

# X-Tend® B With Micro Carbon Technology® Improves Barley Yield and Net Income: Year 2

Research Report

Research by: Jared Spackman, PhD, College of Agriculture and Life Sciences, University of Idaho  
Huma® Products: X-Tend® B

## Objective

Determine the effect on barley yield of adding Huma® 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® 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 & Methods

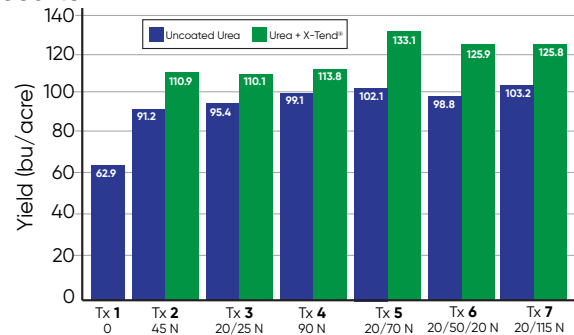
Barley (cultivar: ABI Voyager) was grown at the agricultural research facility of the University of Idaho in Aberdeen, Idaho. This second-year trial was conducted as a randomized complete block with four replications. The crop was grown under seven different fertilizer regimes (Table 1) with 0, 45, 90, and 135 lb/urea-N per acre. The 45-lb rate had 2 sequences for the urea strategy, a single application and a 20/25 split application, while the 90-lb rate had 3 sequences: a single application, a 20/70 split application, and a 20/50/20 split application. The 135-lb rate was applied as at 20/115 split application (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®
1	0	—	—	No	No
2	45	Mid-Row Band	At planting	No	Yes
3	20	Mid-Row Band	At planting	No	Yes
	25	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tillering		
4	90	Mid-Row Band	At planting	No	Yes
5	20	Mid-Row Band	At planting	No	Yes
	70	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tillering		
6	20	Mid-Row Band	At planting	No	Yes
	50	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tillering		
	20	Broadcast Incorp. w/ Irrigation	Flag Leaf Emergence		
7	20	Mid-Row Band	At planting	No	Yes
	115	Broadcast Incorp. w/ Irrigation	Mid-to-Late Tillering		

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 tillering stages (Table 1). The three-way split application for 90-lb N/acre was done at planting, mid-to-late tillering, 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 21 and harvested on August 26.

## 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/acre	ROI Ratio
2 (45)	\$1.29	19.73	21.64%	\$144.71	111.85:1
3 (20/25)	\$1.29	14.78	15.50%	\$108.11	83.56:1
4 (90)	\$2.59	14.68	14.80%	\$106.01	40.97:1
5 (20/70)	\$2.59	30.97	30.33%	\$226.62	87.58:1
6 (20/50/20)	\$2.59	27.15	27.49%	\$198.34	76.65:1
7 (20/115)	\$3.88	22.61	21.92%	\$163.44	42.11:1

## Conclusions

Coating urea granules with X-Tend® B increased barley yield under all nitrogen levels in all scenarios (Figure 1.) The improved yield difference was highest (30%) for Treatment 5, the 20/70 split application of 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 coating Urea with X-Tend® B to Urea in the single application of 45-lb N/acre on barley, Treatment 2, was 111:1 (Table 2). All urea + X-Tend® B-treated plots yielded higher than the check.