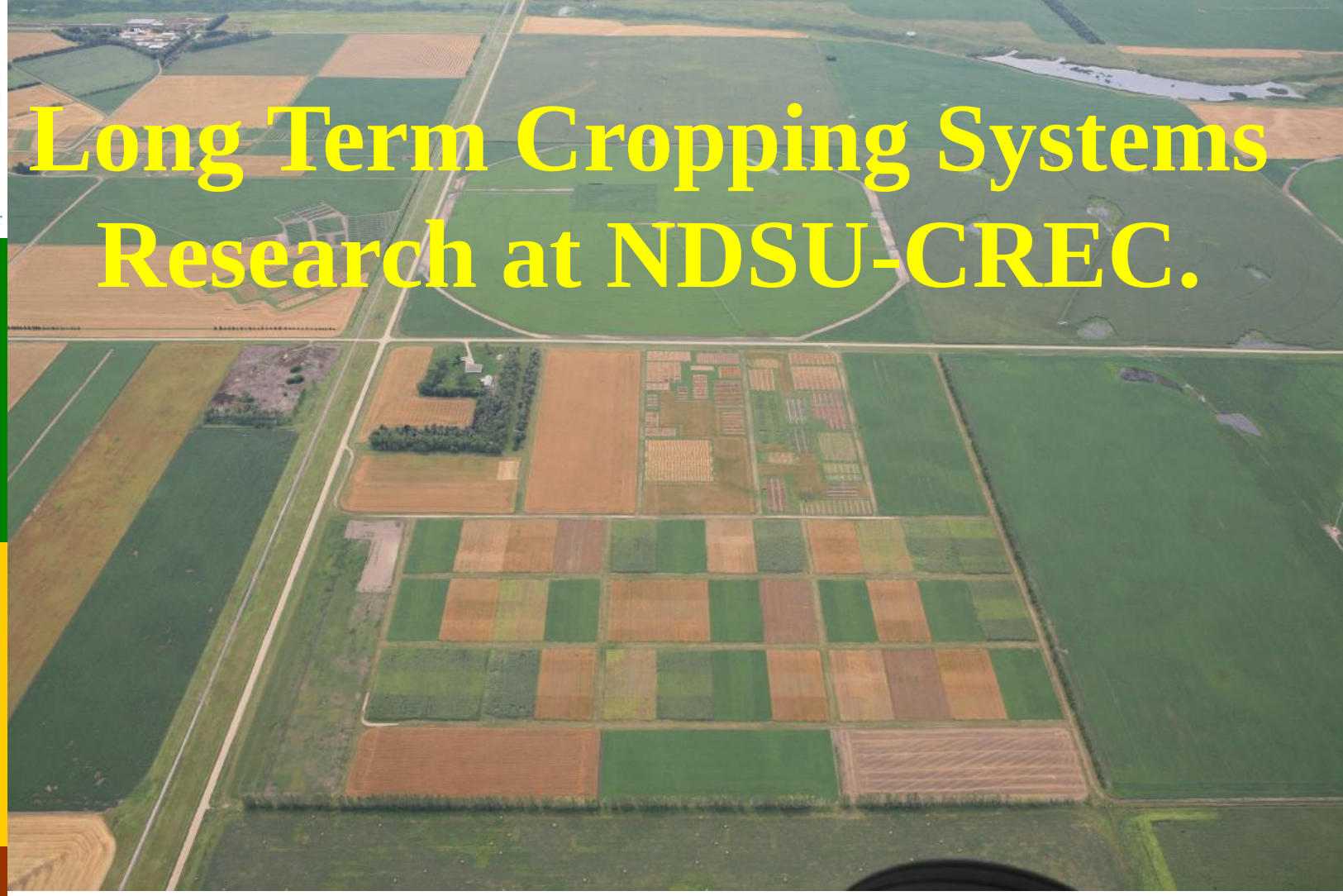
Carrington Research Extension Center

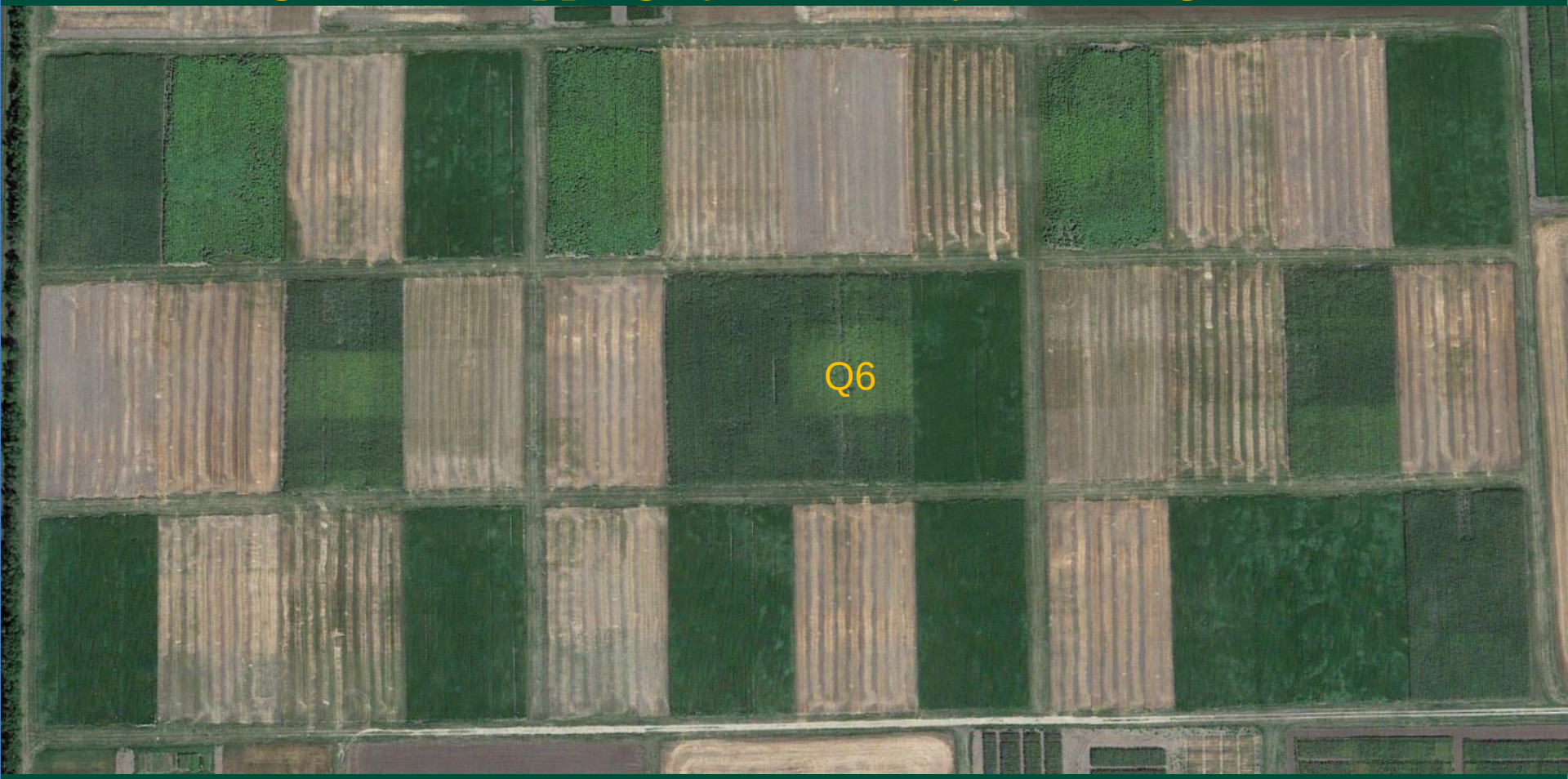
Agriculture from Everything

Long Term Cropping Systems Research at NDSU-CREC.



