M.S. Assistantship on Hybrid Wheat Research

**Background:** Hybrid wheat is climate-resilient and can contribute to the goal of feeding a larger global population with increasing dietary needs. A key objective of hybrid wheat research is male and female parent line evaluation for characteristics needed to develop experimental and commercial wheat hybrids in a cost-efficient manner. Male traits and characteristics are described briefly in the literature, but very little information is available to investigate female characteristics. Research conducted previously in small grains research laboratory led by Dr. P. Stephen Baenziger at the University of Nebraska – Lincoln (UNL) involved screening of female lines grown in the crossing block over the last two seasons. This has resulted in detailed protocols for evaluation of female lines and identified highly heritable traits important for female line characterization.

**Graduate Research Assistantship (GRA):** Building on our initial efforts, the student recruited on this GRA will have the opportunity to (1) screen new female lines in the 2020 and 2021 crossing block and characterize floral gape under field conditions; (2) continue updating protocols for measuring floral gaping and identify novel traits for female line performance; (3) collaboratively conduct genome-wide association study (GWAS) for female traits using genotyping-by-sequencing derived variants; and (4) identify and validate genomic regions associated with female characteristics. Another aspect of this study will involve research on Cytoplasmic Male Sterility (CMS). A key question is to investigate how Chemical Hybridizing Agent (CHA)-induced gaping compares to CMS-induced gaping for hybrid seed production.

Besides hybrid wheat research, the student will participate and experience small grains (wheat, barley, and triticale) cultivar development efforts, breeding program management, and mentoring and training undergraduate students for the field operations. The student will also have opportunities to gain experience in teaching by working as a teaching assistant or in the private sector by doing an internship with a company if so inclined (time-permitting). The GRA will be available May 10, 2020, which is the preferred starting date for the 2020 field season. If interested in applying to this position, please submit the following documents: (1) cover letter describing previous experiences relevant to this GRA, and your interest in this position; (2) curriculum vitae; and (3) a minimum of two reference letters preferably emailed separately to pbaenziger1@unl.edu. Any questions regarding this position and the application material can be emailed to Dr. P. Stephen Baenziger (pbaenziger1@unl.edu).

*As an EO/AA employer, qualified applicants are considered for employment without regard to race, color, ethnicity, national origin, sex, pregnancy, sexual orientation, gender identity, religion, disability, age, genetic information, veteran status, marital status, and/or political affiliation. See [http://www.unl.edu/equity/notice-nondiscrimination](http://www.unl.edu/equity/notice-nondiscrimination).*