Mosaic®

AgriFacts®

COTTON

Aspire® Cotton Sidedress Study

Objective

- Evaluate the yield response of cotton to various **preplant** applications of potassium (K) and boron (B) sources: [1] MOP (0-0-60), [2] MOP + Granular B, [3] Aspire® (0-0-58-0.5B) compared to **preplant + sidedress** applications of K + Granular B.

Introduction

- Preplant applications of MOP are a common practice in cotton production. Additionally, many growers add B to their preplant and sidedress blends.
- Cotton requires B in relatively large amounts compared to other plants. If not present, B is the micronutrient most likely to limit cotton production.
- Boron deficiency in cotton may cause a distorted, stunted terminal, abnormal uppermost leaves and aborted flowers (Fig. A).
- Aspire is the first-of-its-kind micronutrient-enhanced potash fertilizer. Manufactured using Nutriform® technology, Aspire premium potash combines K and B in each granule to help achieve uniform nutrient distribution.

Trial Details

Locations and Crop Management:

CROP: Cotton (*Gossypium hirsutum* L.)

YEAR: 2014

DATA SOURCE: Field studies conducted by independent third-party researchers.

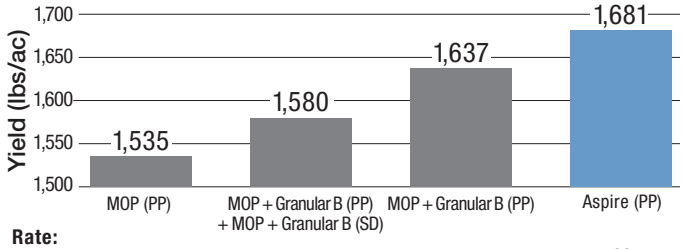
EXPERIMENTAL DESIGN: Small-plot RCBD with 4 replications.

CROPPING CONDITIONS:
All trials conformed to local cropping practices.

- **Total K Applied:** 90 lbs K_2O/ac
- **Total B Applied:**
  - **MOP:** 0 lb B/ac
  - **Aspire:** 0.75 lbs B/ac
  - **Granular B:** 1.5 lbs B/ac
  - **Application Method:** Broadcast
  - **Application Timing:** Preplant (PP) Sidedress (SD)

Results

Cotton Yield by Treatment



Rate:				
lbs K_2O/ac	90	60 + 30	90	90
lbs B/ac	0	1.0 + 0.5	1.5	0.75

Summary

- Cotton yields increased with applications of boron.
- A preplant application of Aspire (0.75 lbs B/ac) outyielded a preplant application of MOP by 146 lbs lint/ac.
- Even in situations of split application with 2 times as much B applied (preplant: 60 lbs K_2O/ac + 1.0 lbs B/ac | SD: 30 lbs K_2O/ac + 0.5 lbs B/ac), PP Aspire (90 lbs K_2O/ac + 0.75 lbs B/ac) increased yield by 101 lbs lint/ac.
- With only half as much boron applied, the preplant Aspire application (0.75 lbs B/ac) outyielded the preplant application of MOP + Granular B (1.5 lbs B/ac) by 44 lbs lint/ac.
- The higher yields with preplant Aspire compared to other treatments demonstrates the advantages of the uniform nutrient distribution of boron compared to traditional MOP + Granular B blends and split-application methods.

FIGURE A: Boron deficiency in cotton

LOCATIONS: 5 trials across regions of the U.S. (AL, GA, MS, NC, SC)

Aspire®

146
lbs lint/ac
Increase with preplant Aspire over MOP

44 lbs lint/ac
Increase with preplant Aspire over MOP + Granular B

Mosaic®

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

WARNING: Contains boron. Use of boron may result in crop injury. DO NOT place this product in direct contact with the seed. For more information, go to **AspirePotash.com**.

CottBSD-1316

MAY 2014

Mosaic® AgriFacts®

COTTON

Aspire® Cotton Boron Study

Objectives

- Evaluate the yield response of cotton to **preplant** applications of different potassium (K) and boron (B) sources. [1] MOP (0-0-60), [2] MOP + B blend, [3] Aspire® (0-0-58-0.5B).
- Compare the yield response of cotton with different **preplant** K and B sources plus an additional **foliar** B application at early bloom. [1] MOP + B blend with foliar compared to [2] Aspire with foliar B.

Introduction

- Boron is the micronutrient whose deficiency is most likely to limit cotton production. Cotton requires B in relatively large amounts compared to other crops.
- Boron deficiency in cotton may cause a distorted, stunted terminal, abnormal uppermost leaves and aborted flowers (Figure A).
- Soil applications of B are traditionally made with potassium prior to planting and/or as a foliar application at early bloom.
- Aspire with Boron nourishes plants at the root level so nutrients are available when and where plants need them.

Trial Details

Locations and Crop Management:

CROP: Cotton (*Gossypium hirsutum* L.)

YEAR: 2013

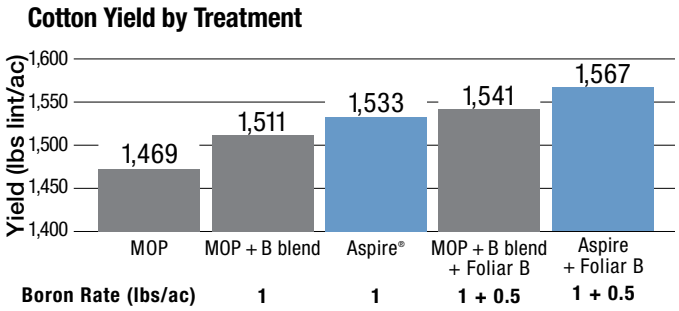
DATA SOURCE: Field studies conducted by independent third-party researchers.

EXPERIMENTAL DESIGN: Small-plot RCBD with 4 replications.

CROPPING CONDITIONS:
All trials conformed to local cropping practices.

- **K Rate:** 120 lbs K_2O/ac
- **B Rate:**
  - **Preplant:** MOP + B blend (1 lb B/ac)
  - **Preplant:** Aspire (1 lb B/ac)
  - **Preplant + Foliar:** MOP + B blend (1 lb B/ac) + early bloom: (0.5 lb B/ac)
  - **Preplant + Foliar:** Aspire (1 lb B/ac) + early bloom: (0.5 lb B/ac)

Yield



Summary

- Aspire yielded higher in both preplant and preplant + foliar applications. Yields were higher with 1.5 lbs B/ac compared to 1 lb B/ac.
- A preplant application of Aspire (1 lb B/ac) outyielded an MOP + B blend (1 lb B/ac) by 22 lbs lint/ac and MOP by 64 lbs lint/ac.
- The preplant Aspire application (1 lb B/ac) with foliar application (0.5 lb B/ac) provided an additional 26 lbs lint/ac over the comparable MOP + B blend (1 lb B/ac) with foliar application (0.5 lb B/ac).
- The higher yields with Aspire compared to other treatments demonstrate the advantages of uniform nutrient distribution from Nutriform® technology.

FIGURE A: Boron deficiency in cotton

LOCATIONS: 6 trials across cotton growing regions of the U.S. (AL, GA, LA, MS, SC, TX)

Aspire®

64 lbs lint/ac

Increase with preplant Aspire over MOP

26 lbs lint/ac

Increase with preplant Aspire plus foliar B over comparable blend

Mosaic®

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WARNING: Contains boron. Use of boron may result in crop injury. DO NOT place this product in direct contact with the seed. For more information, go to **AspirePotash.com**.