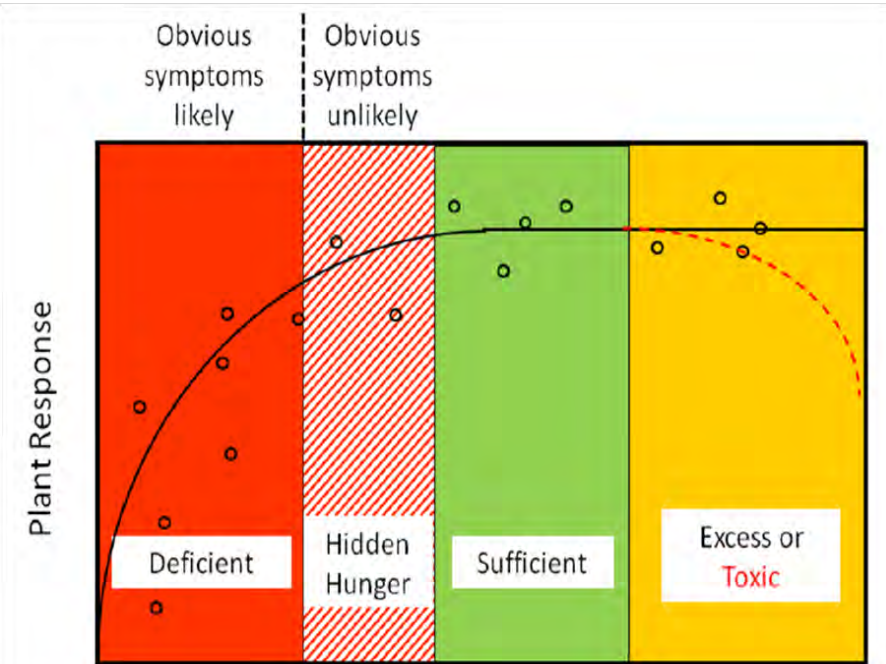


## Plant Nutrient Concentration



Graph provided by Douglas Beegle, Department of Crop and Soil Sciences, Penn State University

The graph above illustrates the relationship between plant nutrient concentration and visual plant symptoms. With *Nutrisolutions* we are trying to find fields with hidden hunger that are likely to respond to an applied plant nutrient, but show no visual plant symptoms.

### Why Use Plant Analysis?

- It provides a measure of what the crop is able to remove from the soil at a given growth stage and time
- It is the best measure of sufficiency for nutrients like S, B, Mn and N
- Some nutritional deficiencies are best treated foliarly
- Plant analysis is another tool we can add to our AgVantage program to help improve overall nutrient management

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## at Ceres Solutions

### What Do I get?

- Plant analysis at key growth stages
  - ⇒ Corn – V4-5, V10-12, R1
  - ⇒ Soybeans – V3-5, R1
  - ⇒ Wheat – after spring green up, jointing, and flag leaf
- A color-coded report indicating plant analysis result
- A recommendation to correct nutritional issues

### How Do I get Started?

- Visit with your Ceres Solutions Crops Professional about plant analysis
- Identify fields to sample. Consider the following field situations:
  - ⇒ Fields with high yield production targets
  - ⇒ Irrigated fields
  - ⇒ Sandy fields or silt loam fields low in organic matter
  - ⇒ Consider comparing a high yielding field to a low yielding field of similar soil type

