



Corn Fertilizer Source and Application Method

Trial Objective

- Fertility application timing and method are very important for the maximization of corn yield potential.
- Many application types occur across the southern agricultural system including knifed-in soil applications, surface applications of liquid fertilizer, and surface-applied granular applications.
- Each application technique has potential benefits and drawbacks. The purpose of this study was to evaluate different application methods across a range of DEKALB® Brand Corn Products.
- Usually, one type of fertilizer application has a lower price compared to others. Therefore, this experiment was conducted to help answer the question – Does the type of fertilizer application matter?

Research Site Details

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (bu/acre)	Seeding Rate (seeds/acre)
Scott, MS	Commerce Silty Clay Loam	Cotton	Conventional	3/23/2023	8/20/2023	250	36,000

- All field work, tillage, and herbicides were per local standards.
 - » DEKALB® Brand Products planted in trial:
 - DKC62-89 Brand, 112 RM, Trecepta® Corn
 - DKC64-22 Brand, 114 RM, VT Double PRO® Corn
 - DKC65-95 Brand, 115 RM, VT Double PRO® Corn
 - DKC67-44 Brand, 117 RM, VT Double PRO® Corn
 - DKC68-35 Brand, 118 RM, VT Double PRO®
 - » Corn Seeding Rate – 36,000 seeds/acre.
 - » Split application of nitrogen (N) (240 lb/acre) for each application treatment:
 - 50% (120 lb/acre) applied at 3 to 4 leaf stage.
 - 50% (120 lb/acre) applied at layby.
 - » Fertilizer Application Treatments (Figure 1):
 - Dry – Applied as 41-0-0-4.1
 - Surface Applied Liquid (50%/50%)
 - First – Applied as 30-0-0-2.5
 - Second – Applied as 29-0-0-4.1
 - Liquid – Knifed-In Soil Applied as 50%/50%
 - First – Applied as 30-0-0-2.5
 - Second – Applied as 29-0-0-4.1
 - Similar amounts of sulfur were applied for each treatment.

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- Two replicate strip plot – 12 row plots, 1100 feet in length, about 1.2 acres/experimental unit (Figure 2).
- Harvested with commercial combine and yields recorded using Climate FieldView™ data collection on the combine.
- Yields corrected to 15.5% moisture content.



Figure 1. Application equipment included a granular applicator (left) and liquid knife applicator (right). The liquid surface applied applicator is not shown.



Figure 2. Climate FieldView™ monitor showing trial planting scheme.

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Understanding the Results

- The average yield for the trial was 230 bu/acre (Figure 3).
 - » Yields by corn product:
 - Several of the tested products demonstrated very high yield potential with DEKALB® DKC68-35 Brand obtaining the highest yield (Figures 3 and 4).
 - » Yields by corn product and fertilizer application method:
 - Average yields, by each application method for each DEKALB® Brand corn product, were similar in this study (Figure 5).
 - Weather-related variability was reduced by using Climate FieldView™ data to remove a weather-damaged area from yield data (Figure 6).
 - FieldView™ data helps visualize the effects of rain and temperature on crop production compared to long-term averages (Figure 7).

