Corn K Research in South Dakota

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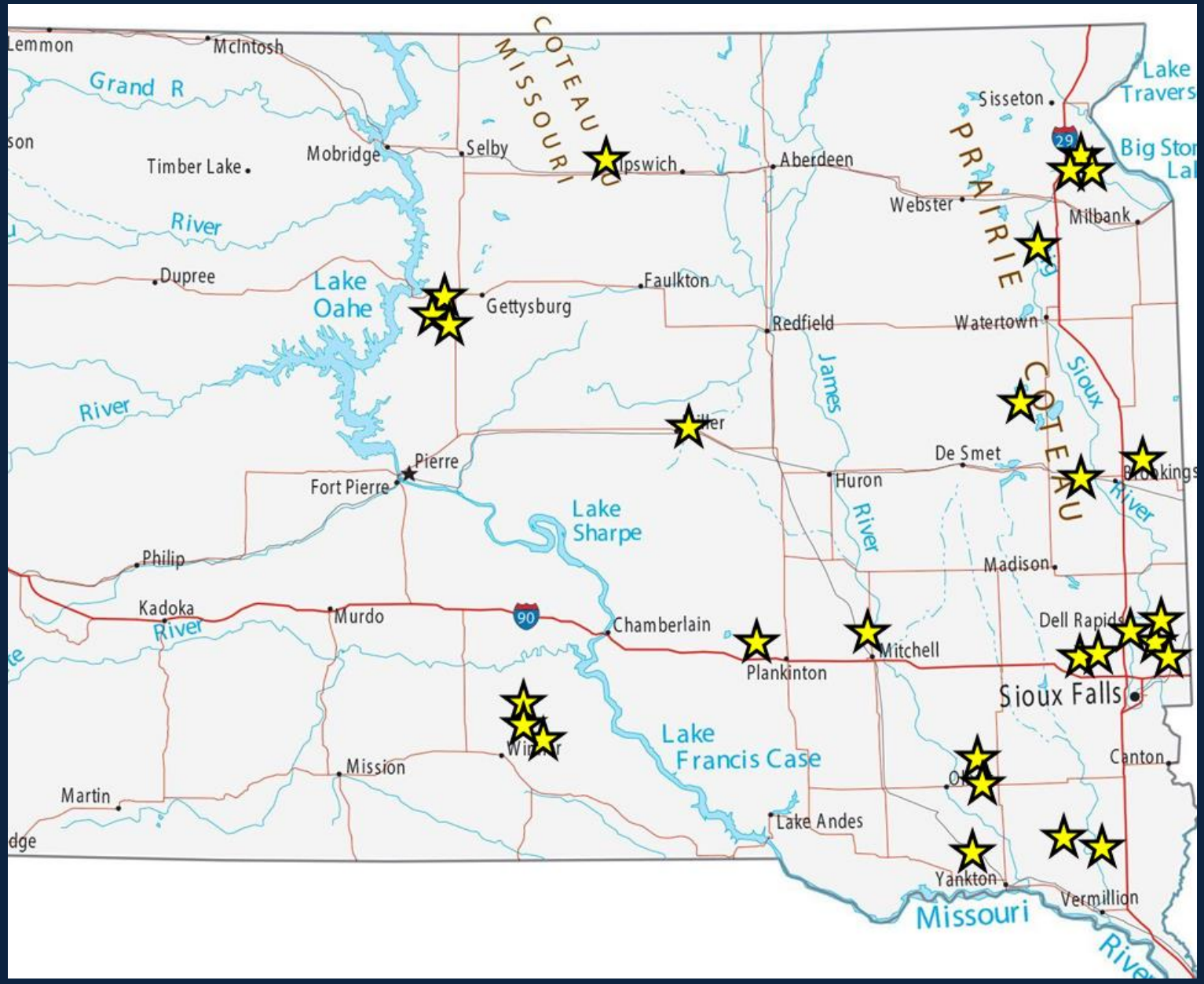
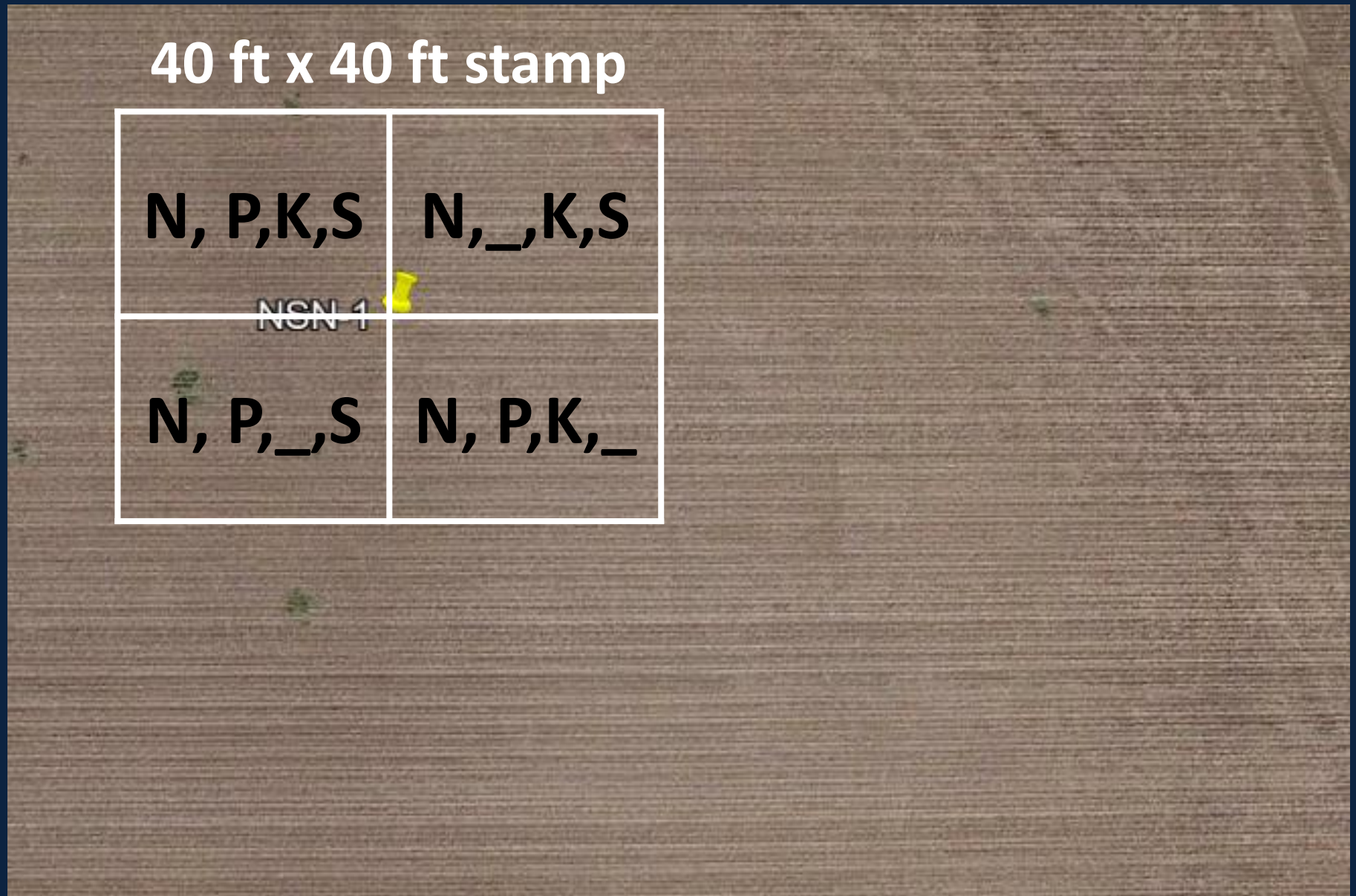
39 locations across 4 growing seasons