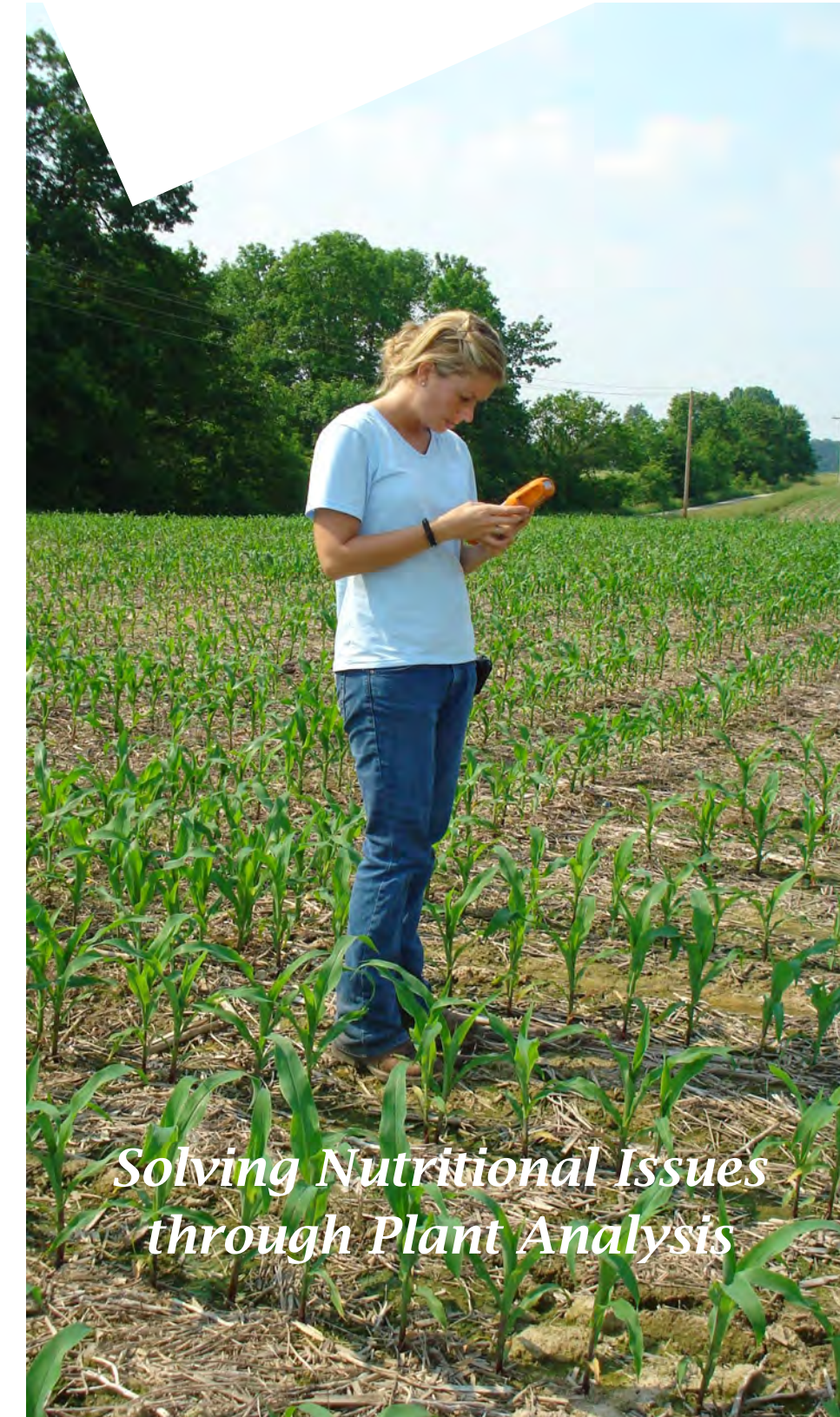
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## AgriSOLUTIONS<sup>™</sup>

### AgVANTAGE

**CERES SOLUTIONS**  
Cultivating results.

# NutriSOLU+IONS<sup>®</sup>



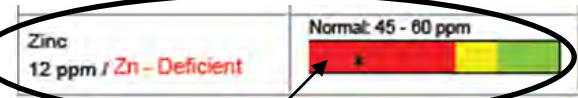
*Solving Nutritional Issues through Plant Analysis*

# See How Nutrisolutions Can Work For You

## Low Zn Plant Analysis

### V5 Results

Result	Comparative
Nitrogen 3.77% / N - Deficient	Normal: 4.2% - 5.0%
Phosphorous 0.28% / P - Deficient	Normal: 0.35% - 0.60%
Potassium 3.86% / K - Adequate	Normal: 3.0% - 4.5%
Magnesium 0.22% / Mg - Adequate	Normal: 0.19% - 0.50%
Calcium 0.81% / Ca - Adequate	Normal: 0.35% - 1.00%
Sulfur 0.28% / S - Low	Normal: 0.28% - 0.35%
Iron 313 ppm / Fe - Excessive	Normal: 105 - 178 ppm
Manganese 80 ppm / Mn - Low	Normal: 89 - 105 ppm
Boron 5.5 ppm / B - Deficient	Normal: 14 - 25 ppm
Copper 14 ppm / Cu - Adequate	Normal: 8 - 20 ppm
Zinc 12 ppm / Zn - Deficient	Normal: 45 - 60 ppm

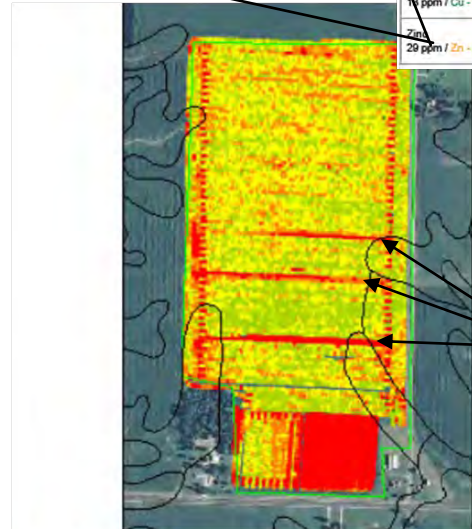


Grower applied 1 qt/A Max-IN® ZMB at V5

### V12 Results

Result	Comparative
Nitrogen 3.56% / N - Deficient	Normal: 4.2% - 5.0%
Phosphorous 0.36% / P - Adequate	Normal: 0.35% - 0.60%
Potassium 2.55% / K - Low	Normal: 3.0% - 4.5%
Magnesium 0.14% / Mg - Deficient	Normal: 0.19% - 0.50%
Calcium 0.31% / Ca - Low	Normal: 0.35% - 1.00%
Sulfur 0.28% / S - Low	Normal: 0.28% - 0.35%
Iron 177 ppm / Fe - Adequate	Normal: 105 - 178 ppm
Manganese 46 ppm / Mn - Deficient	Normal: 89 - 105 ppm
Boron 4.9 ppm / B - Deficient	Normal: 14 - 25 ppm
Copper 11 ppm / Cu - Adequate	Normal: 8 - 20 ppm
Zinc 18 ppm / Zn - Deficient	Normal: 45 - 60 ppm

Note improved zinc tissue level after application..