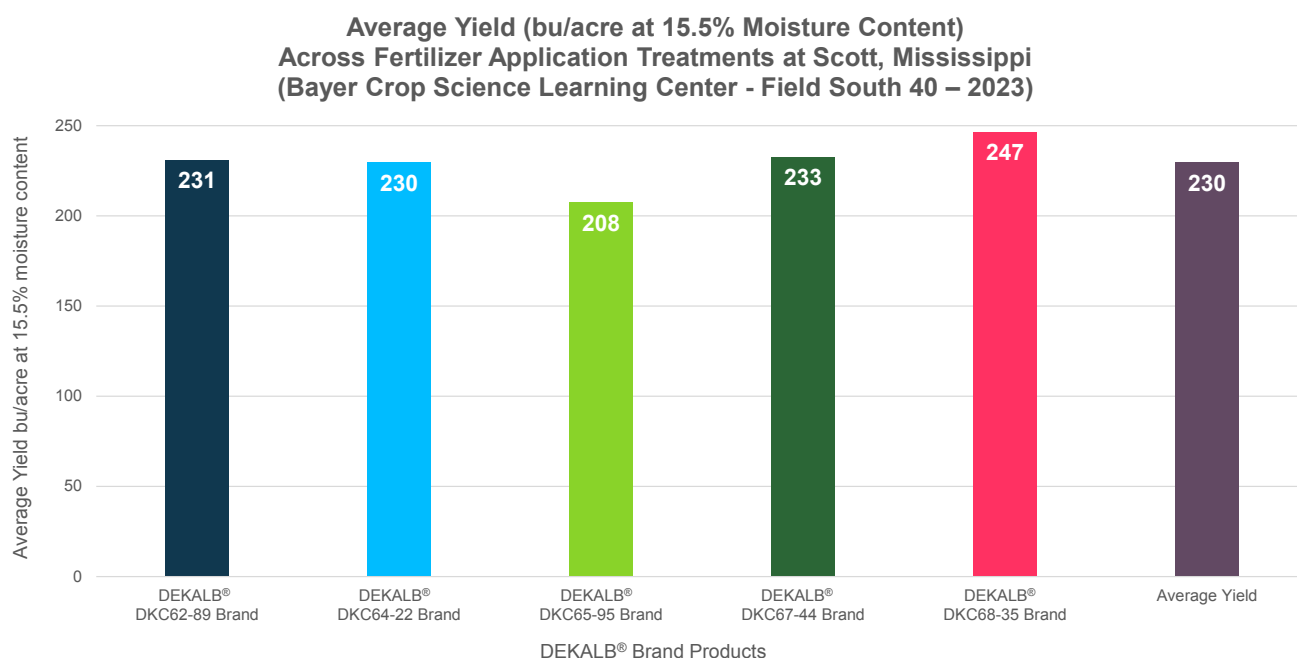


Figure 3. Average yield (bu/acre at 15.5% moisture content) of five DEKALB® Brand corn products across three fertilizer application treatments.



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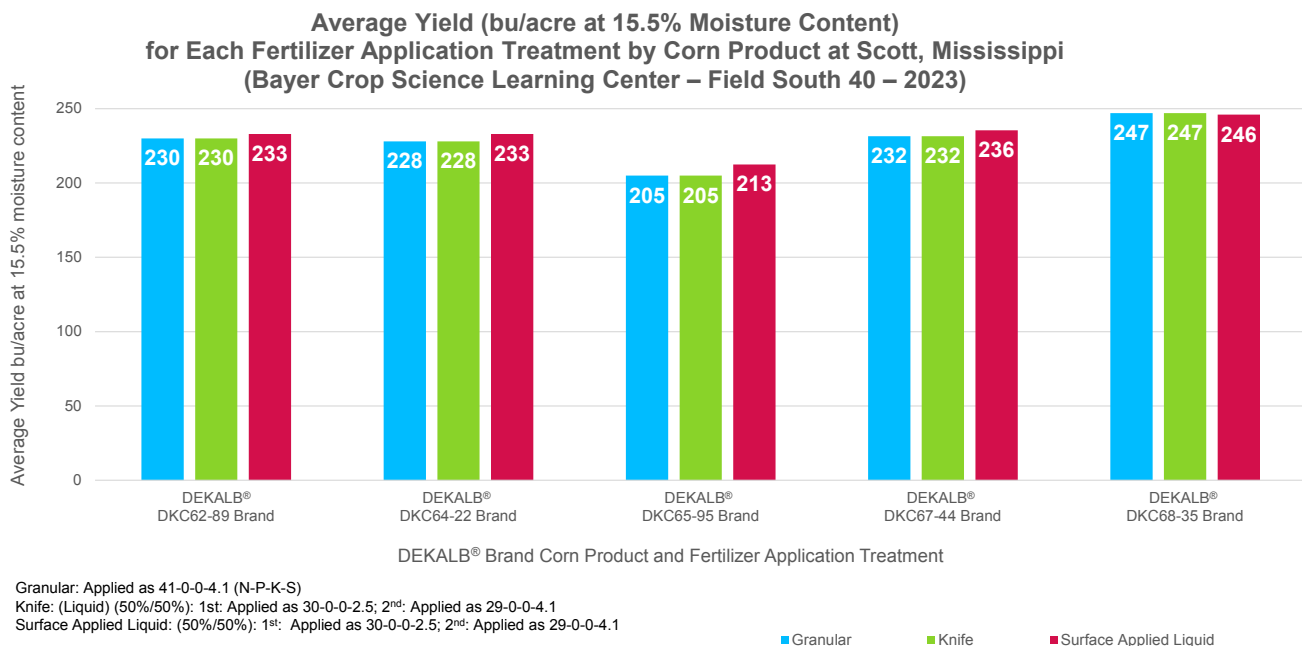


Figure 4. Average yield (bu/acre at 15.5% moisture content) for each fertilizer application treatment and five DEKALB® Brand corn products.

