABSTRACT

Background: Sibling herbivore species or host strains specialized to different food plants frequently evolve specific adaptations to their hosts, including host-specific differences in developmental traits (body mass and development time). Such differences may (1) be a consequence of an evolutionary change in relative quality of different hosts, or (2) reflect host-specific changes in the reaction norms for size and time at maturation *per se*.

Aim: Detect a difference in reaction norms for size and time at maturation among the host strains of an herbivorous insect.

Organism: European corn borer *Ostrinia nubilalis*, a polyphagous pest moth with two distinct host plant strains – E and Z – feeding on hop/mugwort and on maize, respectively.

Methods: A laboratory growth trial in which the larvae from these two strains were reared on an artificial diet that was either neutral or included the native host plant of the respective strain. The growth of the larvae was monitored on a daily basis.

Results: Larvae from strain Z developed over a longer period and attained higher pupal masses than larvae from strain E, the strains thereby showing systematic differences in reaction norms for time and size at maturation.

Conclusion: Examining the sign of the correlation between size and time at maturation at the level of among-strain comparison is recommended as a tool for detecting host-specific changes in the reaction norms for size and time at maturation.

Keywords: *Artemisia vulgaris*, body size, evolution, growth rate, host race, insect, *Ostrinia nubilalis*, phenology, *Zea mays*.