Ezra Aberle
North Dakota State University
Carrington Research Extension Center

Long-Term Cropping System Study - Carrington REC



- Started in 1987
- Area about 50 acres
- Cycles of three 4-year crop rotations
- 9th cycle ended in 2022

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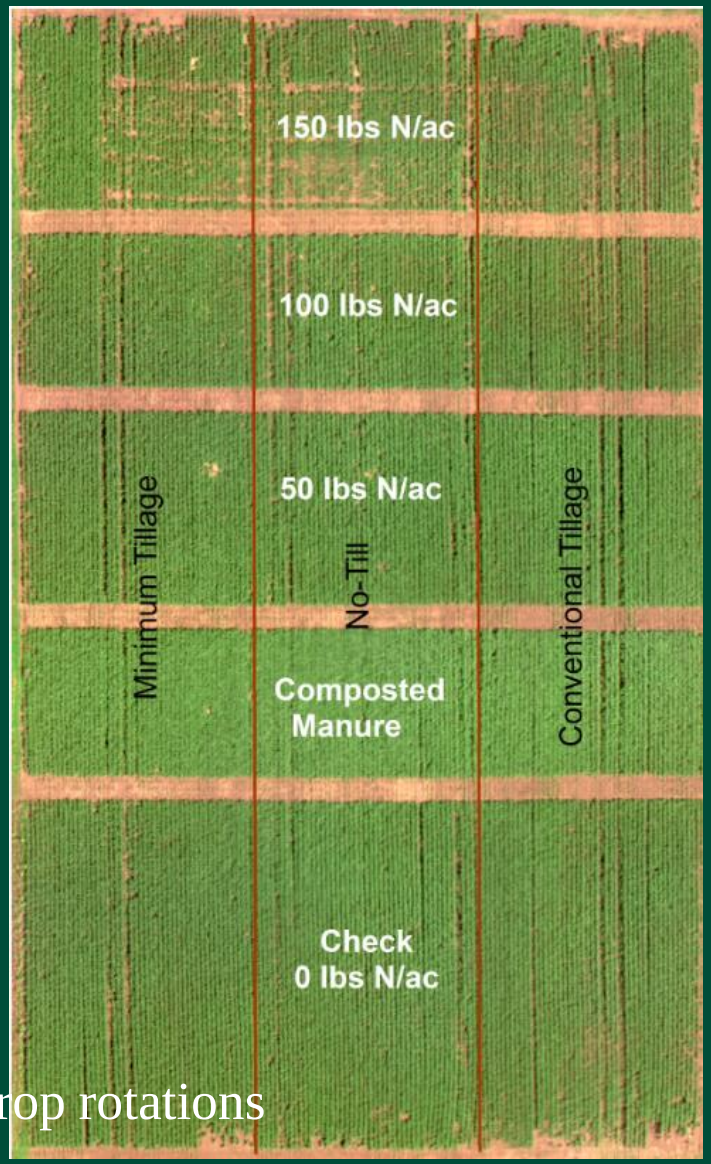
Long-Term Cropping System Study - Carrington REC



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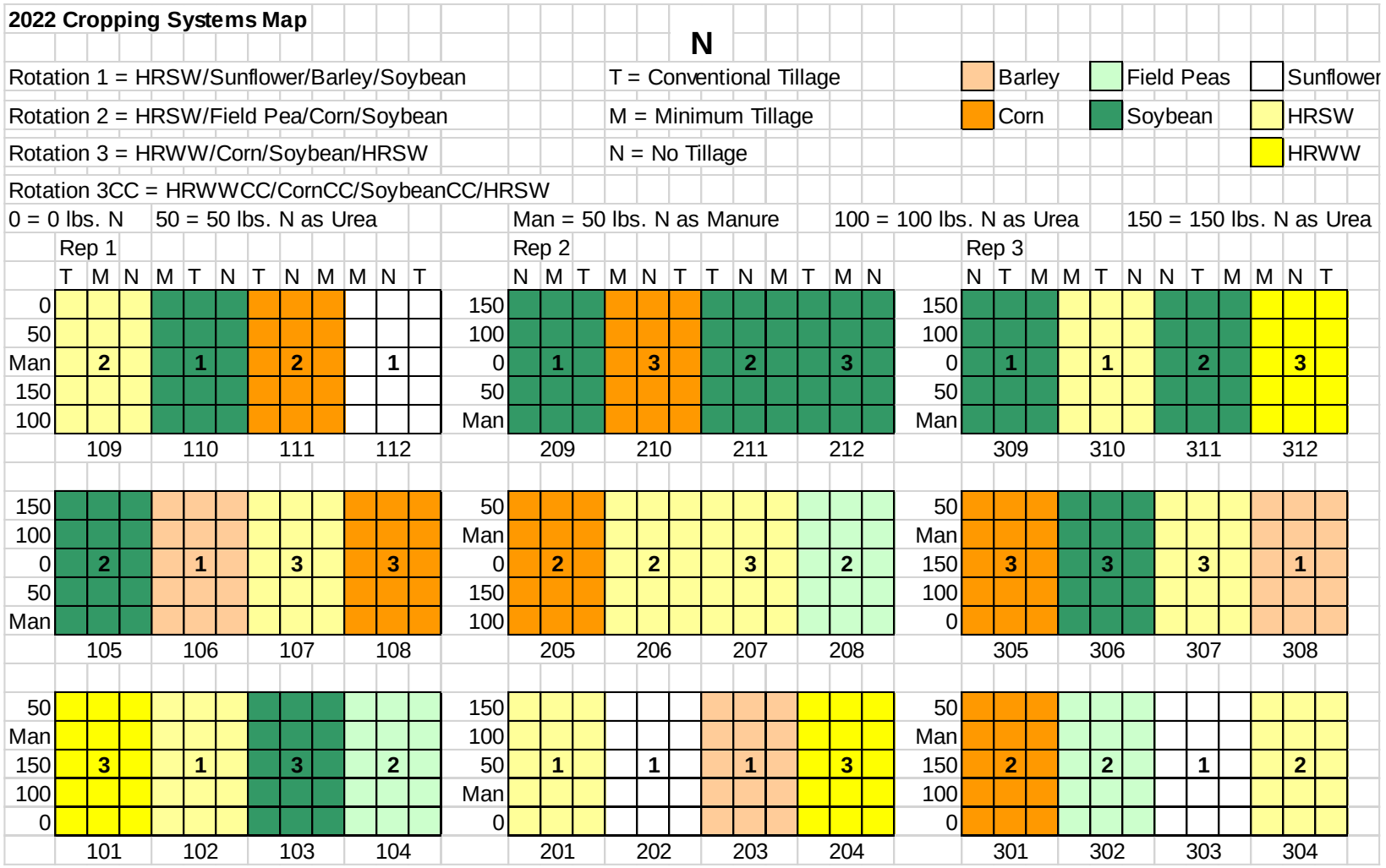
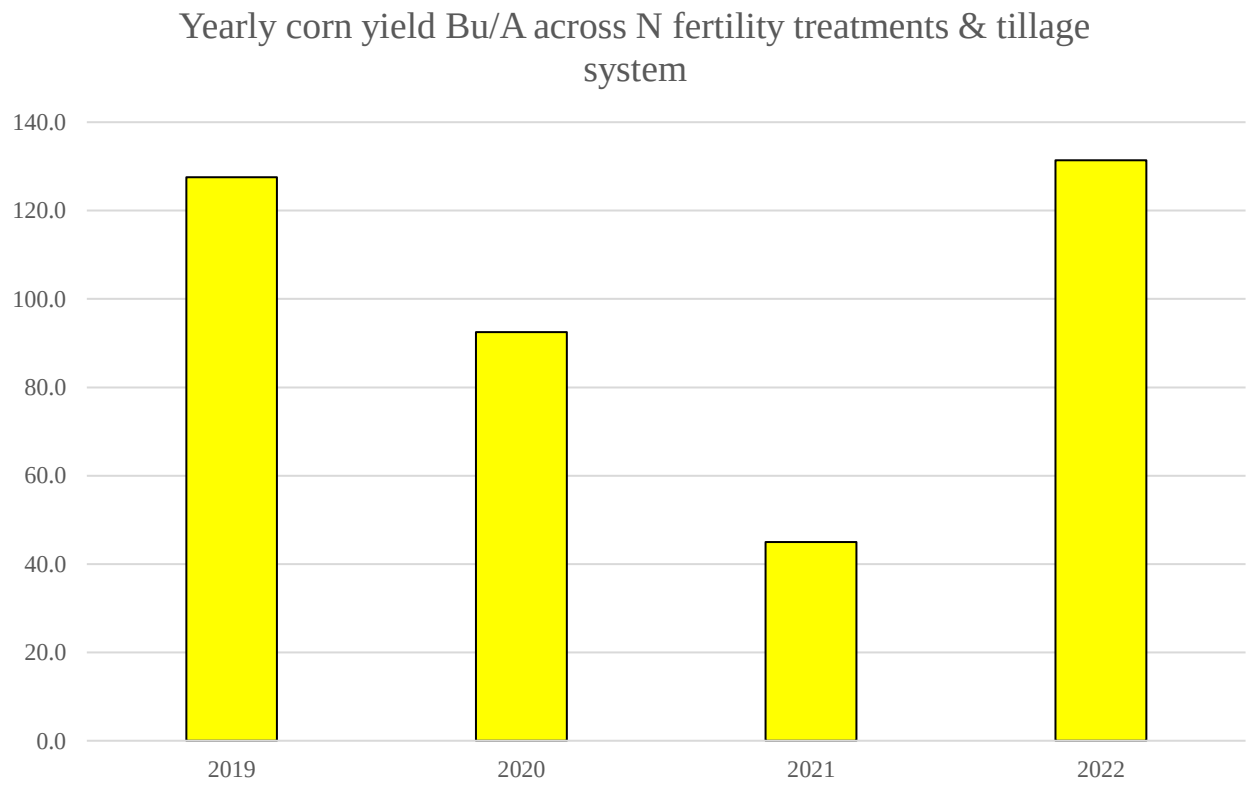
Long-Term Cropping System Study - Carrington REC