- No-till: 17
- Till: 22

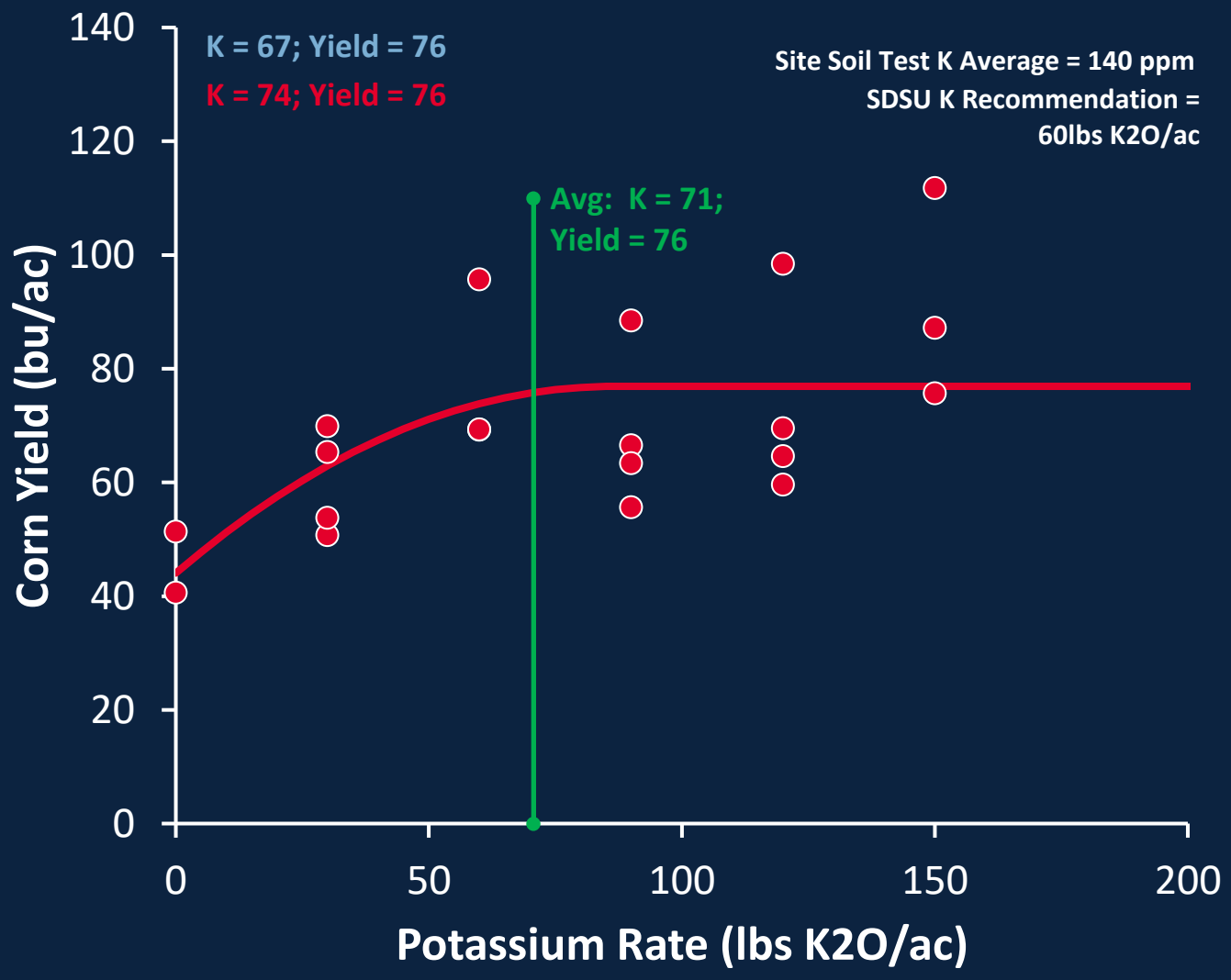
3-5 “stamps” within a field

P, K, and S treatments within a stamp



Small Plot Trial: 4 replications

Rep 1	0	30	60	90	120	150
Rep 2						
Rep 3						
