

Title Improving wheat quality consistency by density segregation
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Abstract

The end-use quality of grain crops can vary significantly within a given field. Research was conducted in Northeastern Oregon to determine the amount of wheat quality variability due to landscape position and if improvements in the consistency of wheat quality delivered at the farm gate could be made by wheat segregation. The study was conducted on soft white winter wheat collected from fields representing three different cropping systems including annual cropped no-till, chemical fallow no-till and conventionally tilled summer fallow. Samples were taken from four areas in each field representative of the hilltops, north facing slope, bottom and south facing slopes and replicated three times. A portion from each sample collected was then combined proportionally to form an additional sample representative of the grain collected from the entire field. This combined sample was then separated into four density fractions using a gravity table. Grain from each sample location, representing the entire field and the four density fractions were analyzed for wheat quality factors including test weight, kernel weight, kernel size, kernel hardness and protein content. A combine yield monitor and protein sensor were used to record yield and protein across the entire field. The results will be analyzed to determine the amount of field variability in wheat yield and quality and if segregating the grain by density is a feasible method of improving grain quality consistency.