Project Title: Development of BMP Guidance for Using Controlled Release Fertilizers in Corn.

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Corn CRF Trial 2023

↑ N

40 ft
50 ft
20 ft

Rep 1   Rep 2   Rep 3   Rep 4

Treatment 1 (Green) – 0lbsN/A
Treatment 2 (Red) – 150lbsN/A CRF
Treatment 3 (Orange) – 200lbsN/A CRF
Treatment 4 (Yellow) – 250lbsN/A CRF
Treatment 5 (White) – 300lbsN/A CRF
Treatment 6 (Blue) – 240lbsN/A CONV
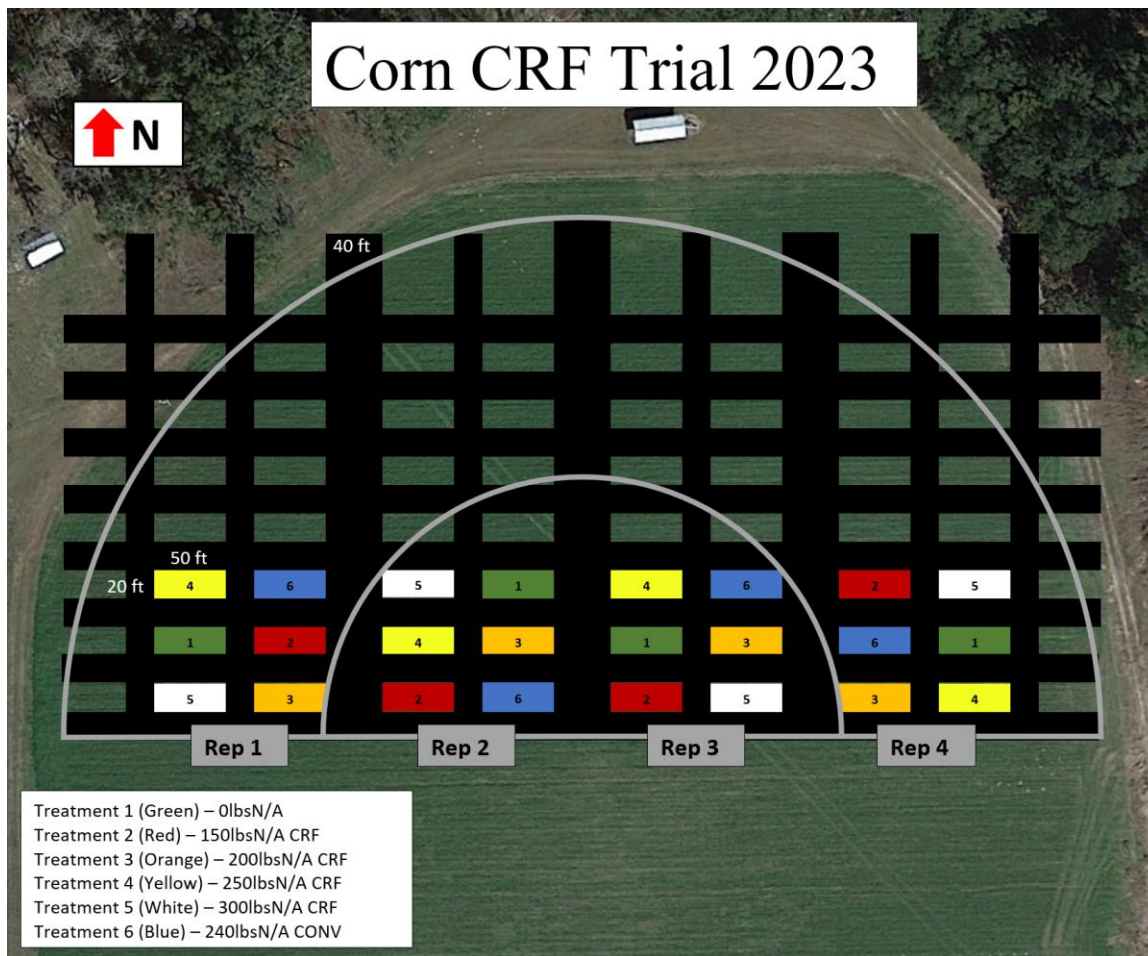
| Nitrogen Fertilizer Treatments	
Treatment 1	No nitrogen added
Treatment 2	Total of 150lbs N/ac - CRF added with 30lbs N/ac liquid fertilizer added at planting and remaining 120lbs N/ac of CRF added at planting as well (all upfront- no fertilizer added during season)
