2010 Projects

Quality Control Projects

Quality Control: Single Seed Analysis

Plant breeders developing new inbred lines with improved grain nutritional value and tolerance to environmental stress are frequently not aware how their selections impact seed quality. Selecting for increased oil and protein content in the grain sometimes comes at the expense of seed quality. Unanticipated seed quality problems may occur when seeds are multiplied in an alternative location or when seeds are exposed to the detrimental effects of freezing temperatures at the late stages of seed development. *Freezing injury* in corn causes irreversible physiological damage to the seed and grain. Every four or five years, an early fall frost in Iowa causes substantial monetary losses for the seed industry due to lower seed germination and vigor. A single-seed, NIR analytical detection method will be developed to characterize detrimental physiological changes in seed and grain. Results from these studies will be shared with stakeholders and scientists through presentations, workshops and peer-reviewed publications.