

Summary

Kalibrate showed a positive ROI when used in soils with a low K:Mg ratio, but did not have a yield gain when potassium levels were adequate. Kalibrate should be used in any crop when soil potassium levels are low.

Introduction

Kalibrate is a 2-0-10-6 liquid fertilizer manufactured by AgroLiquid for in-furrow use as a source of potassium. The product is applied at a rate of 4L/ac, which gives just over one pound of potassium per acre. A total of 11 Kalibrate trials were ran at various Cavalier Agrow locations in peas, canola, and wheat, but due to harvest issues only six were weighed. Two of the 11 trials are still in the field with the grower's intention of weighing in the spring.

Wheat

Two trials were weighed in wheat:

Grower	UTC net bu/ac	Kalibrate net bu/ac	Bu/ac difference	Kalibrate % of UTC Yield
LaClare Land & Cattle	65.88	67.00	1.12	102.1
Damon Schaefer	90.60	88.87	-1.73	98.1
Overall Average	78.24	77.94	-0.31	99.9

As we can see, overall in wheat there was no difference in yield. Protein was also tested and found no difference in protein on LaClare's, with both the UTC and the Kalibrate having a protein of 12.8%. Damon's trial saw marginal more protein in the Kalibrate at 13.6% compared to 13.5% in the UTC.

There were differences in soil test information between these trials, particularly with LaClare's having a lower than optimal K:Mg ratio of 0.17 while Damon's was within the ideal range at 0.31. While actual ppm of potassium in the soil were not deficient in either trial, with the ratio out of proportion the nutrient uptake would be limited, and therefore a potassium product would be expected to have a larger impact than in a field where potassium was not limiting. Further trials should be done to examine the consistency of the Kalibrate's performance when potassium is deficient.

At a product cost of \$8.80/ac and a wheat price of \$6/bu, a net yield of 1.47bu/ac is required to break even.

Peas

One trial was weighed in peas:

Grower	UTC net bu/ac	Kalibrate net bu/ac	Bu/ac difference	Kalibrate % of UTC Yield
Damon Schaefer	31.85	28.85	-3.00	90.6

Kalibrate did not increase the yield in this one trial. However, this field was not deficient in potassium either, with a CEC of 16.5, 247ppm of K, a K:Mg of 0.26 and 3.8% K. Further trials should be done to look at Kalibrate's performance when potassium is deficient.

At a product cost of \$8.80/ac and a pea price of \$8/bu, a net yield of 1.10bu/ac is required to break even.

Canola

Three trials were weighed in canola:

Grower	UTC net bu/ac	Kalibrate net bu/ac	Bu/ac difference	Kalibrate % of UTC Yield
Rob Goodall	55.54	57.98	2.44	104.4
Casson's	55.68	56.85	1.17	102.1
Brendon deMontarnal	54.12	53.11	-1.01	98.1
Average	55.11	55.98	0.87	101.5

Overall in these three trials, yield increased as CEC increased. Casson's was the most deficient in potassium, while Brendon's had sufficient ppm, K%, and a high K:Mg ratio. Rob's field was also low in K and K:Mg.

Two trials remain in the field. Both of these fields have low K:Mg ratios and could further support our findings thus far.

At a product cost of \$8.80/ac and a canola price of \$10.50/bu, a net gain of 0.84bu/ac is required to break even. The average of our canola trials posts a minimal positive return of \$0.34/acre.

Conclusion

When we look at the soil nutrition of all six weighed trials, there are three trials with a yield gain and three with a yield loss. Overall there are common soil conditions in all of these:

Soil Nutrient	Yield Loss Group (n=3) avg yield 95.6%	Yield Gain Group (n=3) avg yield 102.9%
CEC	14.1	19.0
Organic matter (%)	3.8	4.9
N (lb/ac)	12	25
K (ppm)	242	201
K (%)	4.6	2.7
K:Mg	0.33	0.18

K:Mg ratio appears to be the largest factor impacting performance of Kalibrate. Looking specifically at the yield gains of canola, which occurred when K:Mg was <0.20, the average gain under these circumstances was 2.1 lbu/ac, which correlates to an average ROI of \$13.30/ac in canola.

When used under these conditions of low potassium soils, we expect to see a positive return. Given Kalibrate's ease of use and convenient application timing, this product should be used in the future when soil conditions warrant it.