CONTEXTUAL APPROACHES TO ABIOTIC-STRESS TOLERANCE AND YIELD STABILITY IN MAIZE
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Corn is extremely susceptible to drought, and even four days of visible stress at flowering can cause 50% reduction in yields. Drought occurs nearly everywhere that corn is grown and it is estimated that 75% of corn-growing acres experience yield-robbing drought at one phase or other during growth. Similarly, cold temperatures limit the geographical areas of maize cultivation and restrict the duration of its growth. In attempting to understand the physiological, biochemical and molecular bases for tolerance to abiotic stress in maize, we have utilized a variety of high-throughput 'omics' technologies, alongside of focused and detailed characterization of known stress-related parameters. Information derived from these basic-science approaches are being utilized in the development of context-based transgenic solutions for abiotic-stress tolerance. We will discuss results from some of our physiological and molecular investigations on the role of hormones in growth and stress tolerance in maize.