



Agronomy Bulletin

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Micro-Nutrients for 2011

Micro-nutrients bring value to the farm in a variety of ways. First, micro-nutrient addition can enhance crop yields. Secondly, by increasing yields by more than the cost of the micro-nutrient addition, profitability per acre can be enhanced. Third, by including micro-nutrients in your fertility program, better utilization of applied $N-P_2O_5-K_2O$ can be achieved. Finally, by adding micro-nutrients to the fertilizer mix, additional yield limiting factors can be eliminated.

With a soil maintenance program for P & K, what would be the suggested micro-nutrient application rates?

For Corn in Fall, Dribble Band Application:

Yield Goal (Bu/A)	Nitrogen	Phosphorus	Potassium	Sulfur	Zinc	Boron
180	19	45	65	10 _s	.428 _{zn}	.2B
200	21	50	75	10 _s	.428 _{zn}	.2B
220	25	55	85	15 _s	.428 _{zn}	.2B
240	27	60	95	15 _s	.428 _{zn}	.2B

For Soybeans in Fall, Dribble Application:

Yield Goal (Bu/A)	Nitrogen	Phosphorus	Potassium	Sulfur	Manganese
50	14.6	30	60	10 _s	1.3Mn
60	17.9	40	80	10 _s	1.3Mn
70	21.2	50	100	10 _s	1.3Mn

Long term corn research with sulfur and zinc has demonstrated that the greatest benefit is achieved when both sulfur and zinc are added together in the fall dribble programs.

Table 1 Influence of Sulfur and Zinc on Corn Yields for 2004-2009

Fertility	Timing	Placement	Yield Bu/A	Moisture %	\$/A	
					Cost	Net
24-45-65-10 _s -.428 _{zn}	Fall	Dribble	219.7	25.3	9.97	1308.23
24-45-65-10 _s	Fall	Dribble	217.8	24.9	8.66	1298.14
24-45-65-.428 _{zn}	Fall	Dribble	215.5	25.4	1.31	1291.69

Corn: \$6.00/Bu
Prev. Crop: Soybeans

Sulfur: \$450.30/T
Zinc: \$3.07/lb.

Source: Twin State, Inc.
Ag 10 Research Center
Walcott, IA

In Table 2, we have demonstrated that adding boron to our P & K program increased yield and profitability for 2010-2011.

Table 2 Influence of Sulfur, Zinc and Boron on Corn for 2010-2011

Fertility	Timing	Placement	Yield	Moisture	\$/A	
			Bu/A	%	Cost	Net
24-55-85-10 _s -.428 _{zn} -.2B	Fall	Dribble	206.2	22.8	11.21	24.19
24-55-85-10 _s -.428 _{zn}	Fall	Dribble	201.2	22.3	9.97	(-4.57)
24-55-85	Fall	Dribble	200.3	22.0	-----	-----
Corn: \$6.00/Bu	Sulfur: \$450.30/T			Source: Twin State, Inc.		
Prev. Crop: Soybeans	Zinc: \$3.07/lb.			Ag 10 Research Center		
	Boron: \$6.20/lb.			Walcott, IA		

For soybeans, a 10 lb/A sulfur addition to the basic 13-40-80 dribble band for the last 11 years has returned an average 14.44/A above the sulfur cost.

Table 3 Influence of Sulfur on Soybean 2001-2011

Fall, Dribble Band	Yield (Bu/A)	\$/A	
	2001-2011	Cost	Net
17-40-80-10 _s	65.7	8.66	14.44
13-40-80	63.6	-----	-----
Soybeans: \$11.00/Bu	Sulfur: \$450.30/T		Source: Twin State, Inc.
Previous Crop: Corn			Ag 10 Research Center
			Walcott, IA

When glyphosate is utilized in the soybean herbicide program, then manganese should be added to your soybean fertility program.

Table 4 Influence of Manganese (Mn) on 2009-2011 Soybeans

Fall, Dribbled Fertility lbs/A	Yield	\$/A	
	Bu/A	Mn Cost	Net
17-40-80-10 _s -1.3Mn	62.5	4.38	17.62
17-40-80-10 _s	60.5	-----	-----
Soybeans: \$11.00/Bu	Manganese: \$2.81/Gallon		Source: Twin State, Inc.
Previous Crop: Corn			Ag 10 Research Center
			Walcott, IA



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