Rep 4						



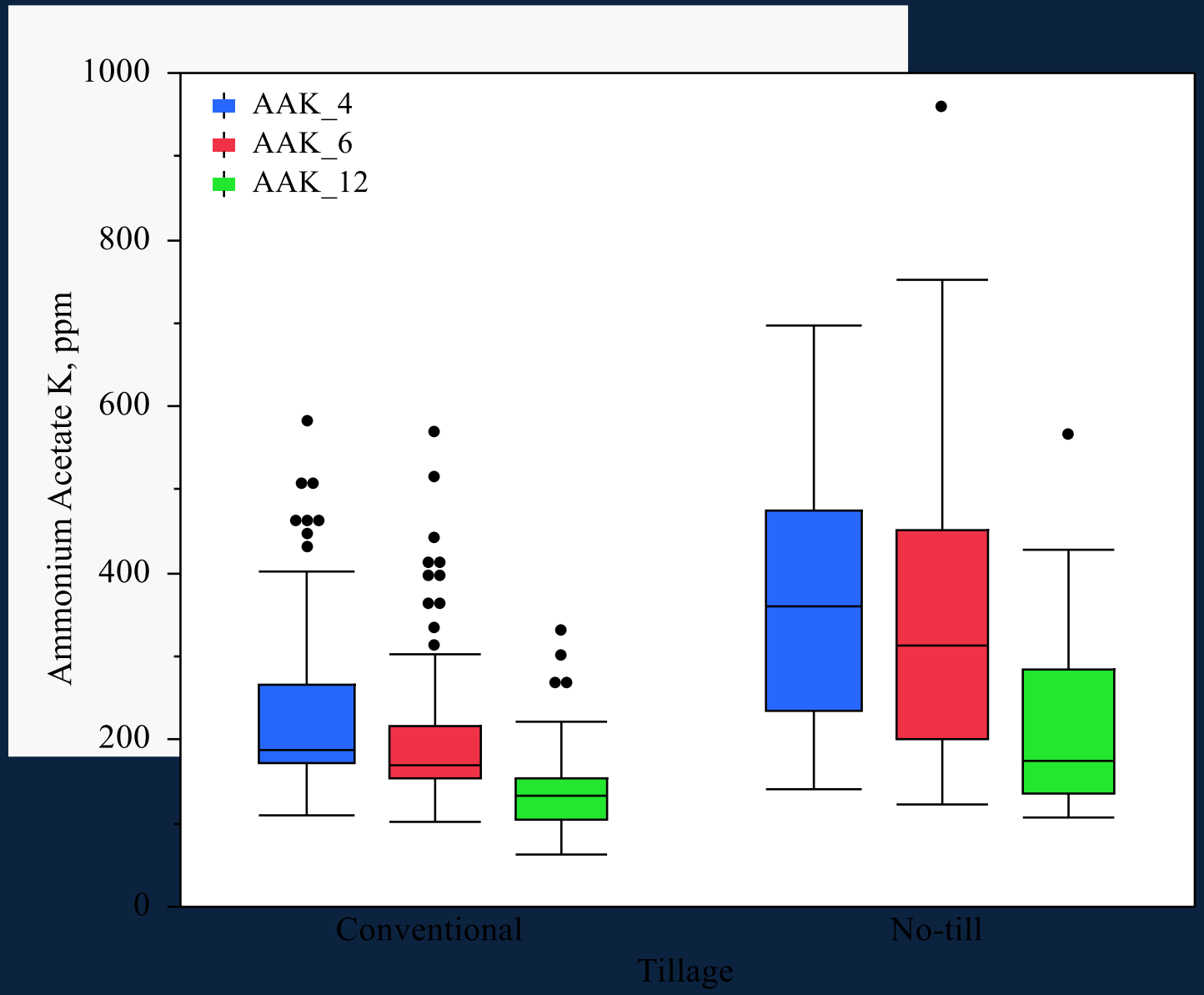
Soil sampling

Preplant Soil

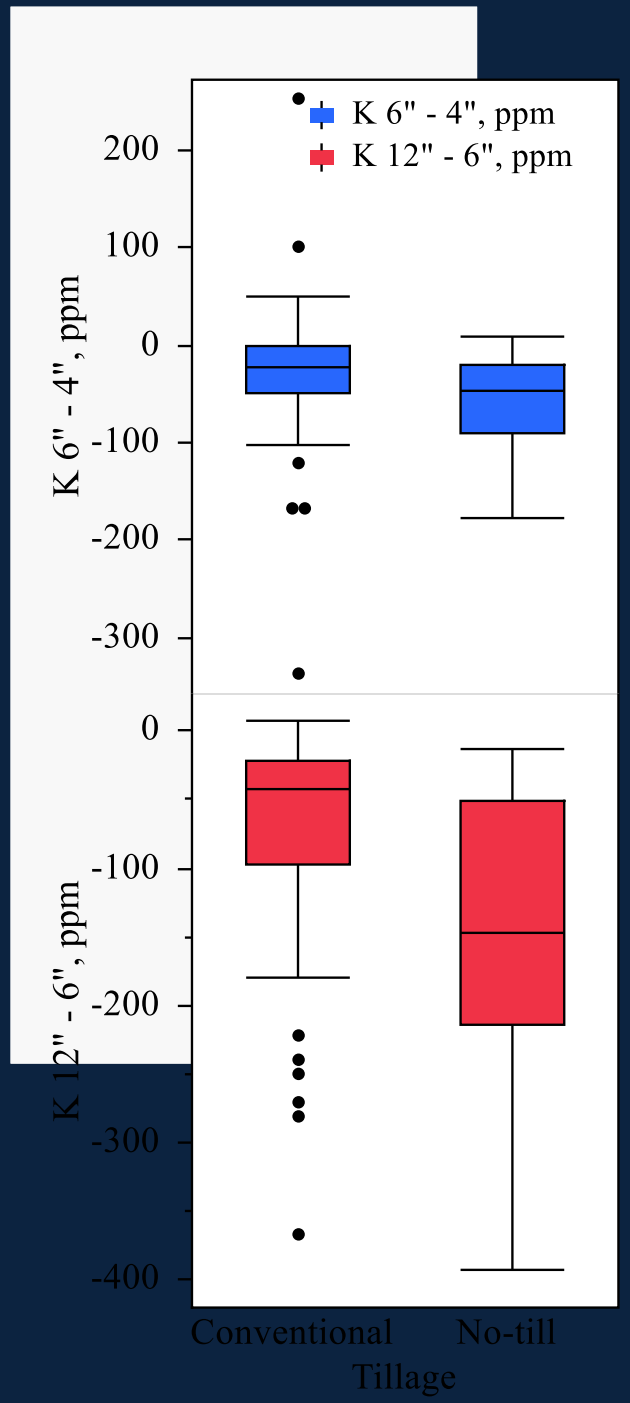
- Soil Fertility
  - 0-4, 0-6, 6-12
- Other tests
  - POXC, respiration,
    - 0-6

