Source-Sink Regulated Senescence in Commercial Maize Germplasm

Mark Gee[1]

[1]Affiliation not available

January 14, 2023

Source-Sink Regulated Senescence in Commercial Maize Germplasm

Mark Gee[1] *and Mitchell Tuinstra[1]*

[1]Department of Agronomy, Purdue University, West Lafayette, IN, USA

ORCiD: 0000-0003-1472-0028

Keywords: Senescence, Hyperspectral, Maize, Commercial Germplasm

Alteration of senescence patterns in maize has led to significant yield increases of commercial hybrids in recent decades through "staygreen" and other traits. Senescence is regulated by several biological processes including photoperiod response and sugar signaling. B73, a parent for many commercial varieties, manifests a Source-Sink Regulated Senescence (SSRS) and enters a rapid and premature senescence pattern when the sink tissue is disrupted. In this study, we explored the expression of SSRS in maize commercial germplasm and assessed the commercial relevance of the trait *per se* and in testcrosses through remote sensing under field conditions. We also utilized a hyperspectral leaf scanner to more thoroughly characterize the phenotype and provide early detection in a subset of genotypes.