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Preface

The ways in which plants contend with their various enemies has been of great interest since the middle of the last century. Plant enemies may take many forms and attack various parts of the plant. This issue concerns how plants deal with damage to differing plant parts, various types of damage, and the theoretical aspects of considering the strategies plants have evolved that allow them to deal with their enemies. Specifically, this special issue is an attempt to highlight current ecological, quantitative genetic, and molecular genetic research concerning how plants cope with their enemies.

The strategies that plant species use to respond to selection imposed by their enemies have typically been considered *defense* or *tolerance*. However, there has been some contention about the definition of the terms that refer to plant strategies in contending with their herbivores. Stowe writes in the opinion article about the historical context of these definitions and the value of, or lack thereof, considering these as two distinct plant strategies and the need to examine these together.

The paper by Wise and Abrahamson takes the need to examine these strategies together and models them together using the *Solidago altissima*-Spittlebug system. They highlight that selection varies for these strategies, depending on herbivore density. The paper by March *et al.* using the same plant species, *Solidago altissima,* but a different herbivore, *Trirhabda virgata,* points out that tolerance to herbivory depends significantly on the environmental context under which a plant is growing. March *et al.* also discuss their results in light of the most current models concerning the effects of stress on a plant's ability to cope with herbivore damage.

On a quantitative genetic level, Hochwender *et al.,* report on the genetic architecture of the quantitative trait of tolerance to foliar damage using a *Salix* hybrid system. Such systems are very amenable to genetic analysis, allowing for the genetic architecture of traits to be determined. Further, the genetic architecture of a trait has a significant impact on the evolutionary trajectory of that trait. While additive genetic variation was found, they also found epistatic genetic effects on tolerance in this system.

The molecular aspect of how plants cope with herbivore damage has been less widely investigated. However, Scholes *et al.* have done just that, using the model system of *Arabidopsis* and examining the molecular genetic responses to apical meristem damage. Further, they examine overcompensation and how gene expression may relate to this phenomenon.

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