Detecting Weed Infestations in Soybeans Using Remote Sensing Technologies. (A08-johnston114247-Poster)

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Abstract:

The availability of hyperspectral data and the relative ease with which it can be collected offer the possibility for improved identification of weed infestations in agronomic fields using remote sensing. As the commercialization of remote sensing increases, the ease of data analysis by lay personnel becomes increasingly important. User-friendly software programs, such as MultiSpec, have been developed specifically for remote sensing, and should be investigated relative to general statistical tools for their ease of use and classification accuracy. Experiments were conducted in West Lafayette and Farmland, IN, to evaluate the accuracy of remote sensing technology for detecting species-specific weed infestations. Models were developed describing the infestations using discriminate analysis (DA) in SAS and compared with models developed in MultiSpec using maximum likelihood classification. Classification accuracies were nearly 90% with SAS-DA techniques and at least 93% with MultiSpec. This shows that both methods are capable of producing accurate classifications of weed species.

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