Cycle 9 (2019-2022) Highlights



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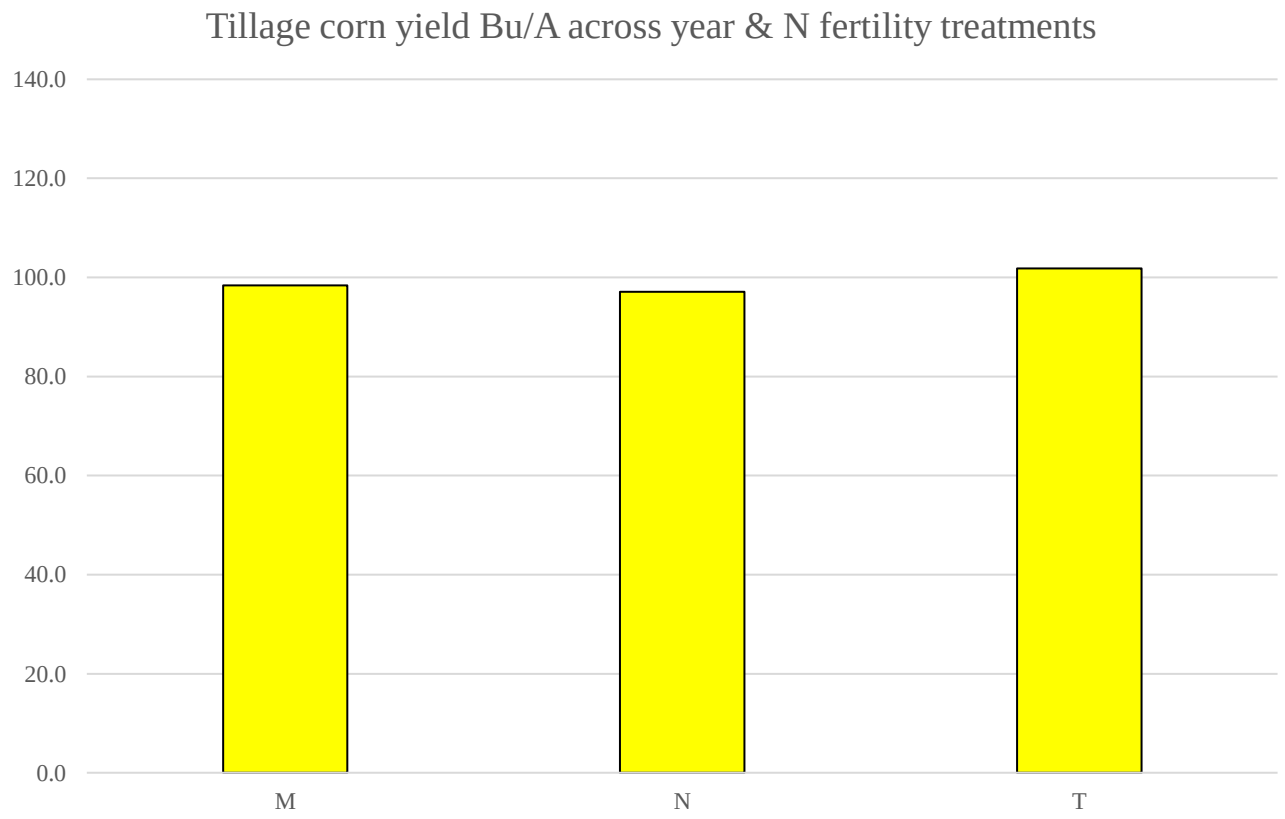

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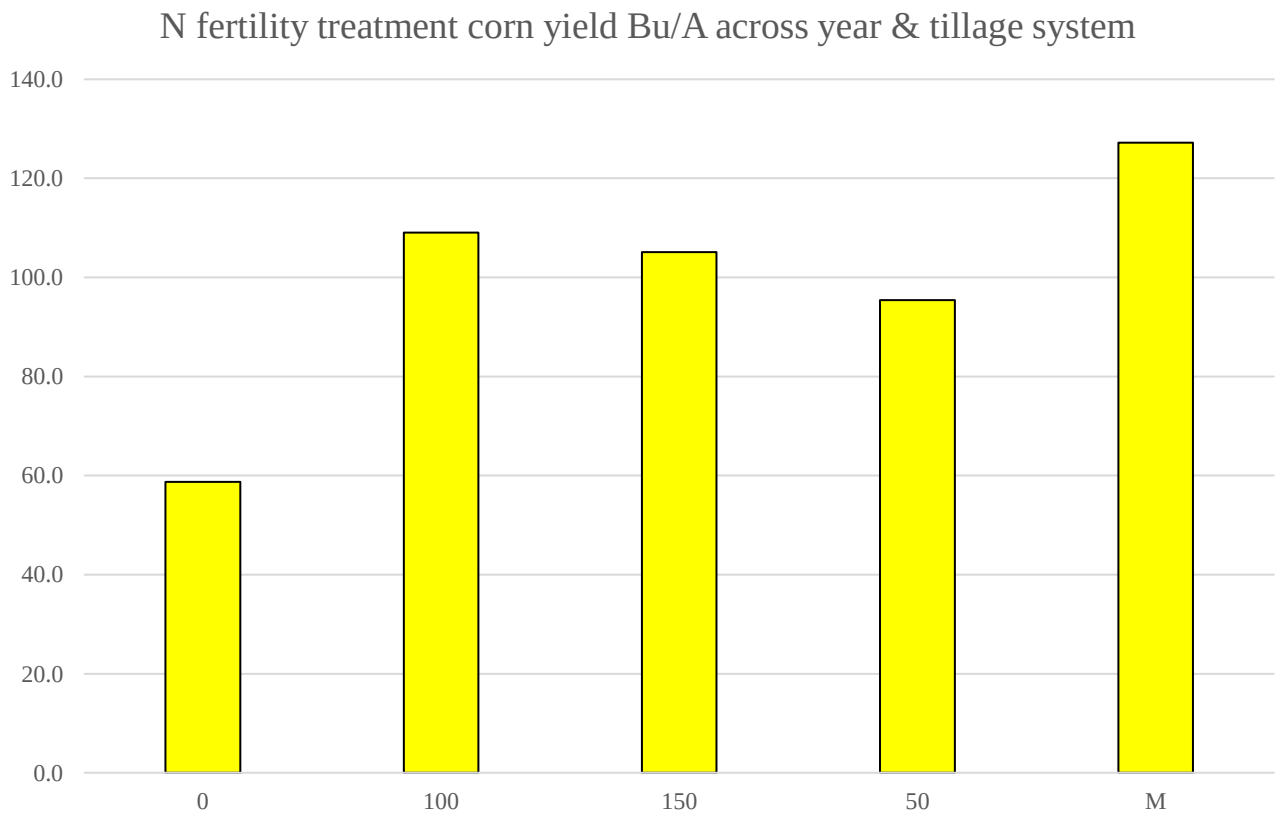

