Exceed the seed an AgriThority® Initiative

Feed the Seed

Seed as a Carrier for Nutrition

Catherine White

WinField™ Solutions

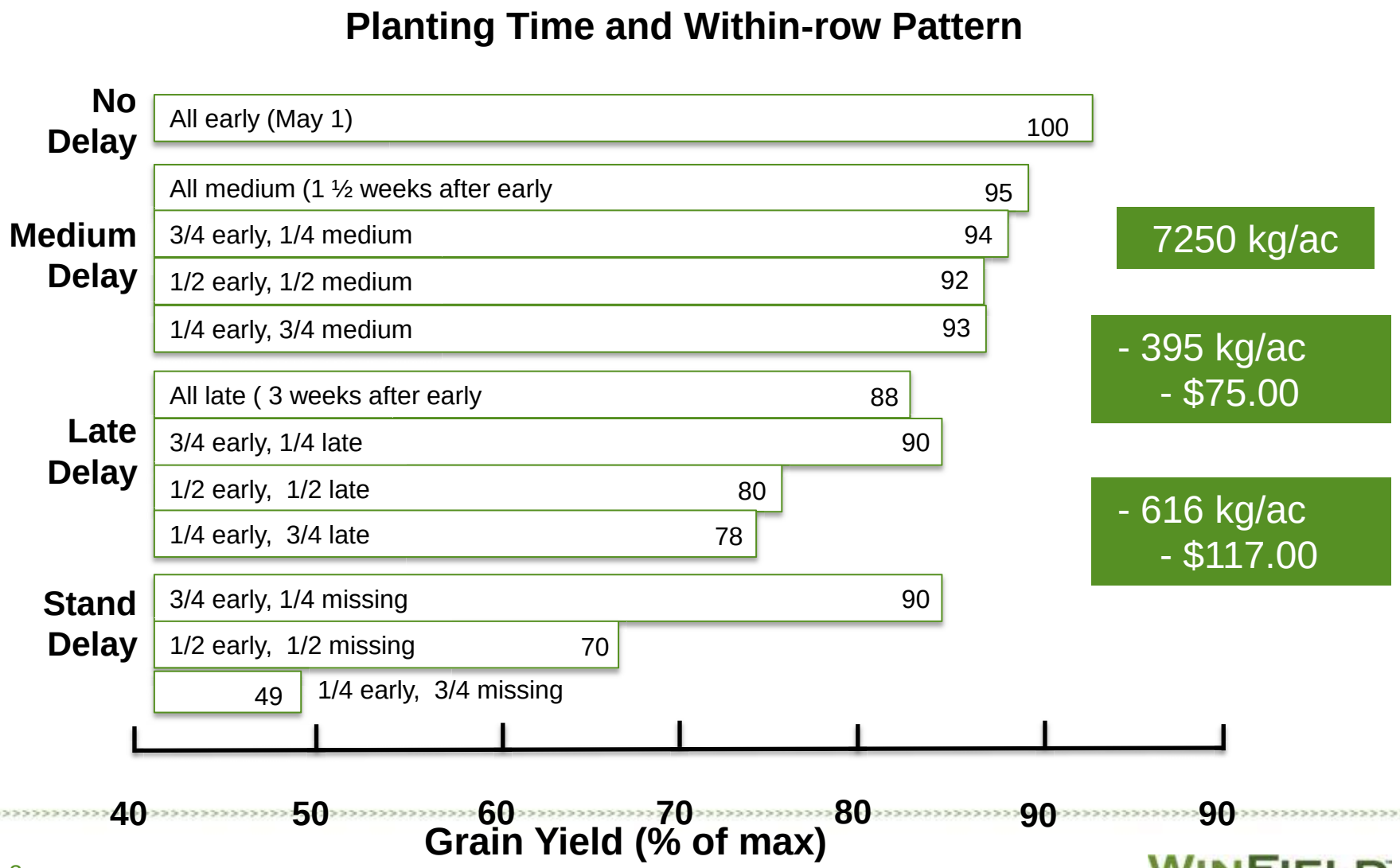
The Development of Unique Nutrient By PGR Seed Dressing in Maize

WINFIELD™

Why?

- What Drives Maize Yield
  - Population
    - Uniform Emergence
      - Maize Yield Starts at Germination
        - Only Get One Chance to Optimize Plant Population
    - Vigorous
      - Establish Early Sink to Source Relationship.
- Rate of Nutrient Uptake
  - Establish Root Growth Early
    - Sink Source
      - Roots Are A Early Season Management.