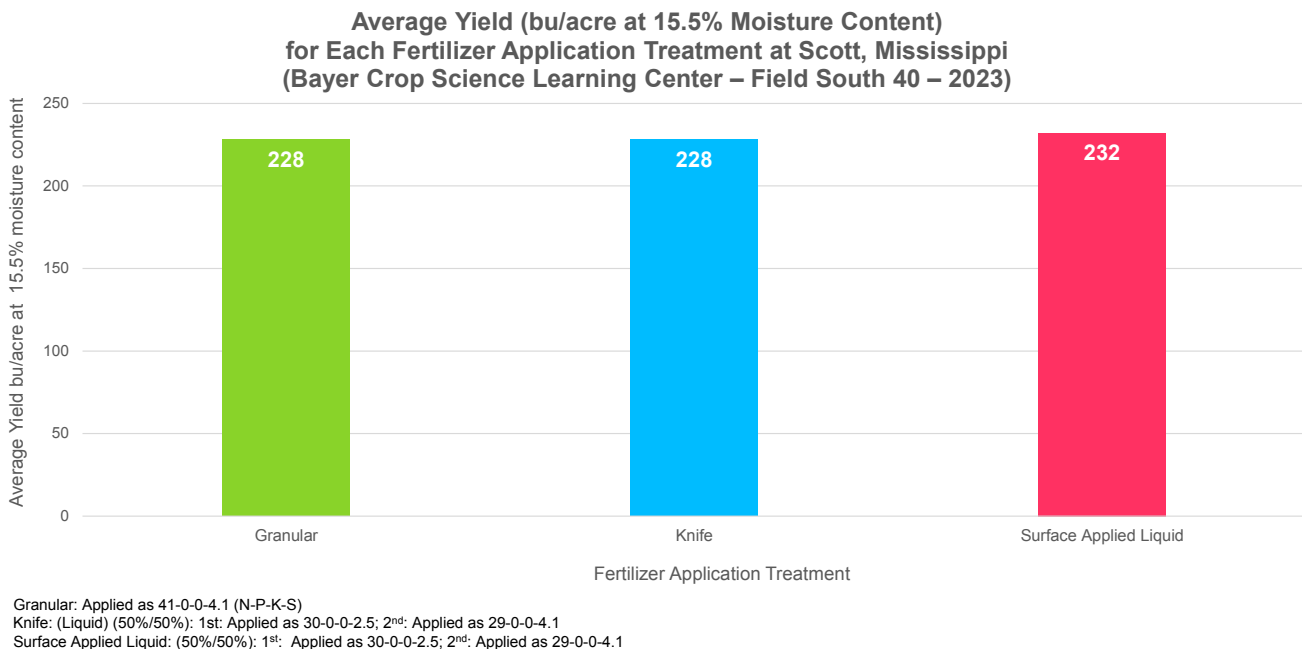


Figure 5. Average yield of each fertilizer application treatment.



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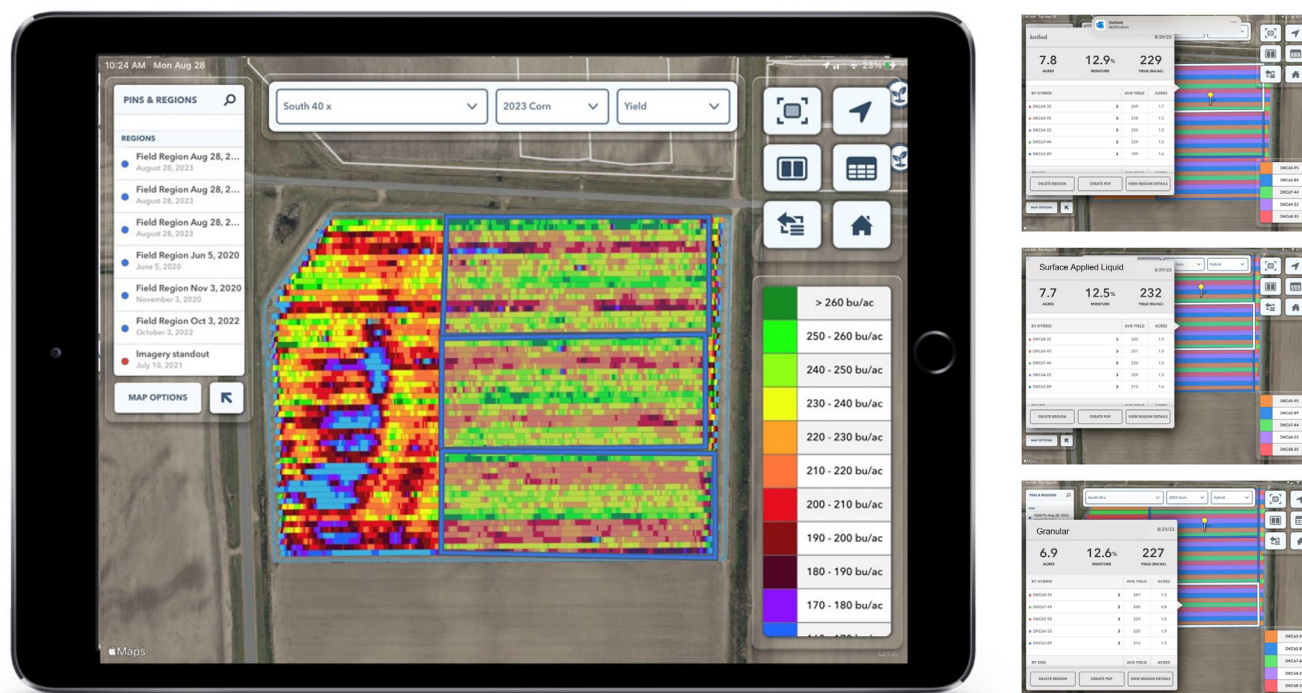