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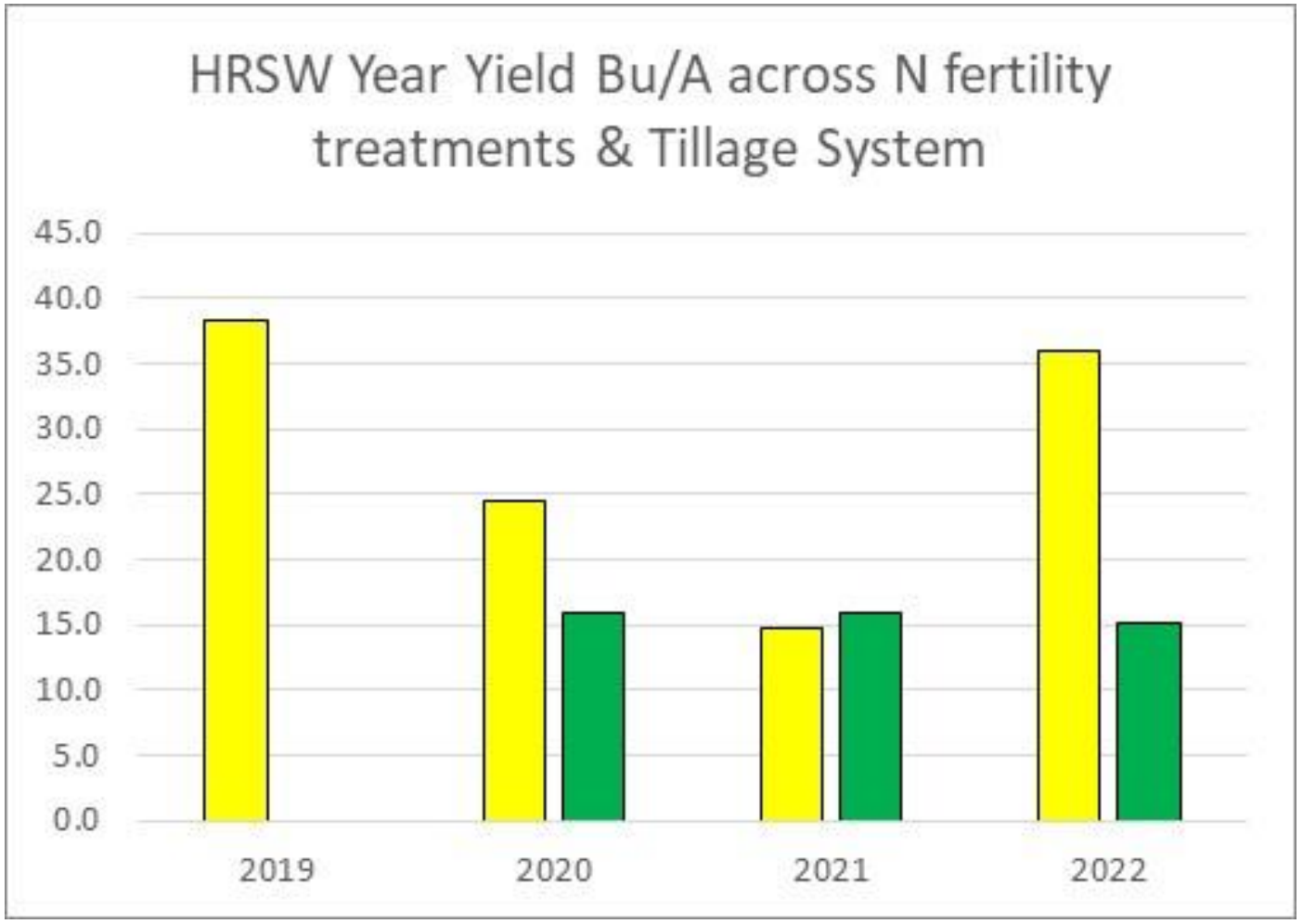

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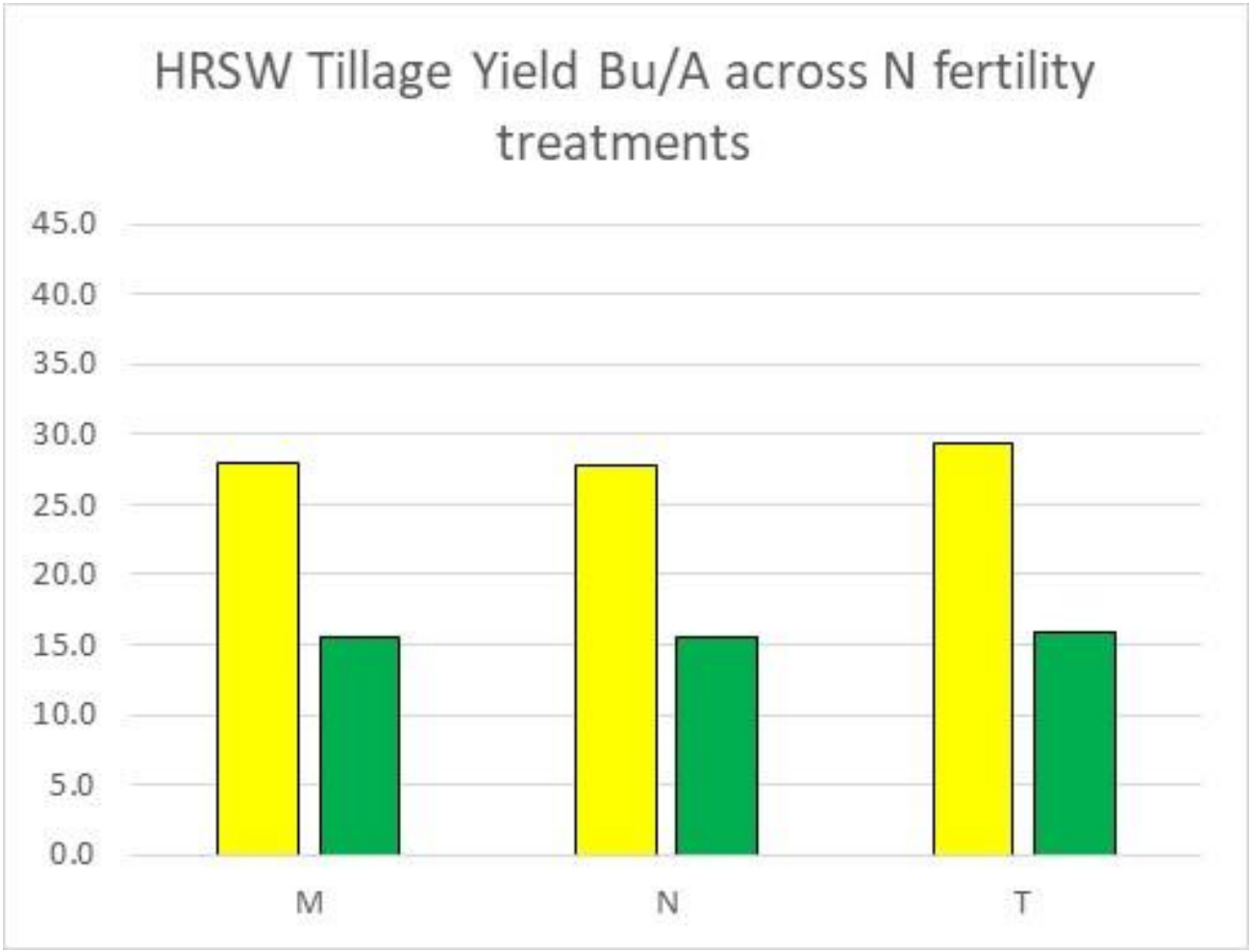