Treatment 3	Total of 200lbs N/ac - CRF added with 30lbs N/ac liquid fertilizer added at planting and remaining 170lbs N/ac of CRF added at planting as well (all upfront- no fertilizer added during season)
Treatment 4	Total of 250lbs N/ac - CRF added with 30lbs N/ac liquid fertilizer added at planting and remaining 220lbs N/ac of CRF added at planting as well (all upfront- no fertilizer added during season)
Treatment 5	Total of 300lbs N/ac - CRF added with 30lbs N/ac liquid fertilizer added at planting and remaining 270lbs N/ac of CRF added at planting as well (all upfront- no fertilizer added during season)
Treatment 6	Total of 240lbs N/ac of conventional liquid fertilizer - added with 30lbs N/ac added at planting and remaining 210lbs N/ac applied throughout growing season based on growth stage needs
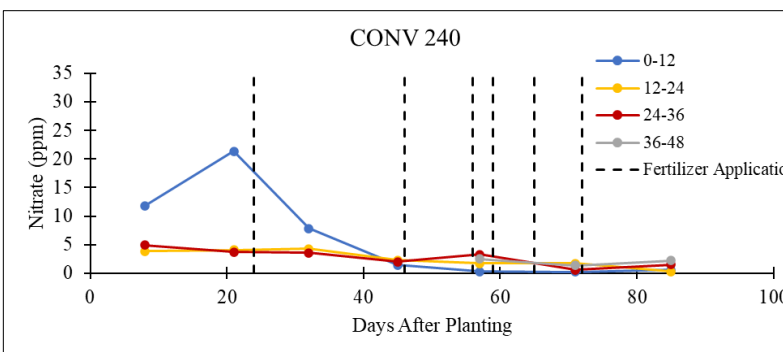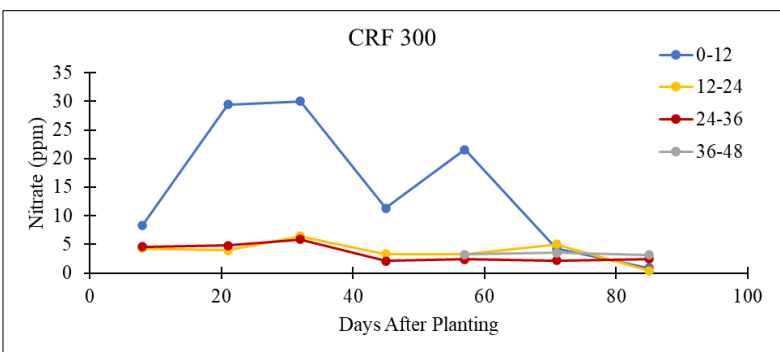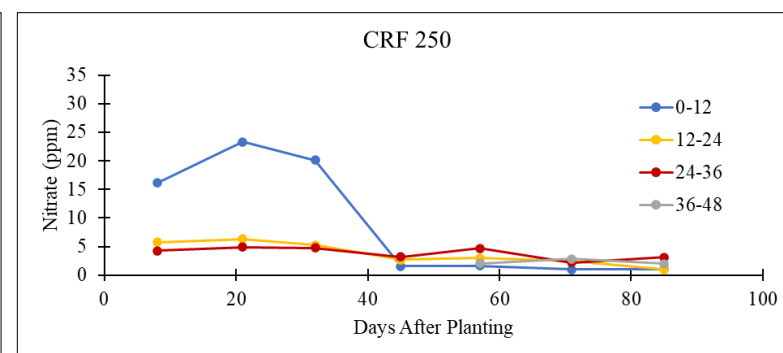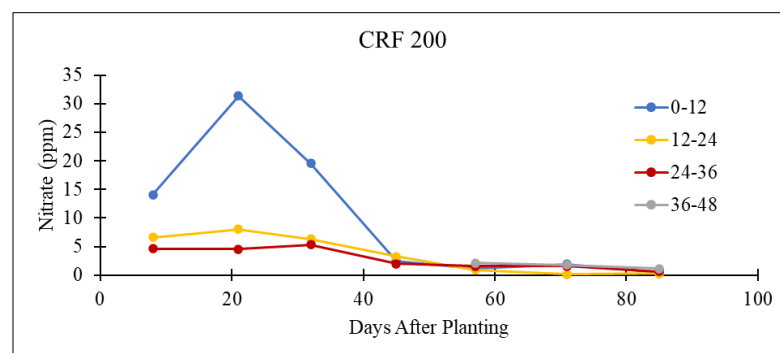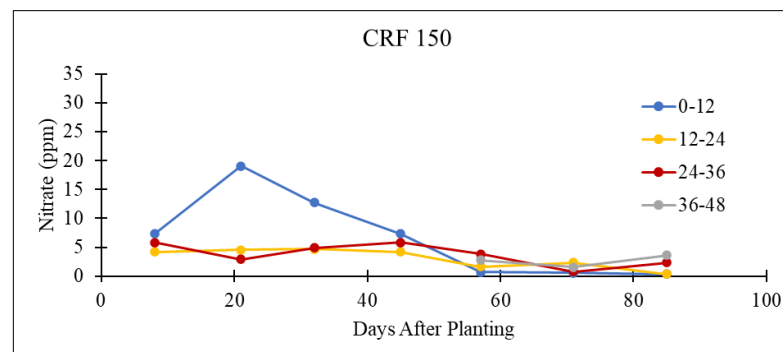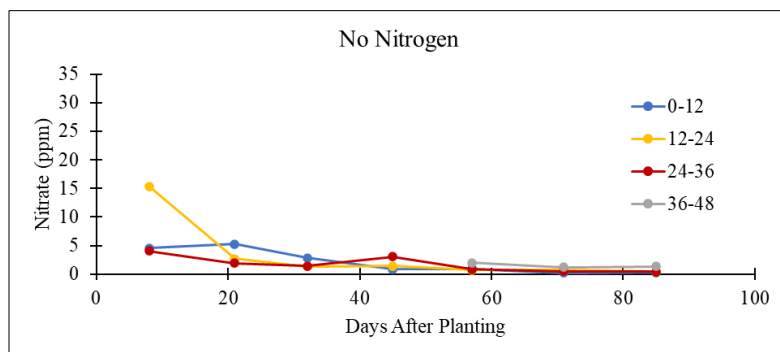
Soil Sampling Results (until July 1, 2023) at each Sampling Depth (0-48 inches) in different treatments.
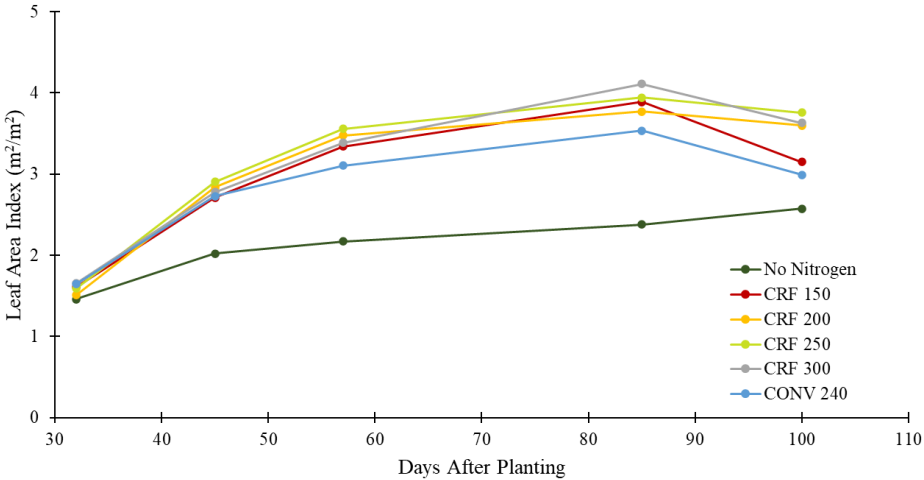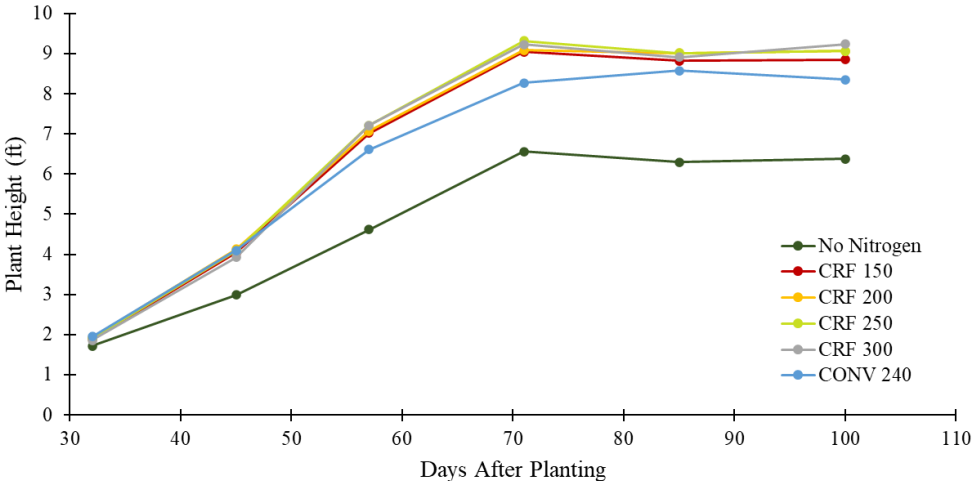
Dynamic of plant height and leaf area index, until July 01, 2023.

