

Shade Avoidance Requires Multiple Hormone Signaling Pathways

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Many plants have a sophisticated suite of responses to shade from neighboring plants that enable them to compete with their neighbors for photosynthetic light. Known as the shade avoidance response, the response to neighbor shade can include increased stem elongation, altered branching, and early flowering. Shade avoidance responses come at the expense of resource allocation to fruit and seed and thus reduce agronomic yield. I will cover three topics illustrating the importance of hormones to shade avoidance. First, while auxin has long been implicated in shade avoidance, the mechanisms for increased auxin under shade have not been fully elucidated. We have found that the *YUCCA* auxin biosynthetic genes are absolutely required for shade avoidance. Second, we have found that variation in auxin signaling may underlie quantitative trait loci (QTL) for shade avoidance variation in tomato. Lastly, I will discuss the results of phenotypic and transcriptional studies that have revealed new connections between, jasmonic acid, salicylic acid, and shade avoidance.