Figure 6. Climate FieldView™ data allowed for the weather-damaged area of the trial to be removed from the harvest area.

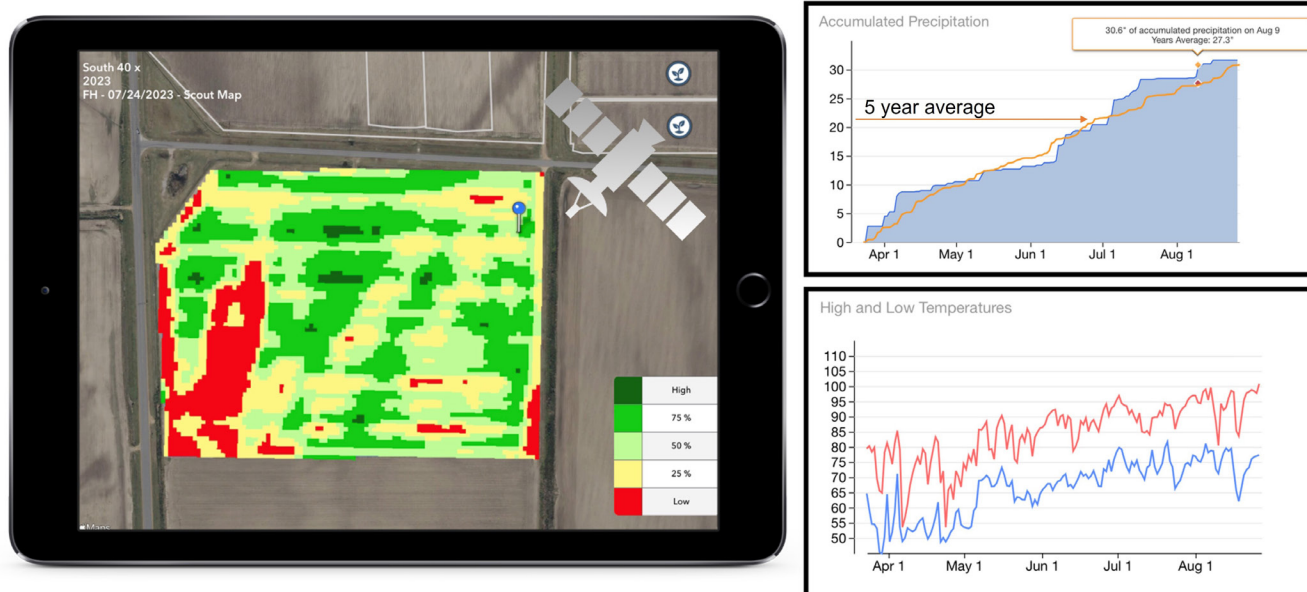


Figure 7. Climate FieldView™ data helps visualize effect of rainfall and temperature on crop production.

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Key Learnings

- From this data we conclude that timely applications of appropriate fertilizers offer similar results regardless of application method.
- Growers should continue to focus on economic returns, timeliness of application, and management of risk when applying fertilizer.
- Appropriate rainfall for the incorporation of surface-applied N remains a major factor in success.
- Nitrogen stabilizers are particularly important when using either dry- or liquid-applied N applications.
- Climate FieldView™ data provides useful information to help understand variability that influences corn production.
- Please contact your local DEKALB® Brand representative for more information.

Legal Statements

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