

# Advantages Of Barley In Double-Crop System

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The high price of nitrogen and good soybean prices have caused many growers to question whether to plant wheat followed by double-crop soybeans or simply opt for full season soybeans. High wheat input costs coupled with the late planted soybean yield penalty associated with double-cropping behind wheat have some growers second guessing the benefits of double-cropping.

Winter small grains, such as wheat and barley

The results (table 1.) indicate that yields were maximized at a single application rate of 70 lbs N/acre and an additional N application showed no benefit. No fall N was applied. There was no difference in response between hulled and hull-less barley lines.

Reducing N input cost can affect the profit margin, but barley price is obviously also important. The agronomic potential of hullless barley is also being evaluated at the University of Kentucky. The development of new hullless barley varieties may result in higher barley prices associated with increased demand and nutritional quality.

Barley was once an important feed source for

**Table 1. Effect of spring nitrogen application rates on barley\* yield.**

Nitrogen Rate (lbs N/acre) at:		Yield (bu/acre)	
Green-up	Jointing	2008	2007
40	70	75.8	52.6
0	70	75.1	53.6
40	40	72.7	45
70	0	72	45.8
0	40	64.1	44.3
40	0	61.4	36.4
LSD (0.05)		2.7	5

\* 18 hullless and 2 hulled lines; six N treatments.

provide an important source of income during the summer months. Winter cover crops also reduce soil erosion, add organic matter to the soil, provide moisture conserving residues, as well as nitrogen (N) for the succeeding crop, and reduce ground water contamination by utilizing residual N from the previous crop.

Barley has the potential to minimize or eliminate the late planted double-crop soybean yield penalty since it is harvested two weeks before wheat. Although the price of barley has increased in recent years, it is always lower than wheat. With today's high input costs, the margin of profitability is always in question. In order for barley's potential benefit in a double-crop system to be realized, input costs must decrease and/or barley price increase.

With intensive management practices, nitrogen is applied to barley in a split spring application of typically 40 lbs N/acre at green-up and 60 lbs N/acre at jointing. Researchers at Virginia Tech and the University of Maryland have shown that barley yields can frequently be maximized with a single spring application of 60lbs N/acre, substantially less than the recommended rate. To follow up on these studies, tests at the University of Kentucky were conducted on 20 barley (hulled and hullless) lines with six nitrogen treatments over two years.

livestock, but the demand and production declined as poultry and swine enterprises became more integrated and demanded a lower fiber, higher energy diet. Hullless barley may be a solution, and has the potential to reclaim lost animal feed markets and develop new markets for ethanol, human food and nutraceuticals. Unlike traditional barley, hullless barley sheds its fibrous hull during harvest and results in an energy dense grain. The low fiber, hullless grain with high starch and protein content has shown the potential to stimulate new markets. Research is continuing to insure that new hullless barley varieties are broadly adapted and have good agronomic traits.

There are many benefits of double-cropping. Barley appears to have lower N requirements than wheat and can eliminate the late planted soybean yields associated with double-cropping behind wheat. These factors along with potential new markets and demand for hullless barley may make future double-crop decisions a bit easier. These research projects have been funded in part by the Kentucky Small Grains Growers Association and the Kentucky Soybean Board. Δ

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