Corn yield (bu/ac) as affected by different nitrogen management strategies in 2022. Data represent means across replicates. Error bars represent + standard error of the means. Treatments without a common letter are significantly different by the Tukey's Honestly Significant Difference test at the 5% level of significance.
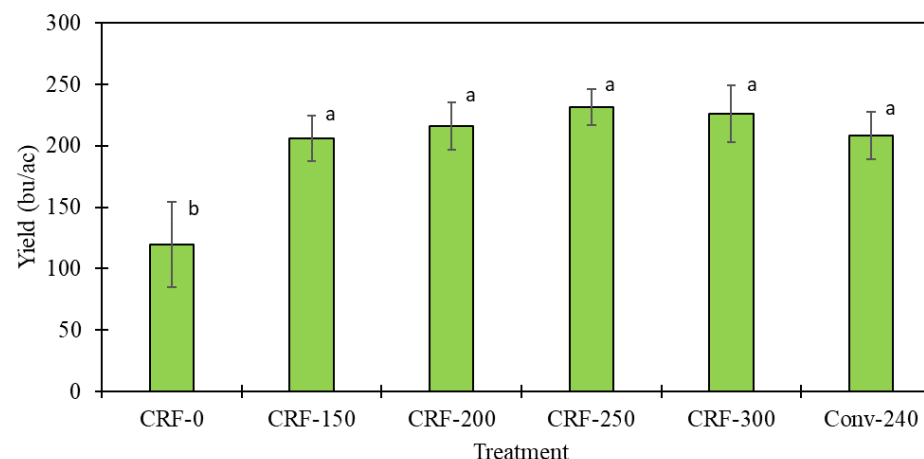
Efficiency (2022) and index values without a common letter are significantly different by the Tukey's Honestly Significant Difference test at the 5% level of significance. Data represent means across replicates.

Treatment (lbs N ac^{-1})	Yield (Mg ha^{-1})	NUE$_{avN}$ (%)	FNUE (%)	PFP (kg grain kg^{-1} fertilizer N)	RE (kg total biomass kg^{-1} fertilizer N)	Harvest Index
No Nitrogen	7.89b	33.8a	N/A	N/A	N/A	0.56a
CRF150	12.84a	38.5a	43.2a	76.4a	0.65a	0.57a
CRF 200	13.49a	37.1a	41.6a	60.2b	0.93a	0.54a
CRF 250	14.44a	36.6a	36.2a	51.5bc	0.85a	0.57a
CRF 300	14.10a	31.9a	32.5a	41.9c	0.71a	0.55a
CONV 240	12.99a	37.8a	38.0a	48.3c	0.75a	0.56a