Soil Test K results

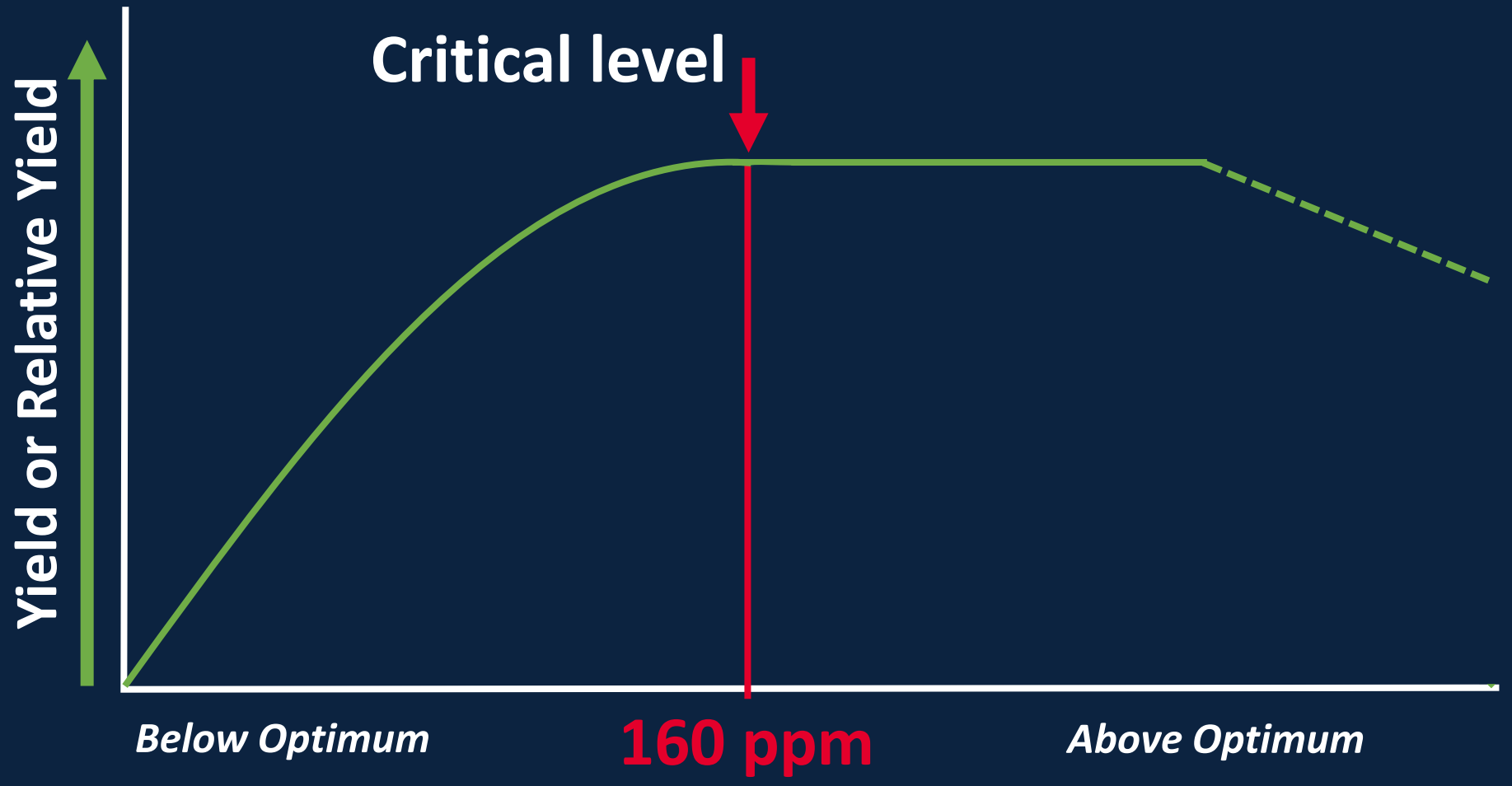
Soil test K decreases with depth

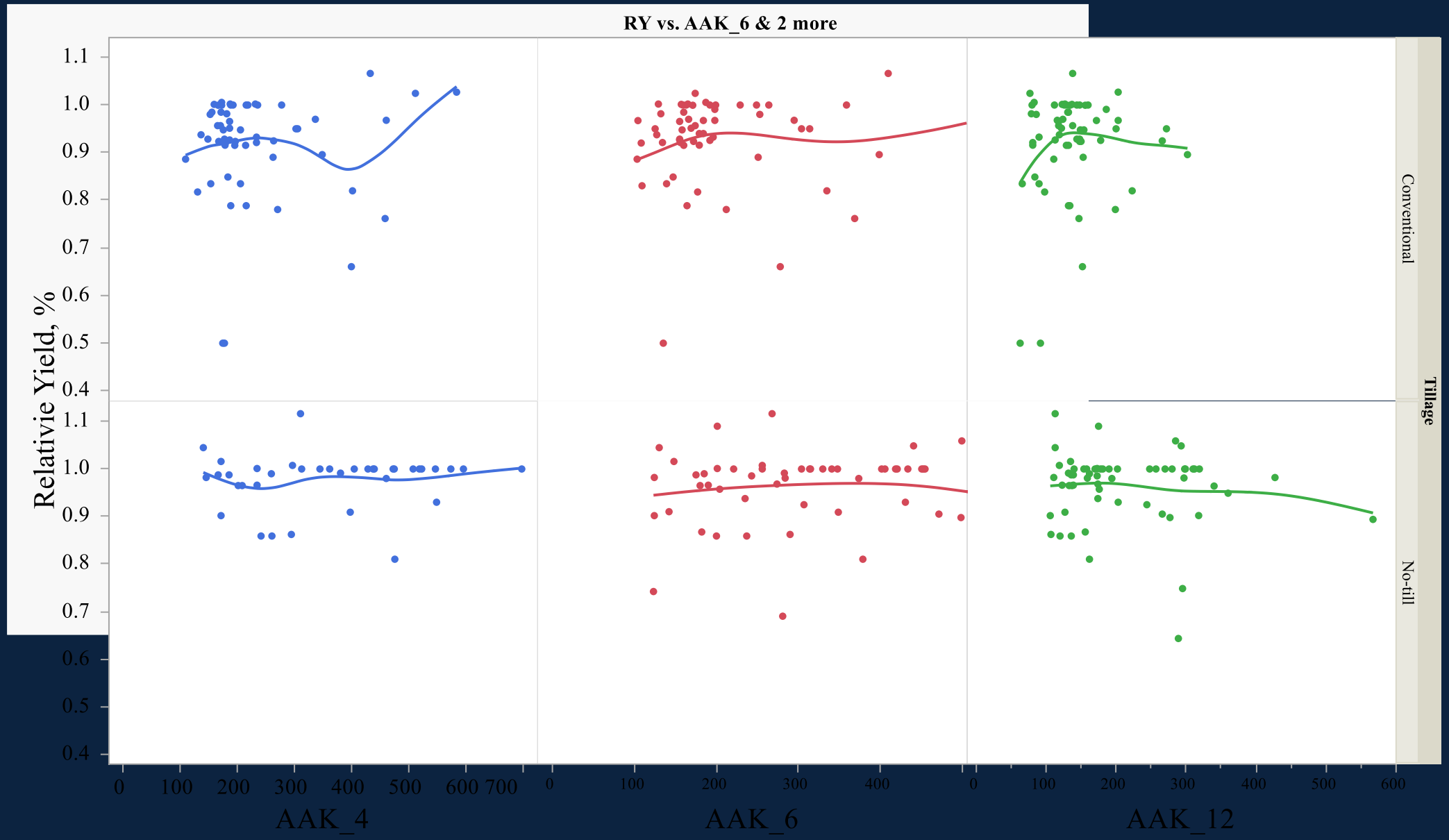