It's About Uniformity



WINFIELD

Additional Data

- Emergence delays of about 10 days scattered throughout the field
  - reduced yield 6 to 9% compared to full stands of normal emergence*

- Emergence delays of about 21 days
  - reduced yield 10 to 22% compared to a full stand of normal emergence, depending on the proportion of delayed emergers to normal emergers.*

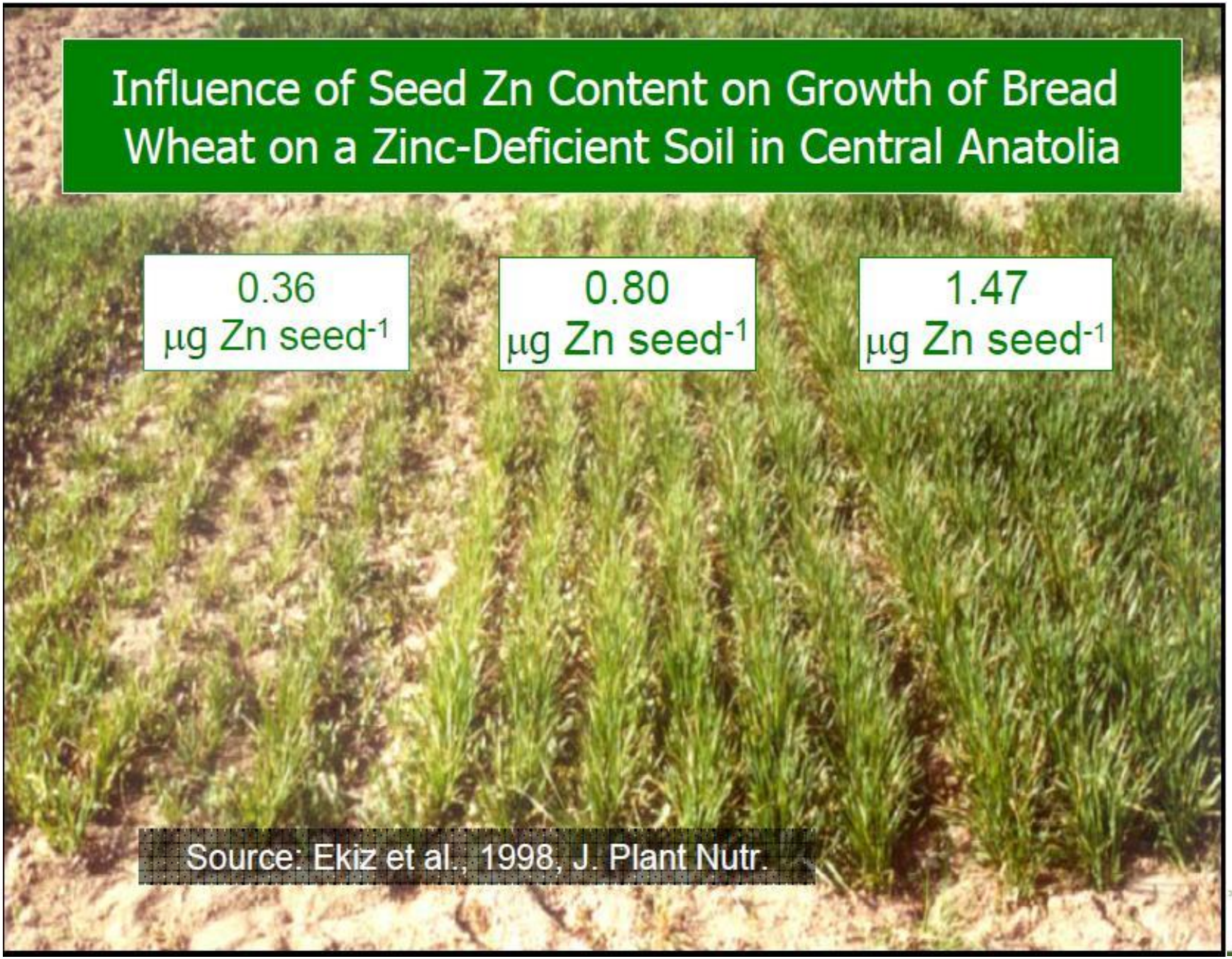
*Purdue University, Emergence Study

PURDUE UNIVERSITY

WINFIELD

Thought Process

- PGRs
  - Gibberellins
    - Germination
      - mRNA > Amylase > energy
  - Cytokines
    - Emergence
      - Coleoptile
      - LAI
      - Roots
  - Auxins
    - Emergence
      - LAI
      - Roots
- Nutritionals
  - Zn
    - Enzymatic and Amino Acid
  - Phosphorus
    - Phospholipids
    - Nucletoids


Influence of Seed Zn Content on Growth of Bread Wheat on a Zinc-Deficient Soil in Central Anatolia
0.36 μg Zn seed-1
0.80 μg Zn seed-1
1.47 μg Zn seed-1
Source: Ekiz et al., 1998, J. Plant Nutr.