Red strips indicate reduced yield where Max IN® ZMB was not applied..

Dry Yield - Corn - 2010

11.69 - 142.14 (13.74 ac)
142.22 - 199.06 (13.69 ac)
199.07 - 225.72 (26.98 ac)
225.72 - 305 (22.62 ac)
307.11 - 350 (0.06 ac)

## Low Mn Plant Analysis

### V5 Result

Result	Comparative
Nitrogen 3.4% / N - Deficient	Normal: 4.2% - 5.0%
Phosphorous 0.27% / P - Deficient	Normal: 0.35% - 0.60%
Potassium 2.5% / K - Deficient	Normal: 3.0% - 4.5%
Magnesium 0.37% / Mg - Adequate	Normal: 0.19% - 0.50%
Calcium 1.78% / Ca - Excessive	Normal: 0.35% - 1.00%
Sulfur 0.27% / S - Low	Normal: 0.28% - 0.35%
Iron 166 ppm / Fe - Adequate	Normal: 105 - 178 ppm
Manganese 46 ppm / Mn - Deficient	Normal: 89 - 105 ppm
Boron 43.2 ppm / B - Excessive	Normal: 14 - 25 ppm
Copper 18 ppm / Cu - Adequate	Normal: 8 - 20 ppm
Zinc 134 ppm / Zn - Excessive	Normal: 45 - 60 ppm



The V5 plant analysis result indicates low Mn. The grower applied 1 qt/A of Max-IN ZMB with the glyphosate. Note improved yield in the data below.

Brand	Hybrid	Treatment	Moisture	Yield
CG	5338 VT3		16.4	208.7
CG	5338 VT3	Max IN ZMB	16.4	236.8
CG	5338 VT3		16.4	222
CG	5338 VT3	Max IN ZMB	16.4	245.7

Area 1 of untreated vs. treated

Area 2 of untreated vs. treated

## Low Boron Plant Analysis

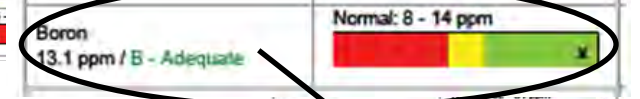
### V5 Results

Result	Comparative
Nitrogen 2.99% / N - Deficient	Normal: 4.2% - 5.0%
Phosphorous 0.28% / P - Deficient	Normal: 0.35% - 0.60%
Potassium 3.29% / K - Adequate	Normal: 3.0% - 4.5%
Magnesium 0.24% / Mg - Adequate	Normal: 0.19% - 0.50%
Calcium 0.60% / Ca - Adequate	Normal: 0.35% - 1.00%
Sulfur 0.2% / S - Deficient	Normal: 0.28% - 0.35%
Iron 177 ppm / Fe - Adequate	Normal: 105 - 178 ppm
Manganese 38 ppm / Mn - Deficient	Normal: 89 - 105 ppm
Boron 4.9 ppm / B - Deficient	Normal: 14 - 25 ppm
Copper 11 ppm / Cu - Adequate	Normal: 8 - 20 ppm
Zinc 18 ppm / Zn - Deficient	Normal: 45 - 60 ppm



### V12 Results

Result	Comparative
Nitrogen 3.59% / N - Deficient	Normal: 4.2% - 5.0%
Phosphorous 0.34% / P - Low	Normal: 0.35% - 0.60%
Potassium 2.25% / K - Deficient	Normal: 3.0% - 4.5%
Magnesium 0.14% / Mg - Deficient	Normal: 0.19% - 0.50%
Calcium 0.35% / Ca - Adequate	Normal: 0.35% - 1.00%
Sulfur 0.28% / S - Low	Normal: 0.28% - 0.35%
Iron 177 ppm / Fe - Adequate	Normal: 105 - 178 ppm
Manganese 47 ppm / Mn - Deficient	Normal: 89 - 105 ppm
Boron 13.1 ppm / B - Adequate	Normal: 14 - 25 ppm
Copper 12 ppm / Cu - Adequate	Normal: 8 - 20 ppm
Zinc 27 ppm / Zn - Low	Normal: 35 - 60 ppm



After sampling at V5, 1 pt/A of Max-IN® ZMB and 1 gal of Gradual N® per acre was recommended. Note improved boron tissue level after application.