No-till: Greater difference in K between depths

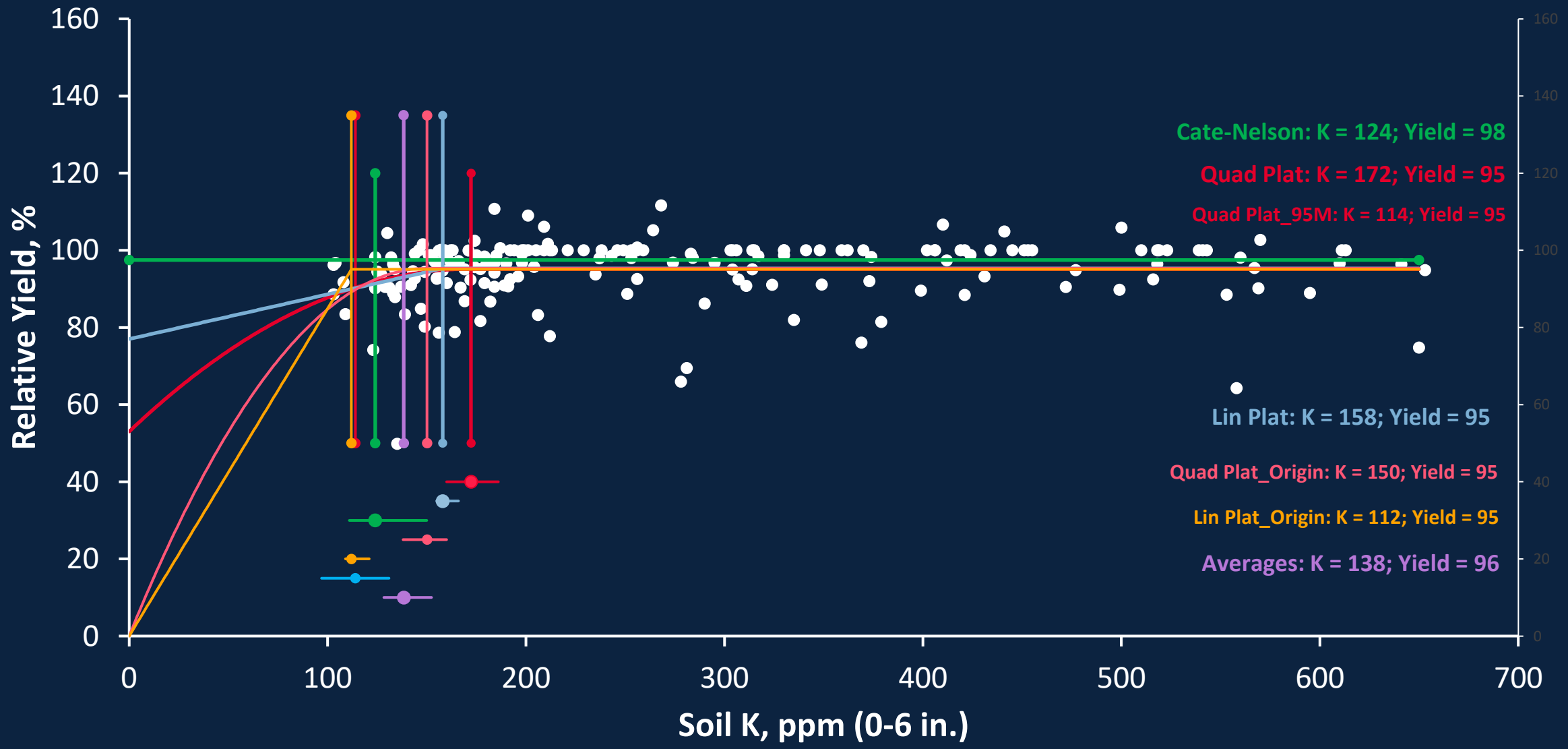


Potassium critical value:

