

NITROGEN FERTILIZER RATE AND TIMING IMPLICATIONS FOR MALT, FOOD, AND FEED BARLEY PRODUCTION IN SOUTHERN IDAHO

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ABSTRACT

Nitrogen is an essential nutrient required to produce high-yielding barley. Nitrogen strongly impacts barley yield, grain protein, tillering, and lodging potential. Unlike other crops such as corn, available nitrogen must be carefully managed for producers to achieve both optimal yield and grain quality for malt, food, and feed barley. Excessive nitrogen availability increases grain protein concentration that may be unsuitable for malting but may be ideal for feed or food barley. The objective of this study was to evaluate the effect of single (at planting) and split (at planting and tillering) nitrogen applications at five nitrogen rates for spring planted barley in southern Idaho. This study evaluated the effect of nitrogen rate and timing on grain yield and protein concentration, lodging, and tillering.

In this study, grain yield and harvest height typically increased with increasing nitrogen application rates, except at Aberdeen 2021 when residual soil N was high. Soil samples should be collected prior to planting to adjust fertilizer N rates. Although not statistically significant, split-applications had a trend of reducing grain yield and plant height relative to a single fertilizer application at planting. Delaying supplemental N applications past early tillering likely limited barley yield potential. Within site-year, test weight, tiller number, and grain moisture was typically non-responsive to N rate and application timing.