

Thursday, October 8, 3:40-4:30 p.m.

Developing ozone tolerance for maize and soybean

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Tropospheric ozone is a damaging air pollutant that significantly impacts human and ecosystem health. Concentrations of ozone in many of the world's important crop growing regions exceed critical levels for yield loss, and if current emission trends continue, then ozone will increasingly challenge crop production in the future. Ozone enters plants through the stomata, then rapidly reacts to produce other reactive oxygen species, which trigger stress response pathways. Because there is thought to be little potential for adaptation to rising ozone through crop management practices, developing ozone-tolerant crops through breeding or biotechnology is an important target. A first step towards breeding for ozone tolerance is identification of genetic variation in ozone tolerance in crop species. We have screened a recombinant inbred population of soybean and 200 inbred lines of maize for ozone tolerance in the field using FACE technology, and identified tolerant and sensitive lines. This talk will describe the physiological and metabolic basis for some of the variation in ozone tolerance as well as RNA-seq experiments in soybean that reveal genes responsive to elevated ozone in the field.