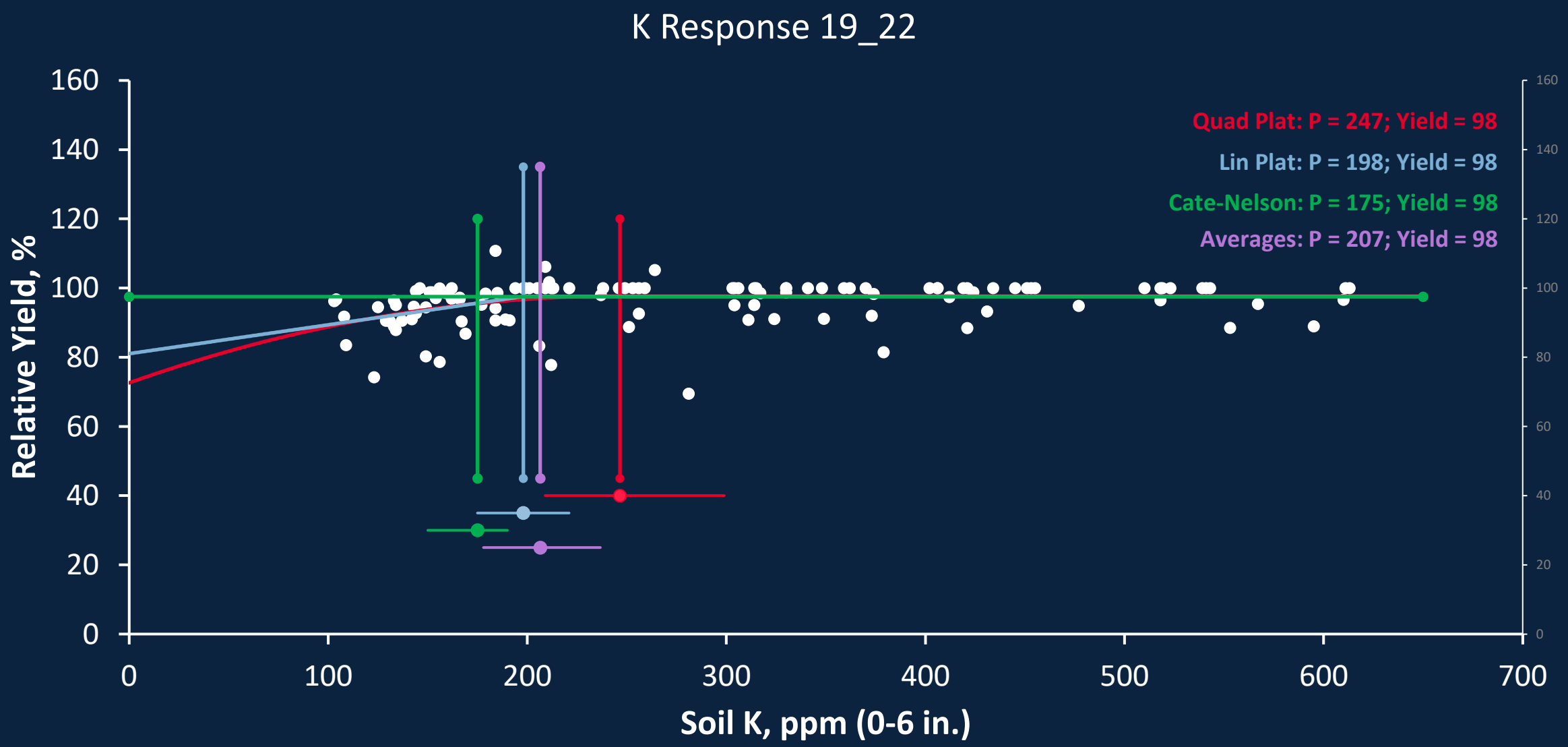



RY vs. AAK_6 & 2 more
Relativie Yield, %
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0
100
200
300
400
500
600
700
AAK_4
AAK_6
AAK_12
Conventional
No-till
Tillage