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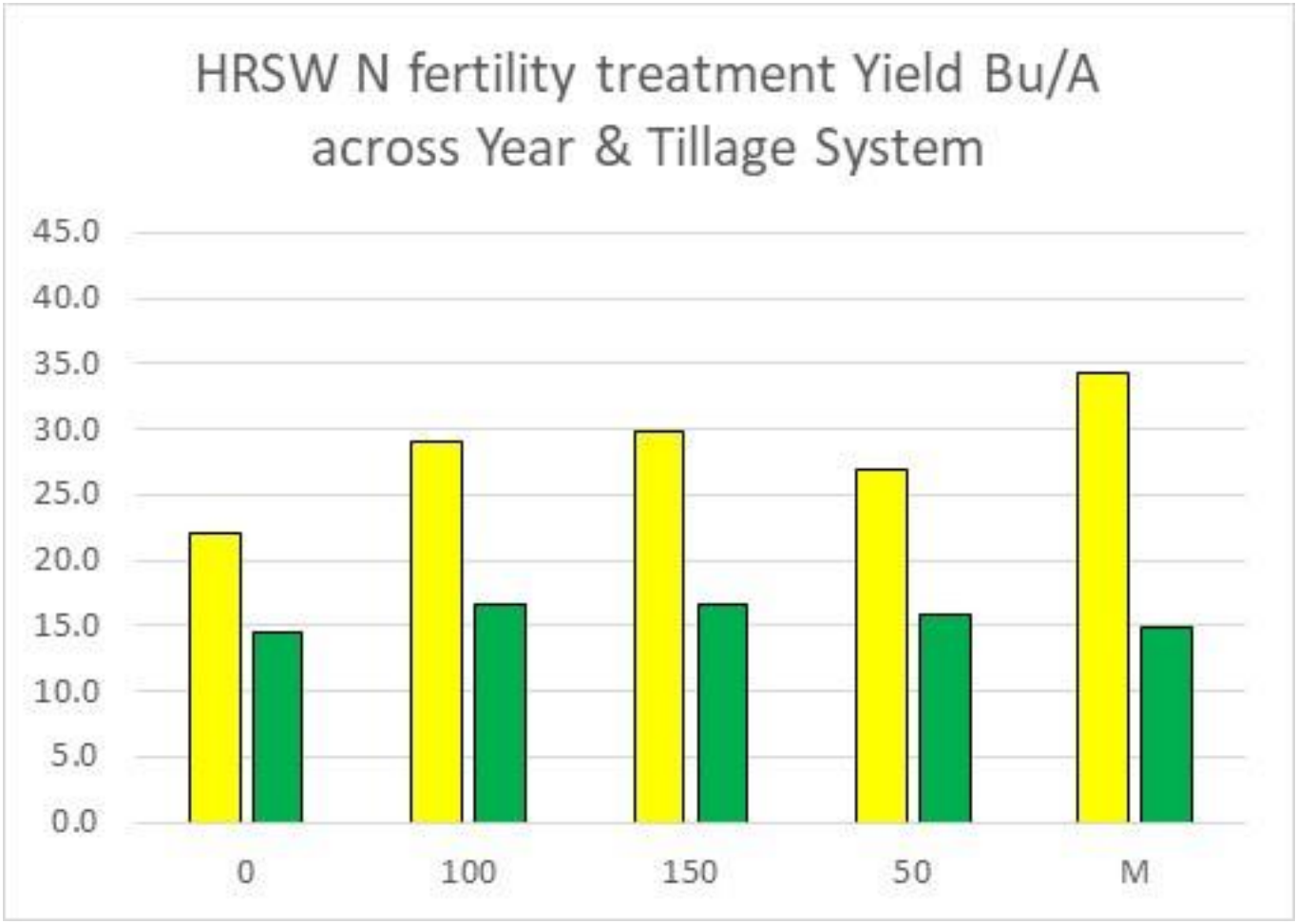

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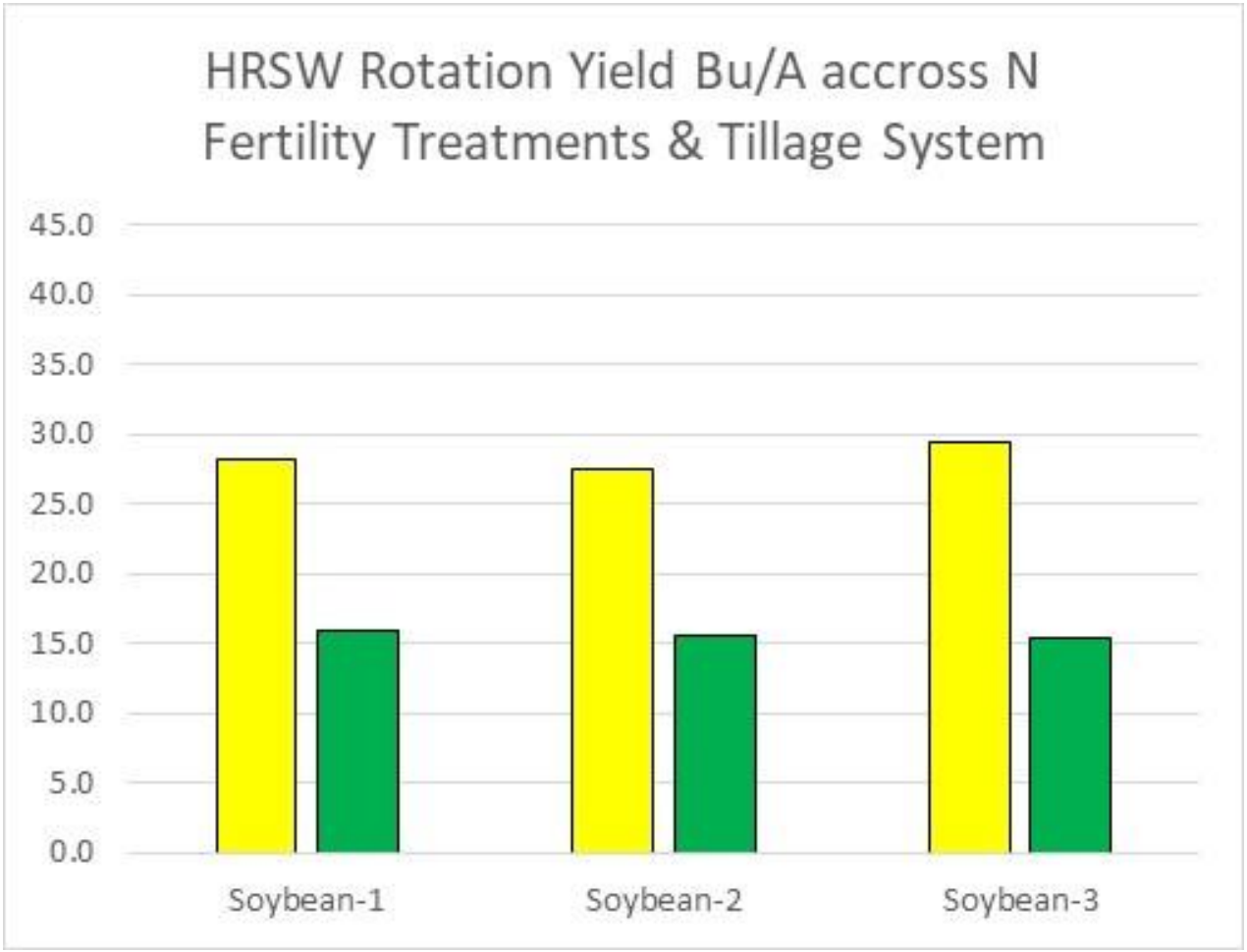

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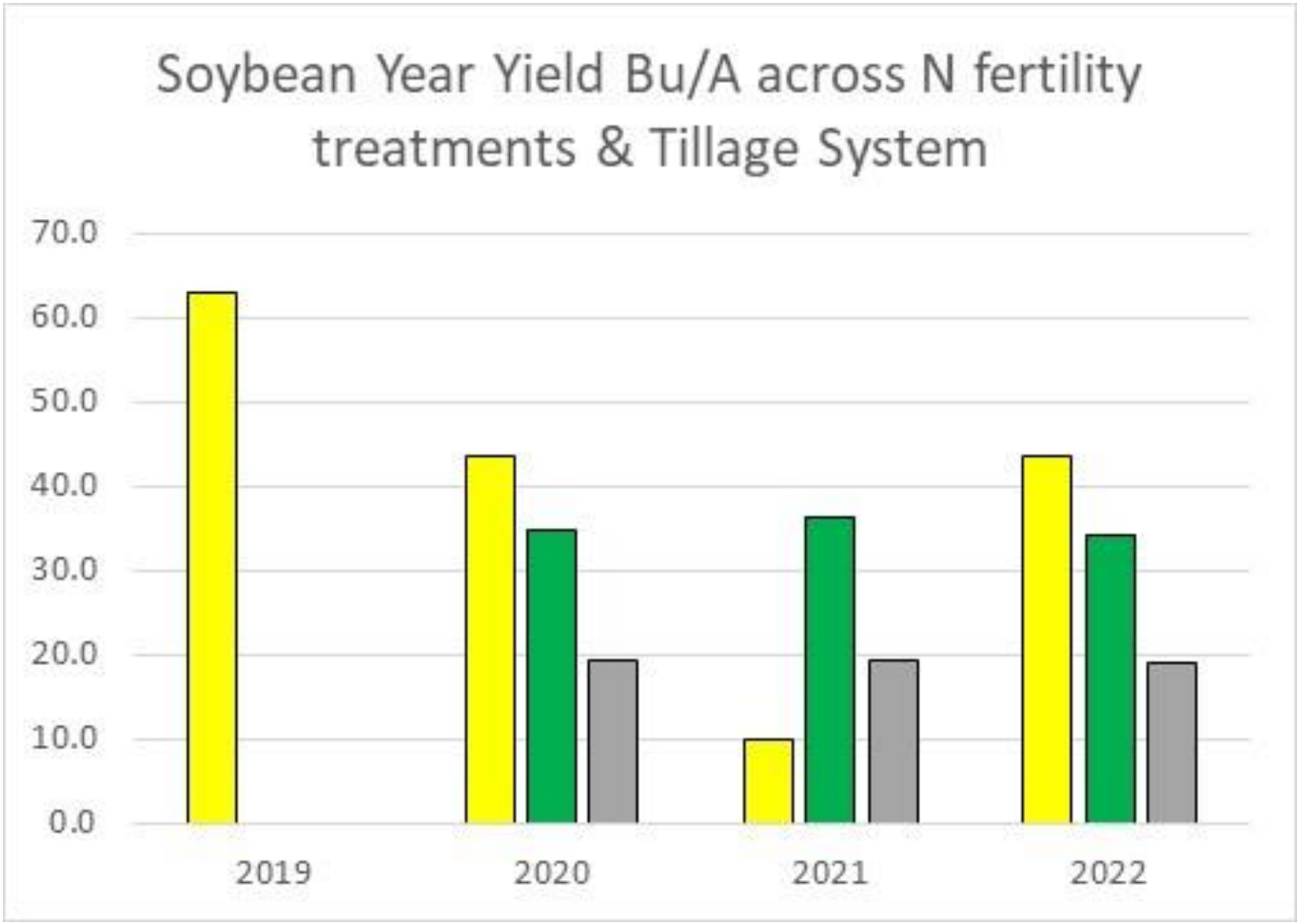

