**PI:** Sunish Seghal  **PI's E-mail:** Sunish.Sehgal@sdstate.edu

**Project ID:** FY19-HW-010  **ARS Agreement #:** *59-0206-8-194*

**Research Category**: HWW-CP  **Duration of Award:** 1 Year

**Project Title:** Genomic Selection for Hard Winter Wheat

## PROJECT 2 ABSTRACT
(1 Page Limit)

Our goal is to develop hard winter wheat cultivars that are resistant to Fusarium head blight and that accumulate reduced levels of DON following infection.  Specifically, we will address the following objectives and associated research activities:

Increase efficiency of individual breeding programs by developing phenotypic and genomic selection models
through coordinated efforts of pyramiding major and minor genes leading to the development and release
FHB resistant varieties with lower levels of DON,

Our plan is to genotype 200 lines from the Nebraska breeding program and 200 lines from the South Dakota breeding program (our portion of the project).  The 400 lines will be phenotypically evaluated in cooperation with Dr. Clay Sneller in Ohio, as well as evaluate the lines in their respective states of origin.
The genotypic and phenotypic data will be used in future years to further develop genomic selection algorithms. We will also determine if the Ohio phenotypic data is relevant to the South Dakota environment.

These efforts will help in development of a reliable GS method for FHB resistance in hard winter wheat and development of HWW cultivars with improved FHB resistance.