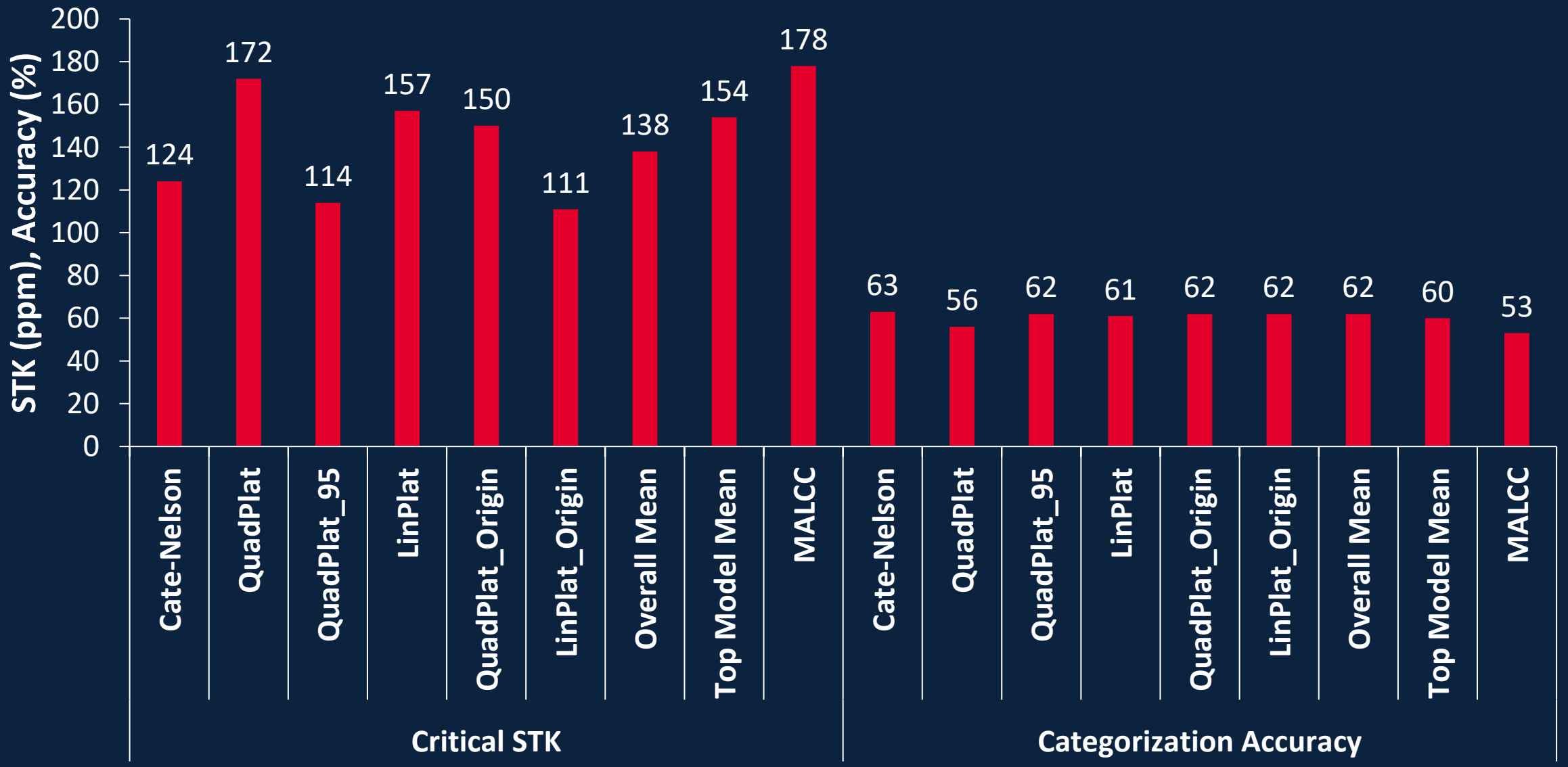
Critical K value: 112-172, mean = 138



Critical K value increases from 160 to 190 ppm

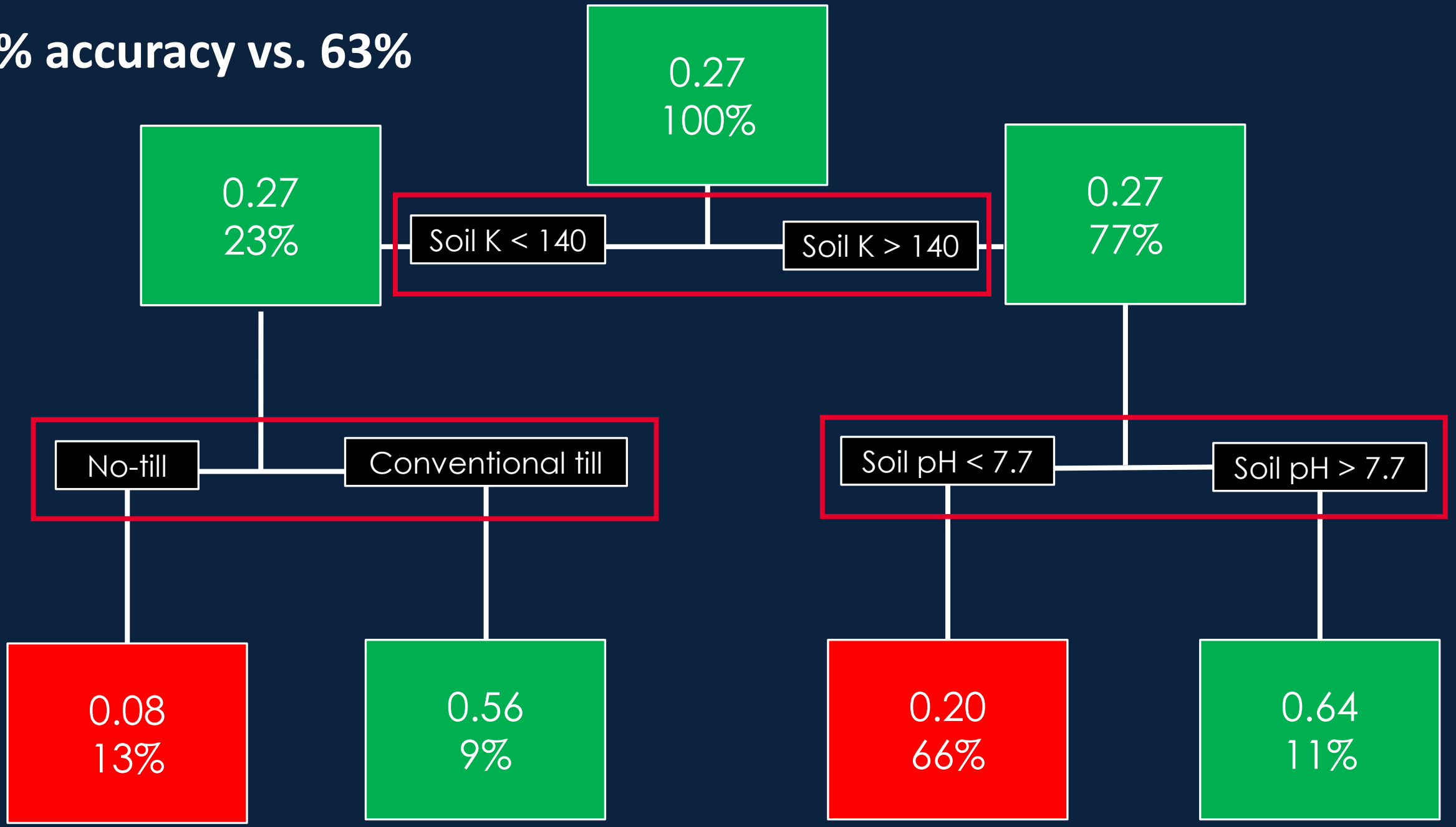


Categorization accuracy of full dataset: 53-63%



Improve response predictions with other soil information???

77% accuracy vs. 63%



Accuracy of yield response to K prediction:

- Soil Test K: **63%**

What about adding other soil tests to the equation?

- Soil Test K + Soil pH + Tillage: **77%**

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