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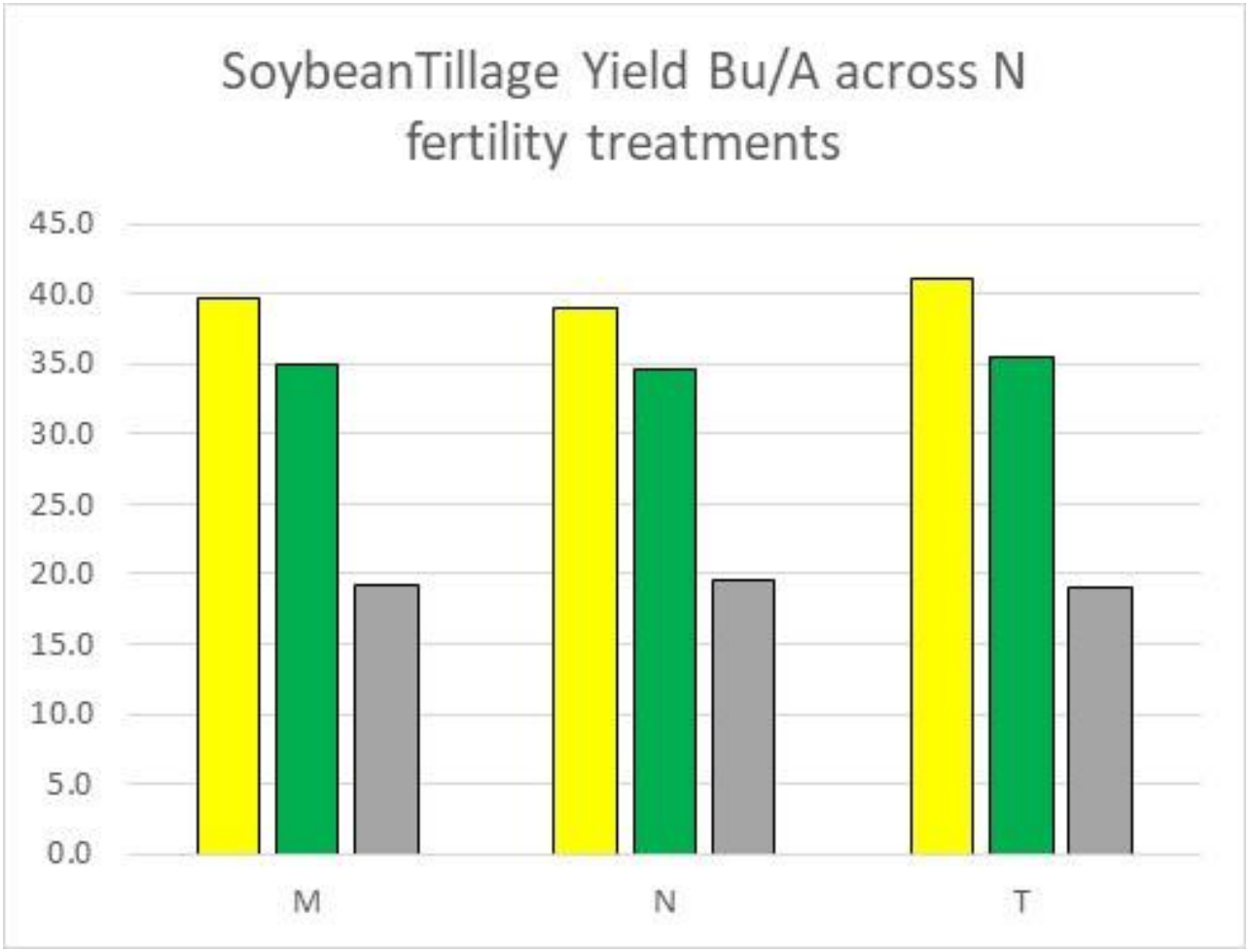

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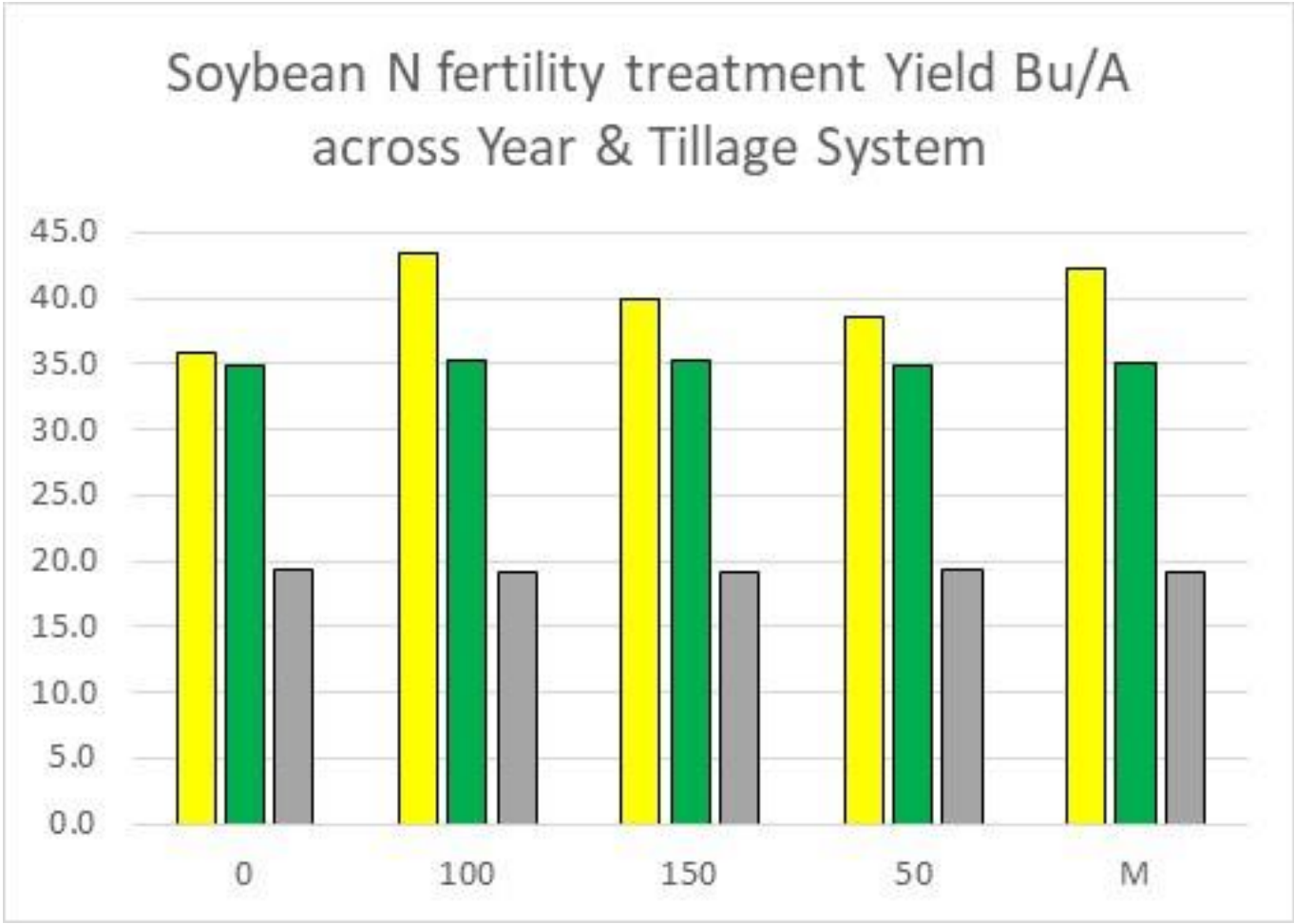

