

Final Report – 2020

Effect of Foliar Micronutrient Application on the Yield of Dry Bean

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Introduction

Growers in the Bighorn Basin continue to experiment with different soil fertility practices. Because many of the soils in Wyoming are highly calcareous, the chances of Fe, Zn, Mn, B, S, and Cu deficiency are probable. Thus, micronutrient applications to the soil and to foliage need to be tested in replicated trials. This is especially true in dry bean, a crop species that can exhibit micronutrient deficiencies.

Methods

Othello dry bean was planted in 22-inch rows on 26 June 2020. Seeding rate was 100K per acre. Plots were six-rows and 200 feet in length. There were four treatments.

Treatment One: Recommended soil fertility based upon soil test. This included 45 pounds N and 135 pounds P2O5. **Check**

Treatment Two: Recommended soil fertility as provided for Treatment One but with an in-furrow application of System® Advance at 4 pints per acre at planting. **SA-InFurrow**

Treatment Three: Recommended soil fertility as provided for Treatment One but with a foliar applications of System Advance at growth stage V4 and first flower. Rate was 2 pints per acre for each application. **SA-Foliar**

Treatment Four: Recommended soil fertility as provided for Treatment One but with an in-furrow application of System Advanced at 4 pints per acre at planting and with a foliar applications of System Advance at growth stage V4 and first flower. Rate was 2 pints per acre for each application. **SA-InFurrow-Foliar**.

System Advance contains: 5% N, 1.25% S, 0.1% B, 2% Mn, 0.01% Mo, and 4% Zn.

There were three replicates. Yield was determined by threshing 10-feet from two of the center rows. Seed size was determined by counting and weighing 100 seed from each harvested and threshed sample.

Results

Yield and seed size were unaffected by the treatments (Table 1). Although the differences were not statistically significant, there were sizeable trends to warrant testing this micronutrient solution in future studies. Leaf tissue was collected during mid-season but we have not yet sent those samples off for analysis.

Table 1. Effect of in-furrow and foliar applications of System Advanced micronutrient solution on yield and seed size of Poncho dry bean grown at Powell REC in 2020.

Treatment	Yield	Seed Size †	Seed per Pound
	lbs per acre	mg	no.
Check	1909	317	6988
SA-InFurrow	2146	325	7165
SA-Foliar	1658	324	7143
SA-InFurrow-Foliar	2277	330	7275
LSD (0.05)	744	27	-
CV (%)	16.8	3.7	-
P-value	0.257	0.730	-

† Seed size determined by weighing 100 seed.