

Evaluation of induced responses, insect population growth, and host-plant fitness may change the outcome of tests of the preference-performance hypothesis: A case study

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The preference-performance hypothesis predicts that insect preference should correspond to host suitability for offspring development. We studied the pattern of within-plant preference in the aphid *Sipha flava* and its consequences for offspring performance on the host-plant *Sorghum halepense*, regarding the role of induced responses of plants to aphid feeding. The consequences of within-plant preference on aphid population growth and host-plant traits were also evaluated. Our results showed that winged and wingless aphids preferred to settle on mature rather than young leaves. In contrast, aphid individual growth rate was higher on young leaves when compared with mature leaves, suggesting that the outcome of this test rejected the preference-performance hypothesis. However, the inclusion of the factor 'previous aphid infestation' changed the outcome from a maladaptive choice to a neutral one. Thus, individual growth rates of *S. flava* increased when aphids developed on leaves that had be