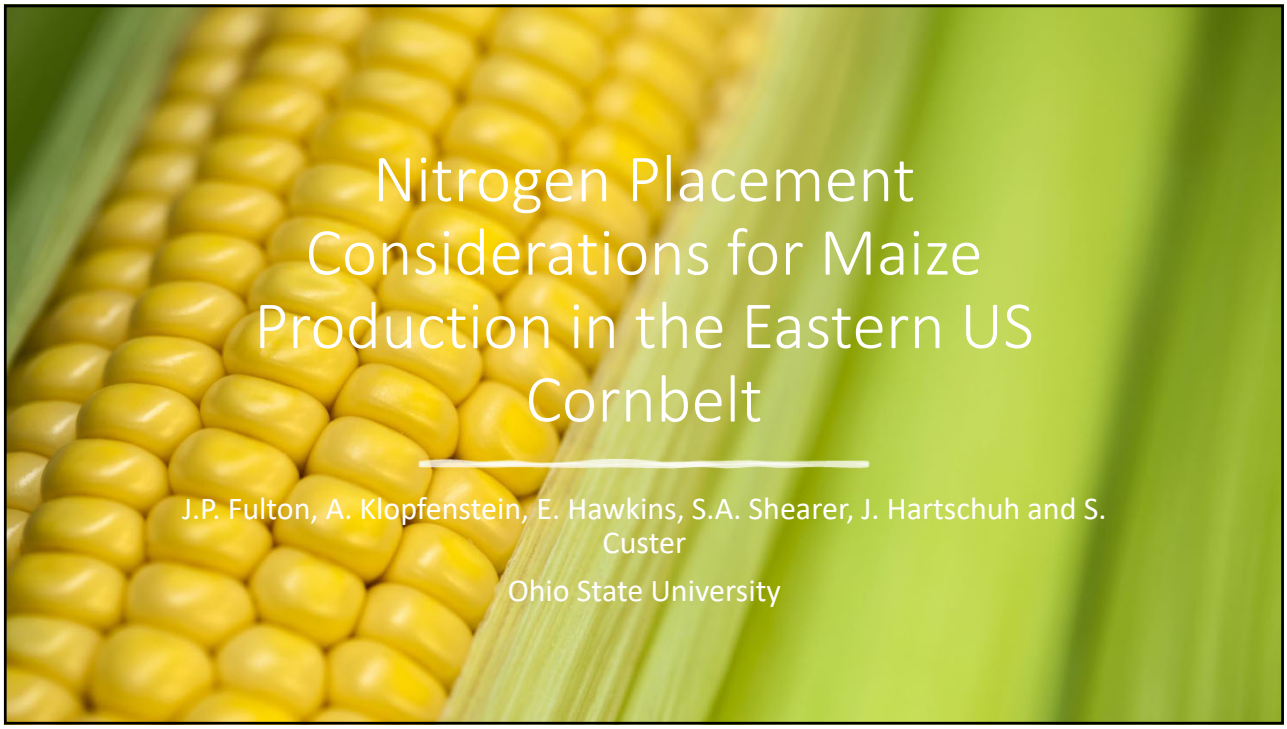
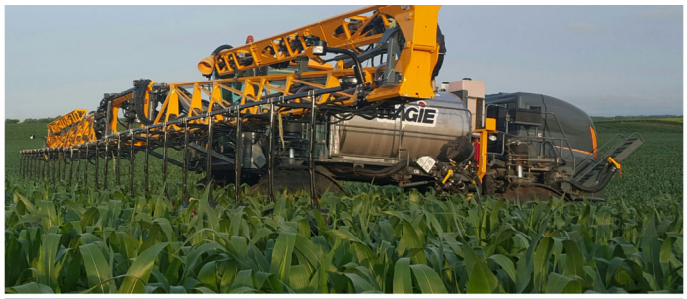


Nitrogen Placement Considerations for Maize Production in the Eastern US Cornbelt

J.P. Fulton, A. Klopfenstein, E. Hawkins, S.A. Shearer, J. Hartschuh and S. Custer

Ohio State University

1



New Technologies to Apply N

- Wider N application window
- Placement options relative to the row.
- Farmers want to understand the value…

2

Objective

Understand the effect of fertilizer placement on maize yield and grain moisture at harvest, for late-season nitrogen management approach.

3

Methods

- 3-year study in central Ohio with maize (*Zea mays*)
- Randomized compete block design (RCBD) with 4 replications
- N source = UAN28
- Local N application in corn: 202 Kg N/ha, split-applied (planter + side-dress)
- High-clearance agricultural sprayer used to apply liquid UAN28, late-season (V14-R).

- **4 Treatments** (applied 112 kg N/ha at planting)
  1. Control = 90 kg N/ha at side-dress (V4-V5)
  2. Late-season 90 kg N/ha using y-drops,
  3. Late-season 90 kg N/ha using a coulter / injection setup
  4. Late-season 90 kg N/ha surface applied between rows using drop down tubes

- Collected grain yield and moisture then used ANOVA for comparisons.

4

5

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Center-Drop

8

Late-season Placement Treatments

Droptube

Coulter Injection

Y-drop

9

Yield Results (T/ha)

Treatments	Year 1	Year 2	Year 3*
Control	10.4 b	14.5 b	17.4 a
Y-Drop	11.9 a	15.7 a	17.3 a
Coulter	12.1 a	15.6 a	16.7 a
Center Drop	10.7 b	14.4 b	17.3 a
	Dry Season	Above AVG yield; sufficient rain.	High mineralization; record yields

10

Yield Results

Treatments	Mean Yield (T/ha)	CV Yield
Control	14.1 a	25%
Y-Drop	15.0 a	18%
Coulter	14.8 a	16%
Center Drop	14.1 a	23%
	LSD (0.10) = 1.9 bu/ac CV = 20%	

11

Summary

- No significant yield difference between the 4 treatments though practically speaking Y-drop and coulter placed N (late-season) tended to yield higher.
  - Surface-center drop yielded similar to the control (side-dress)
  - N uptake efficiencies for late-season?
  - Yield varied between years due to differences in growing conditions in particular rain events and intensity.
- Next steps includes economic analysis.

12

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John Fulton
Fulton.20@osu.edu
334-740-1329
@fultojp

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13