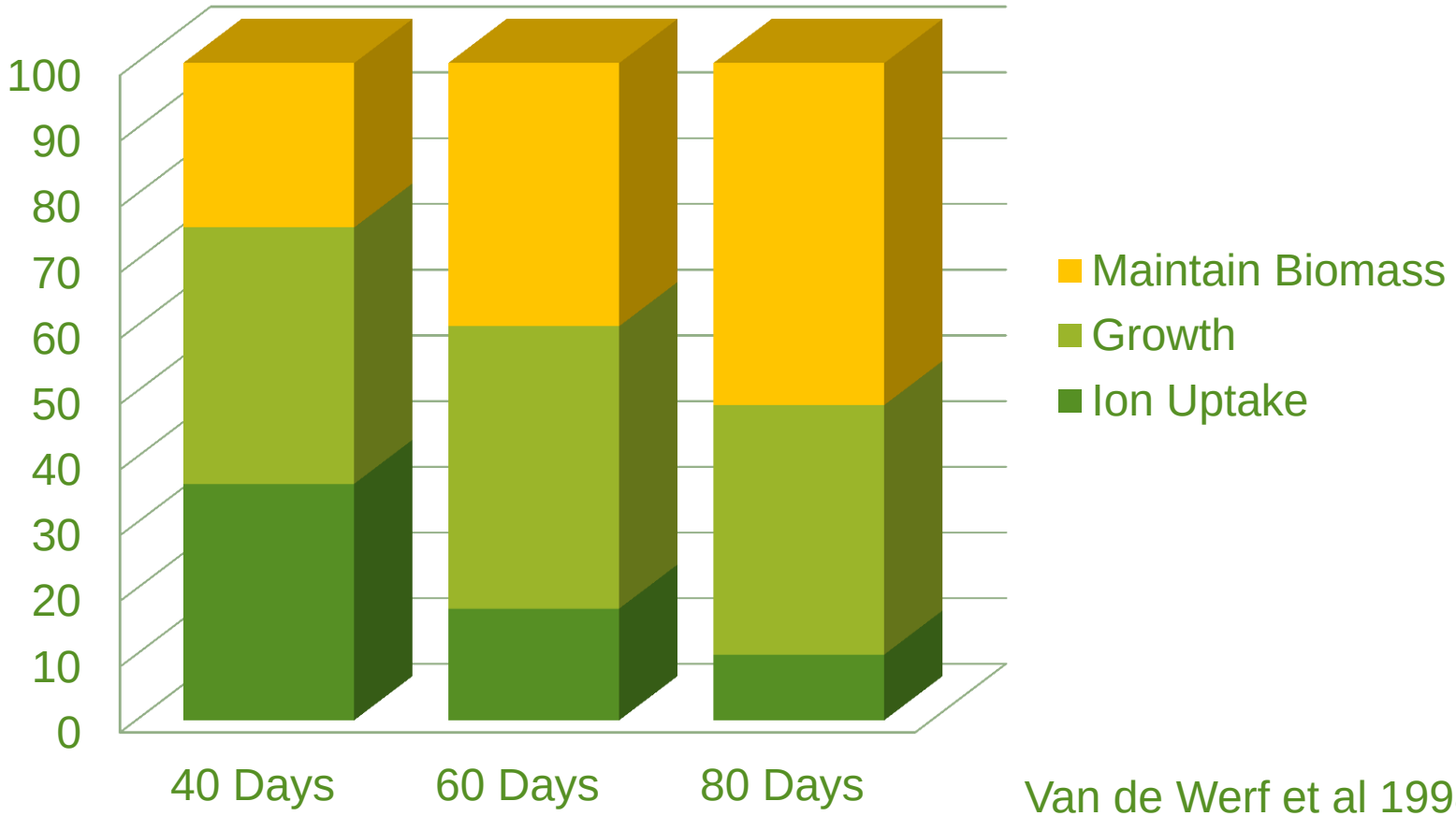
Define: Source

Define: Sink

WINFIELD

Picture: Ah Pao – flickr.com

Proportion Of Total ATP (energy) Demand Required



Van de Werf et al 1998

WINFIELD

Arcadia Answer Plot, WI

2011 Side by Side; Maize on Maize– no-till

ACZn + Ascend

Untreated

Planted 5-19-11, Picture taken 5-25-11

WINFIELD

PGR/Nutrient Side Dressing improves germination timing and consistency

Hybrid: 5757 VT3 w/ CZ 250, AC Zinc, and Ascend

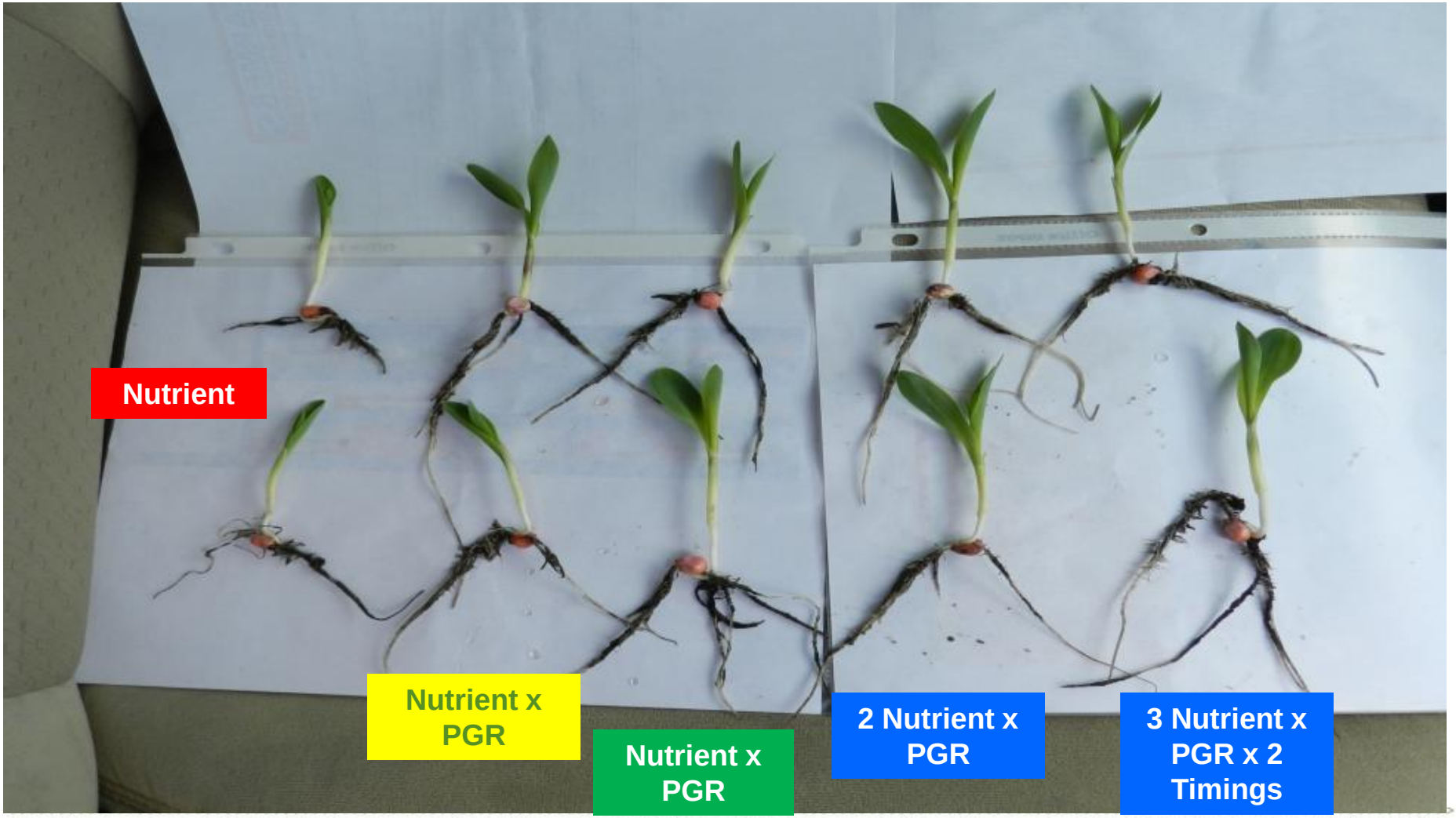
May 11th, 2010

Ceresco, NE

Answer Plot®

Hybrid: 5757 VT3 Check

PGR/Nutrient Seed Dressing
Carrollton, MO 2011

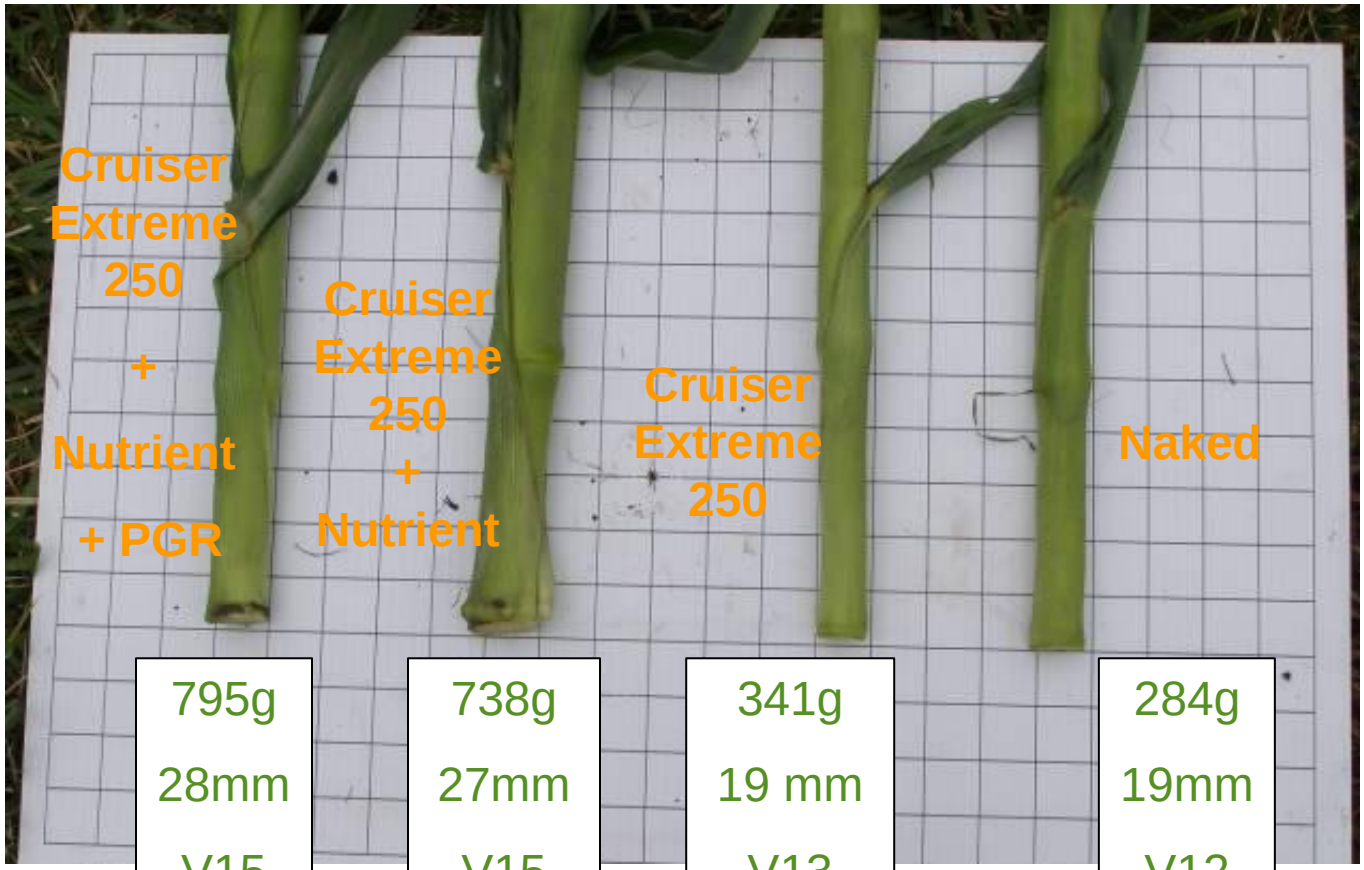


WINFIELD

Lincoln, IL Answer Plot

Fresh weight of CG 6725 (HY.ur.x N.w.) cut at 6th node
Diameter of stalk at narrowest point between 6th & 7th node

Stage of Growth DOP 5/11 photo 7/18 68 days after planting



795g	738g	341g	284g
28mm	27mm	19 mm	19mm
V15	V15	V13	V12

WINFIELD

Early Sink to Source as Season Long Benefits Santiago Answer Plot

Nutrient + PGR
Pollinating

Untreated

Not tasseled

•Because of factors outside of WinField control, results to be obtained, including but not limited to yields, financial performance, profits, losses or otherwise, cannot be predicted or guaranteed by Winfield Solutions, LLC.

