

## Using Chlори-Mag on Wheat

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## Project Overview

- In the winter of 2009, we were approached by Robin Parry, who is the manager of regional sales for Compass Minerals, about testing a product for use in wheat production.
- This product is called Chlори-Mag and is a liquid product containing both Chloride and Magnesium. Typical application is either as an in-row starter or a foliar applied product.
- <http://www.gslminerals.com/products-applications/chlori-mag.html>
- We received 500 gallons of the Chlори-Mag product in 2009 for foliar application on wheat. Another 500 gallons was obtained for testing in 2011

## Project Overview

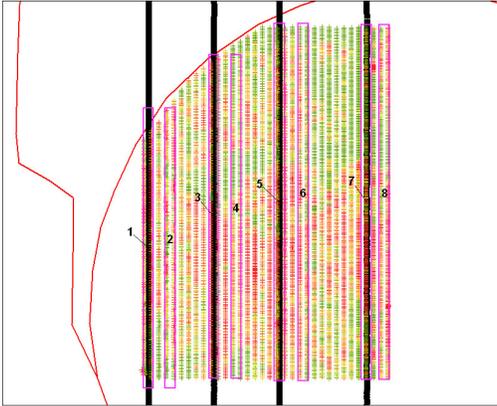
- Mr. Parry recommended an application rate of 5gpa on dryland wheat and 7gpa on irrigated wheat.
- This was accomplished with a John Deere 4710 (2009) and 4830 (2011) sprayer through broadcast nozzles in a single product application
- Test plots were placed on the following types of no-till wheat
  - Irrigated wheat following corn
  - Dryland continuous wheat following wheat
  - Dryland wheat following chem-fallow
  - Recrop wheat (wheat planted in corn stalks)
- All applications were made on 04/02/2009 and 04/13/2012



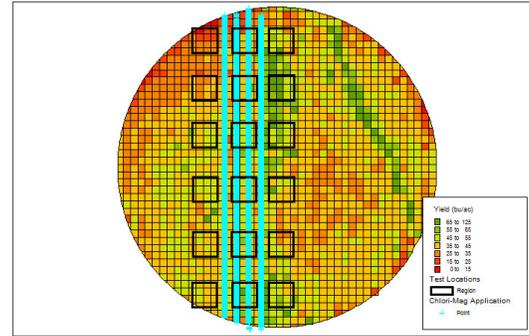
## Project Methods

- Applications were mapped and data brought into Easi-Suite
- Harvest was mapped and data brought in to Easi-Suite
- All data was then exported out and cut up in MapInfo using strip trials in 2009 and 1ac Grids in 2011
- Final numbers were brought into Excel, where all analyses were conducted

## 2009 Approach – Strips



## 2011 Approach – 1 ac Grids



## Results –Fallow Wheat 09'

Ttest	0.01174559	
Chlori-Mag	Yes	No
Avg Yield	<b>87.29</b>	<b>82.92</b>
	88.16	83.10
	86.64	85.11
	87.65	81.29
	86.71	82.19

A 1-tailed paired test was used to compare treated vs. non treated strips. There was a 4.37 bu/ac advantage with using Chlori-Mag and this was significant at a 95% level.

This was the test in 2009 that influenced us to continue testing of this product

## Results

Year	Type	Yield (bu/ac)		Ttest val
		Chlori-Mag	Control	
2009	Fallow	87.29	82.92	0.011 a
2009	Irrigated	67.01	68.68	0.124 b
2009	WW	42.36	42.83	0.425 b
2011	Fallow	49.59	50.23	0.926 b
2011	Irrigated	45.02	50.02	0.048 bc
2011	Irrigated	45.02	39.84	0.05 a
2011	WW	33.37	30.83	0.134
2011	WW	33.37	33.57	0.403 b
2011	recrop	11.35	13.58	0.057 bc
All Years	All Types	46.04	45.83	0.426

Paired Ttest, single tail

a) Significance at 90% confidence interval

b) Test Fails

bc) Test Fails, significance at 90%

## Final Thoughts

- After 2009, my thoughts were that the Chlori-Mag product significantly added bushels to high yielding environments (fallow) possibly due to response to Chloride as a nutrient. In 2011, 10-20 lbs/ac of Chloride were applied to most wheat fields (including those tested in this project) during the normal fertilizer operation.
- The only 2011 test showing a significant response to Chlori-Mag was found on the irrigated plot. However, on that same plot a second test also showed statistical significance but in the opposite direction. Perhaps, there are some underlying issues in this field that have created conflicting results.
- In 2011, four of the six tests actually failed in that the yields found in the control were higher than those found in the test areas. In two of those locations, the control yields were significantly better than the test yields.

## Final Thoughts

- I don't believe that the addition of the Chlori-Mag product has the ability to reduce yields so my thoughts are that there are significant spatial variations in yield potential in these fields that is creating problems and potentially masking any benefit that the test product might provide.
- In the same account, where native spatial variations in yield potential were not wide, the Chlori-Mag did not show statistically significant yield increases.
- Without exceptionally strong findings for the Chlori-Mag product in two years of testing, we'll focus future research efforts in a different direction.

**Questions?**



Thanks to the KARTA group for funding this project