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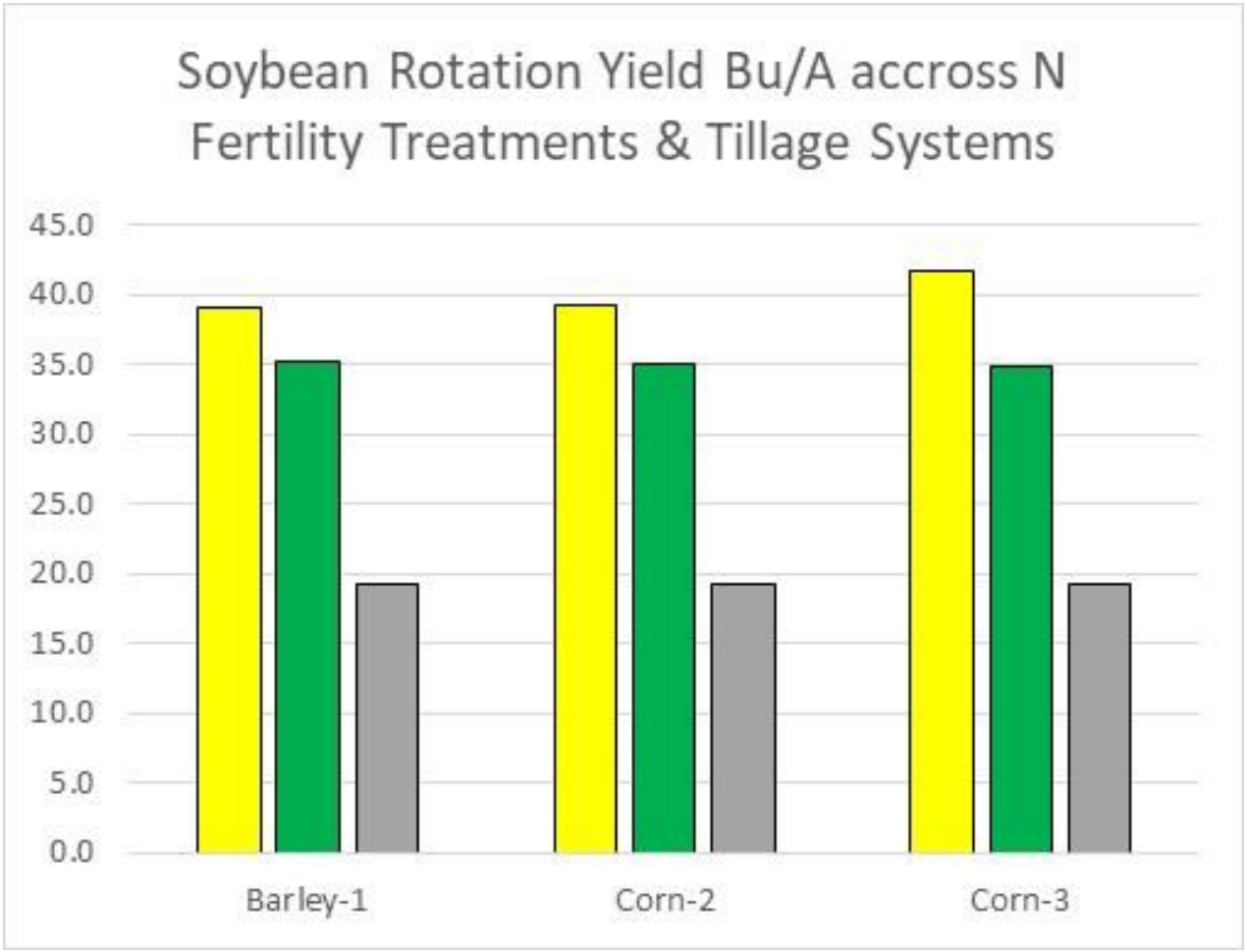


Cycle 9 (2019-2022) Highlights

· HRSW yields are 2.0 bu higher following soybean in rotation 3 vs rotation 2.

· Corn and soybean yields are equivalent for all rotations.

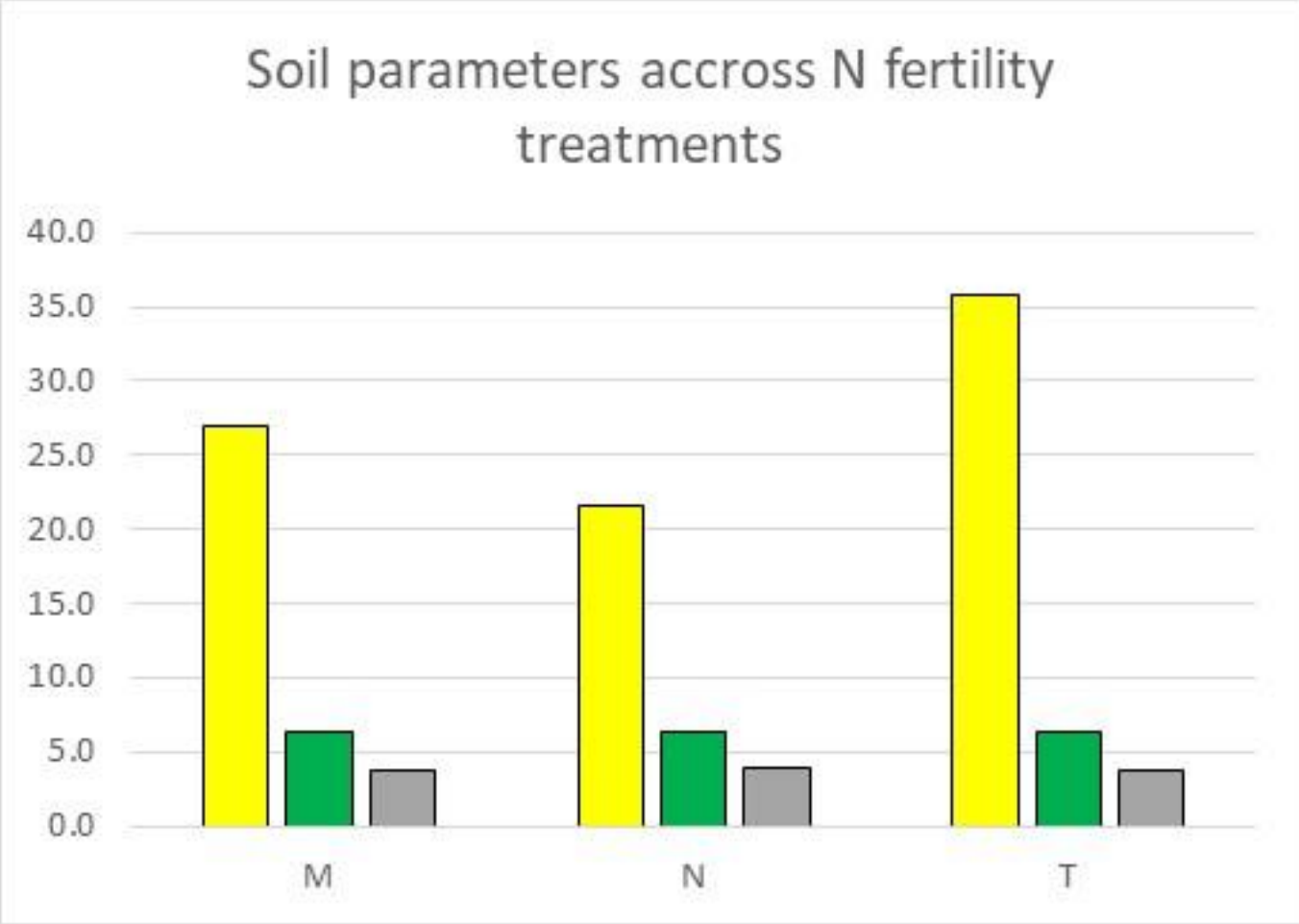
· Field pea has a significantly higher yield (3.8 bu/acre) in plots that previously received composted manure than non-manure plots.

· Soybean has a significantly higher yield (2.3 bu/acre) in plots that previously received composted manure than non-manure plots.

· Corn has a significantly higher yield (11.6 bu/acre) in plots that previously received composted manure than non-manure plots except the 150lb N rate.

· HRSW have significantly higher yields (4.4 bu/acre) in plots that previously received composted manure than non-manure. However, HRSW protein was 0.9 lower at 14.9% and HRWW protein was 1.5 lower at 12.6% than commercially fertilized plots.