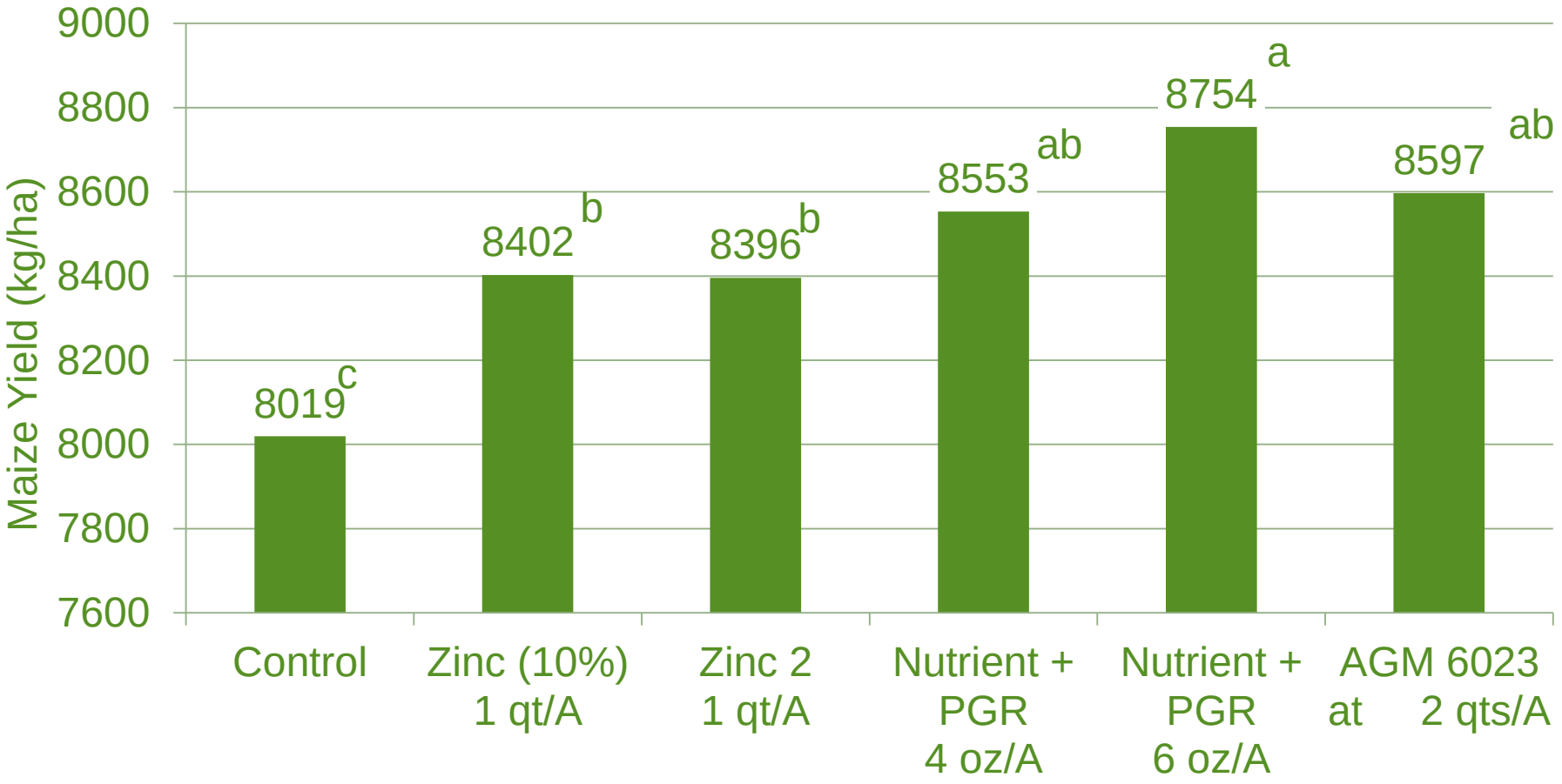
PGR Affect on Early Crop Vigor -

Seeded Sept 10, 2011
Kittson County MN

Source: Mike Kava, MN

WINFIELD

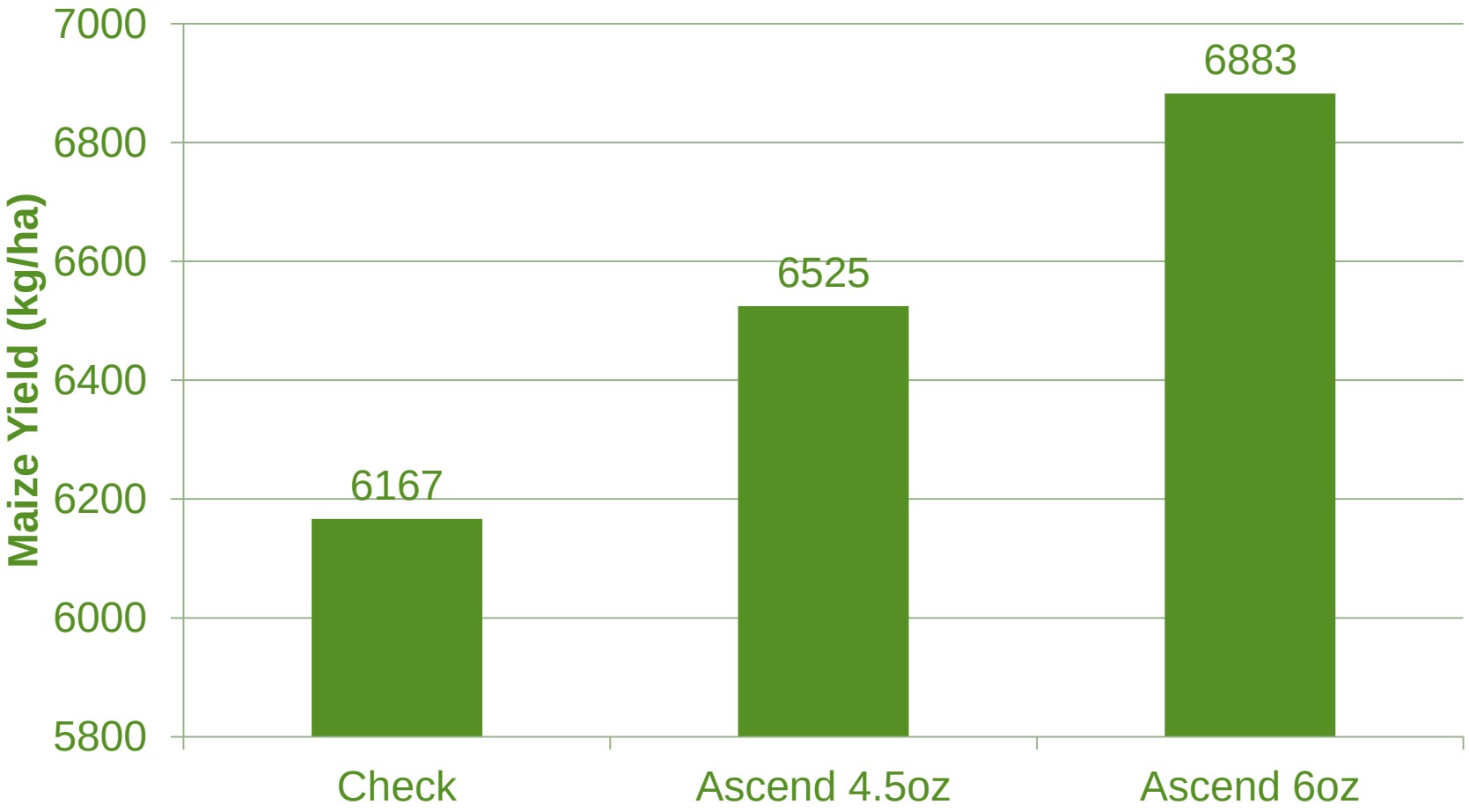
2008 Zinc Study - SDSU



Applied with 5 gallons 10-34-0

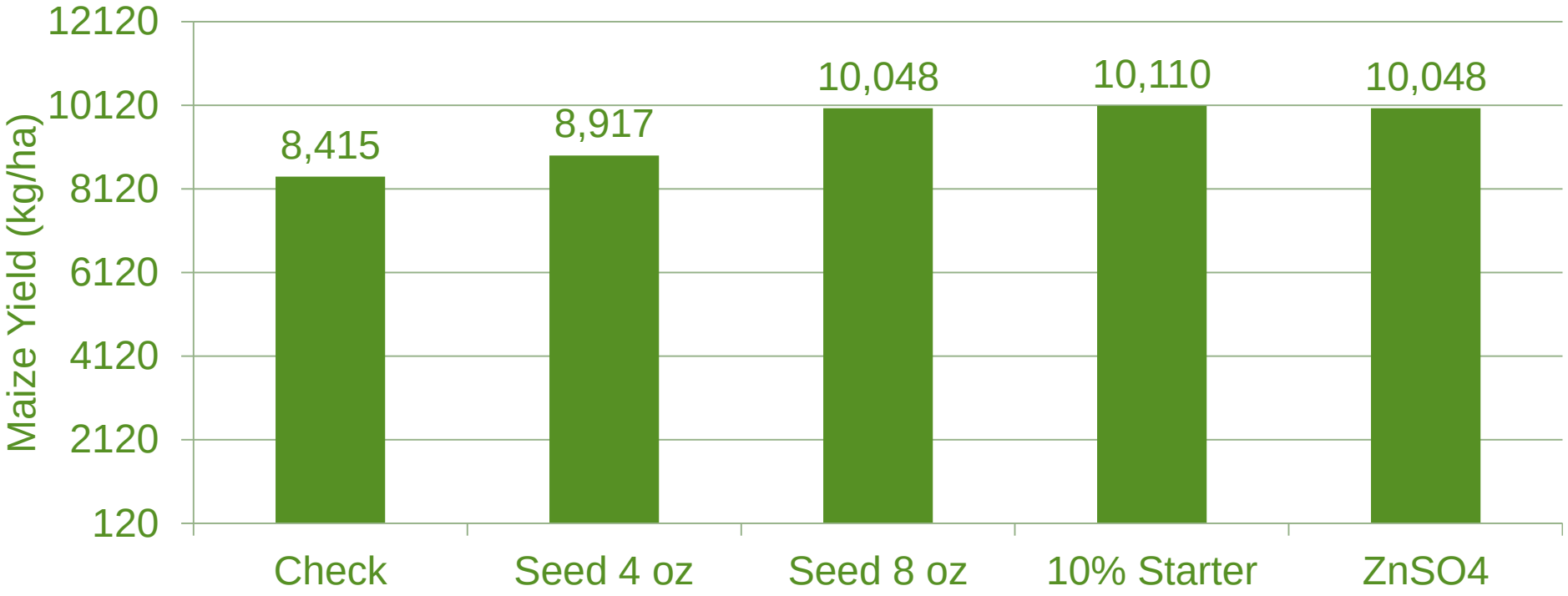
