

# X-Tend® B With Micro Carbon Technology® Improves Barley Yield With an ROI of 38:1

## Research Report

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### Objective

Determine the effect on barley of adding Huma Gro® X-Tend® B to split applications of different rates of nitrogen fertilizer.

### Background

Enhanced Efficiency Fertilizer (EEF) additives improve crop production. Humates have been shown to improve crop yield. The Huma Gro® EEF additive X-Tend® B is a concentrated Micro Carbon Technology® product with high levels of organic acids and nutrients that is formulated to be blended in liquid fertilizers or to be impregnated onto dry fertilizers.

### Materials and Methods

Barley (cultivar: ABI Voyager) was grown at the agricultural research facility of the University of Idaho in Aberdeen, Idaho. The trial was conducted as a randomized complete block with four replications. The crop was grown under five different fertilizer regimes (Table 1) with 0, 45, 90, and 135 lb/urea-N per acre. The urea-N applications were split in two for 45, 90, and 135 lb N/acre and in three sequences for a 90 lb N/acre strategy (Table 1).

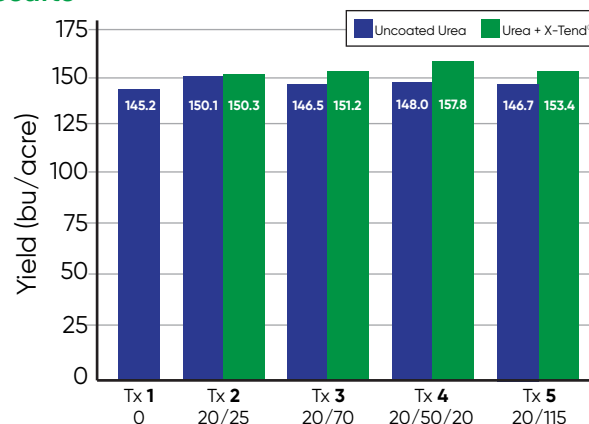
**Table 1.** Application and Timing of Urea, With and Without X-Tend B.

Treatment #	Urea-N (lb/ac)	Application Method	Timing	X-Tend® B Applied: Check	X-Tend® B Applied: Huma Gro®
1	0	—	—	No	No
2	20	Mid-Row Band	At planting	No	Yes
	25	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tilling		
3	20	Mid-Row Band	At planting	No	Yes
	70	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tilling		
4	20	Mid-Row Band	At planting	No	Yes
	50	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tilling		
	20	Broadcast Incorp. w/ Irrigation	Flag Leaf Emergence		
5	20	Mid-Row Band	At planting	No	Yes
	115	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tilling		

Each set of urea fertilizer had two scenarios. For the first scenario, the urea fertilizer was not coated with any material. Then urea granules were coated with X-Tend® B at 2 quarts per ton for the second scenario. The two-way split applications were applied at planting and mid-to-late

tilling stages. The three-way split application for 90 lb N/acre was done at planting, mid-to-late tilling, and at flag leaf emergence (Table 1). The method of applying urea is explained in Table 1. Overhead watering was used to irrigate the crop. Barley was planted on April 20 and harvested on August 20.

### Results



**Figure 1.** Barley Yield, With Urea or Urea + X-Tend® B.

**Table 2.** Treatment Cost and Net Return Difference Between Barley Treatments With Urea and Urea + X-Tend® B

Treatment #	Cost	Yield Difference (bu/acre)	Yield Difference Percentage	Net Gain	ROI Ratio
5 20/115	\$4.16	6.69	4.56%	\$69.38/acre	16.67 : 1
3 20/70	\$2.77	4.68	3.19%	\$48.69/acre	17.55 : 1
4 20/50/20	\$2.77	9.83	6.64%	\$105.34/acre	37.96 : 1
2 20/25	\$1.39	0.24	0.16%	\$1.27/acre	0.92 : 1

### Conclusions

Coating urea granules with X-Tend® B increased barley yield under all three different nitrogen levels in various split scenarios (Figure 1.) The improved yield difference was lowest for the 20/25 split at 45 lb N/acre, and it was highest for the three-way split at 90 lb N/acre. The yield increase due to coating urea with X-Tend® B translated into higher net gain per acre (Table 2). The return on investment (ROI) of applying X-Tend® B to urea in the three-way split application of 90 lb N/acre on barley was 38:1 (a 3,703% return).