2008 Soil Highlights



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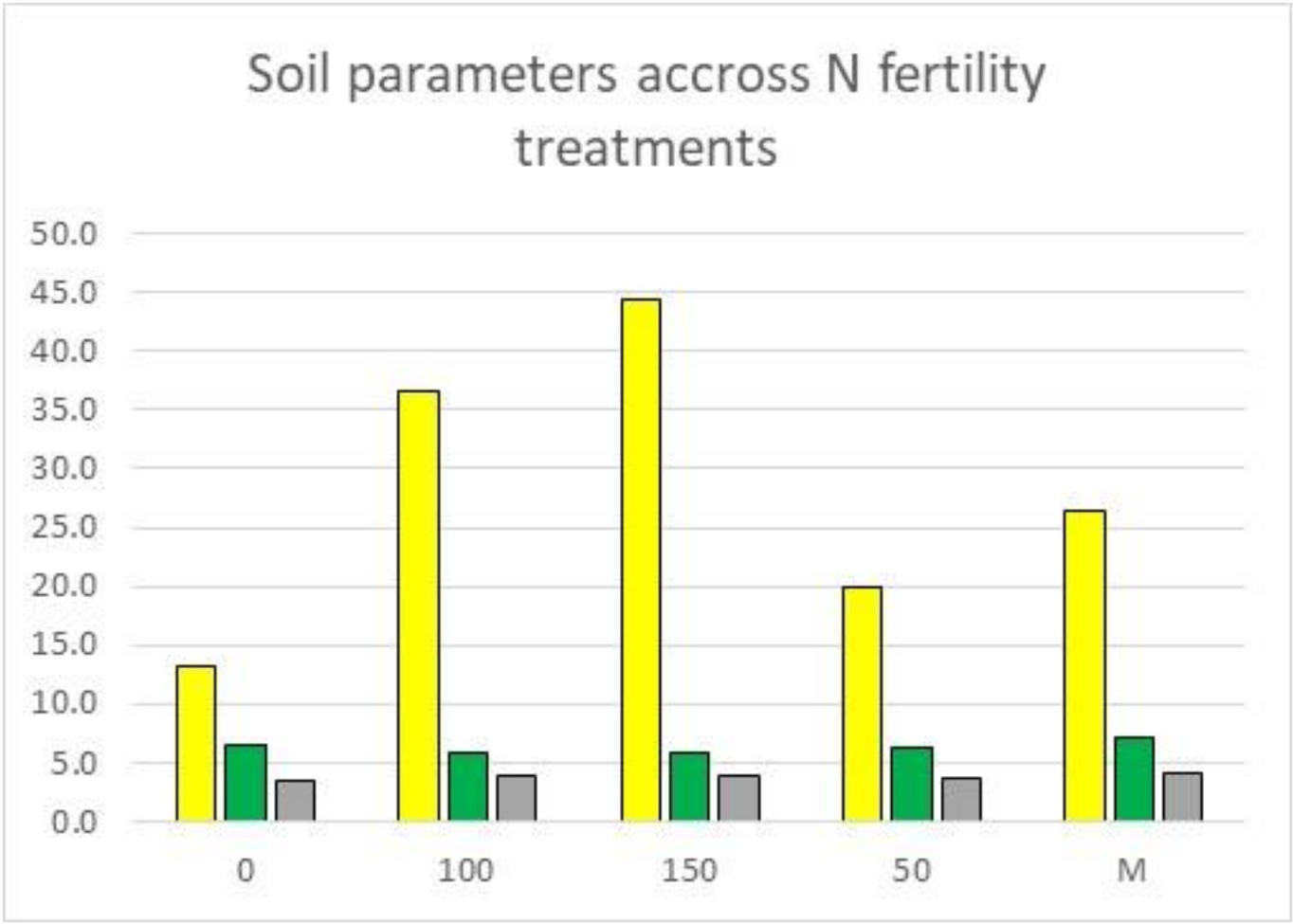

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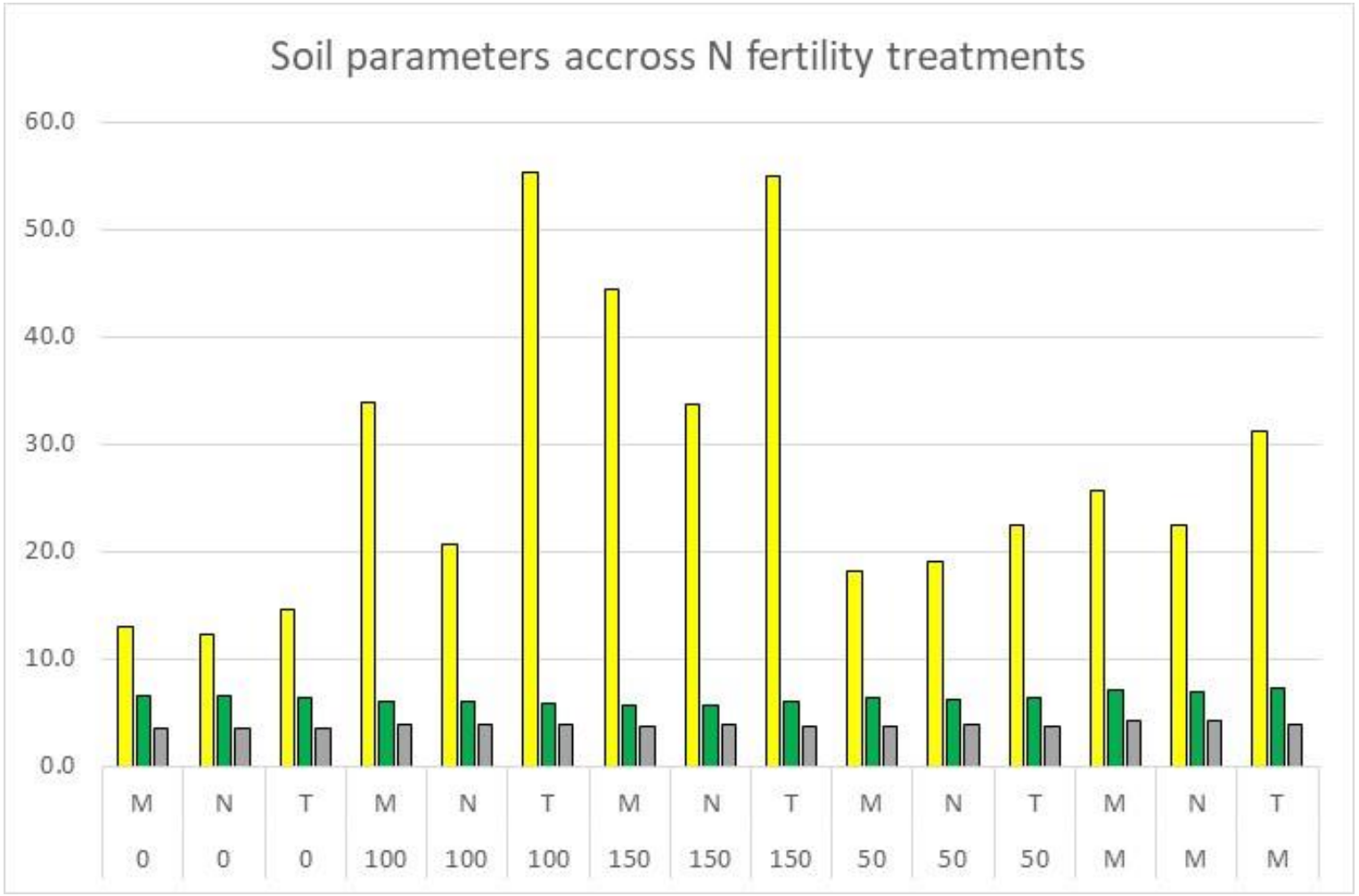

Cycle 9 (2019-2022) Highlights

· Composted manure plots have significantly higher organic matter content at 4.1% than the 150 lbs. urea plots at 3.8%, the 100 lbs. urea plots at 3.9%, the 50 lbs. urea plots at 3.8%, and the no fertilizer plot at 3.5%.

· Composted manure plots have significantly higher soil pH at 7.1 than the 150 lbs. urea plots at 5.8, the 100 lbs. urea plots at 6.0, the 50 lbs. urea plots at 6.4 and the no fertilizer plot at 6.5.

· The no-till system has significantly higher organic matter content at 3.9% than conventional tillage at 3.8%, and minimum tillage at 3.8%.

· No-till plus composted manure plots had the highest organic matter content at 4.2%

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Questions?