WINFIELD

2012 Ascend Study



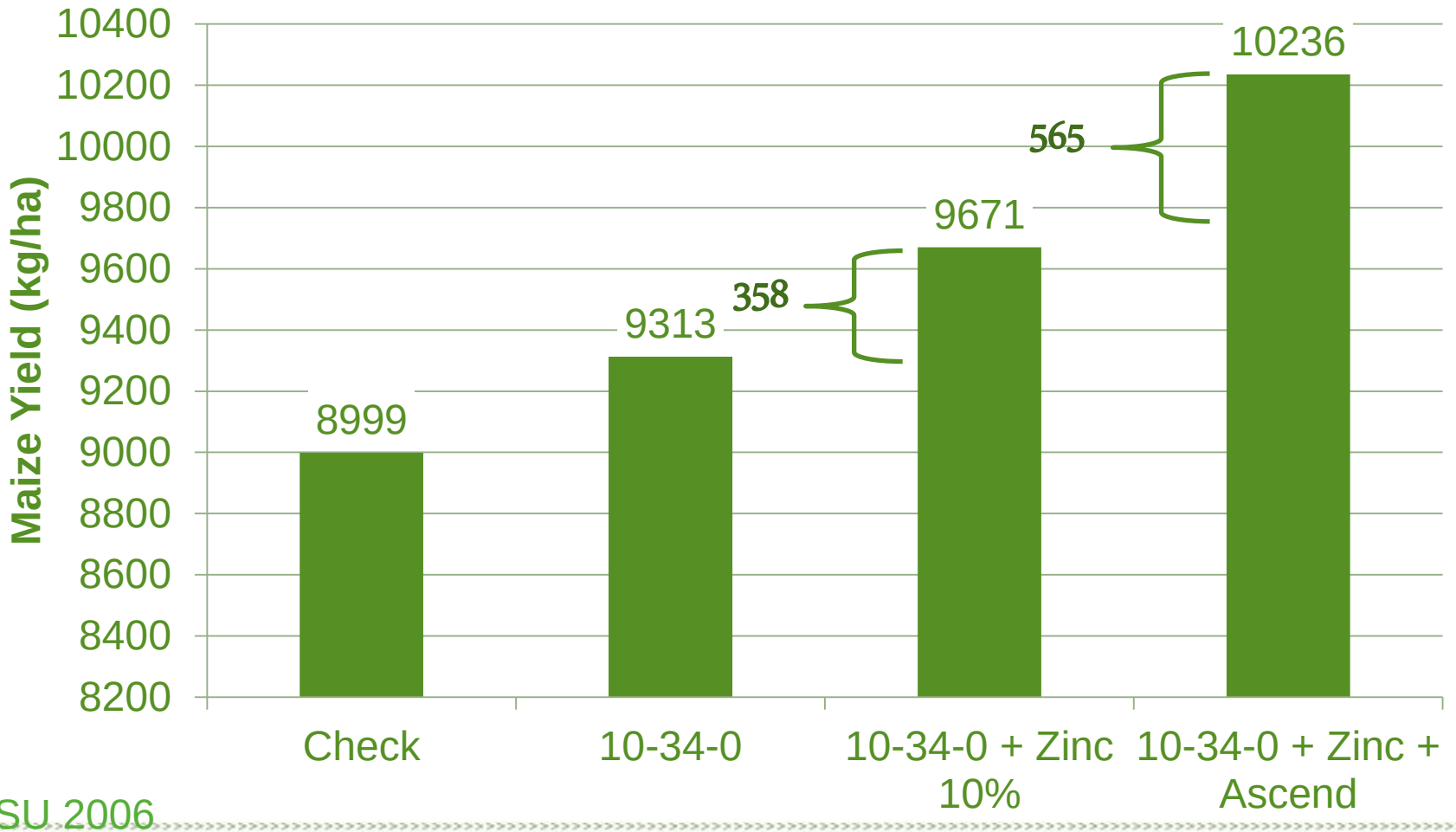
*South Dakota State University, 2012

Zinc Study*



*Rehm, University of MN, 2005 DTPA Zn = 1.1

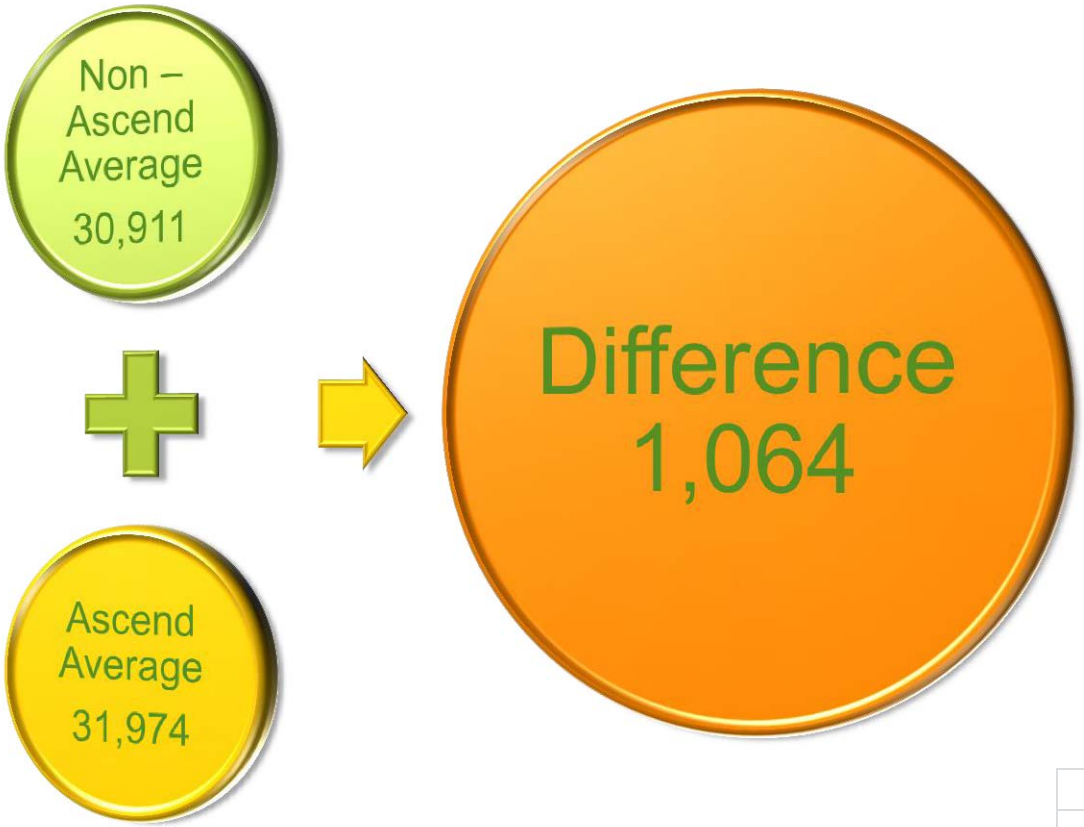
Effects of Zinc 10% and Ascend with the Seed*



*CSU 2006

WINFIELD

PGR x Nutrient Stand Count Data
80 on farm trials



Justin L. Prokosch
Joseph J. Paulson
Adam Diekmann

WINFIELD

3 Year Answer Plot Results
Ascend® Maize Trials - National Avg.

10-34-0 + Ultra-Che Zinc 9% was applied to all treatments

Year	Yield Response	Sites
2012	308 kg/ha	85 (680 reps)
2011	335 kg/ha	65 (520 reps)
2010	251 kg/ha	45 (360 reps)
Ave	301 kg/ha	195(1560 reps)

The Benefits of Ascend®

- Quicker germination
- Faster emergence
- Better plant stand
- Bigger roots
- Higher LAI (Leaf Area Index)
- Earlier tasseling
- Healthier plant
- Yield