Preferred K Placement Choices for Corn in High Yield and Conservation Tillage Systems?

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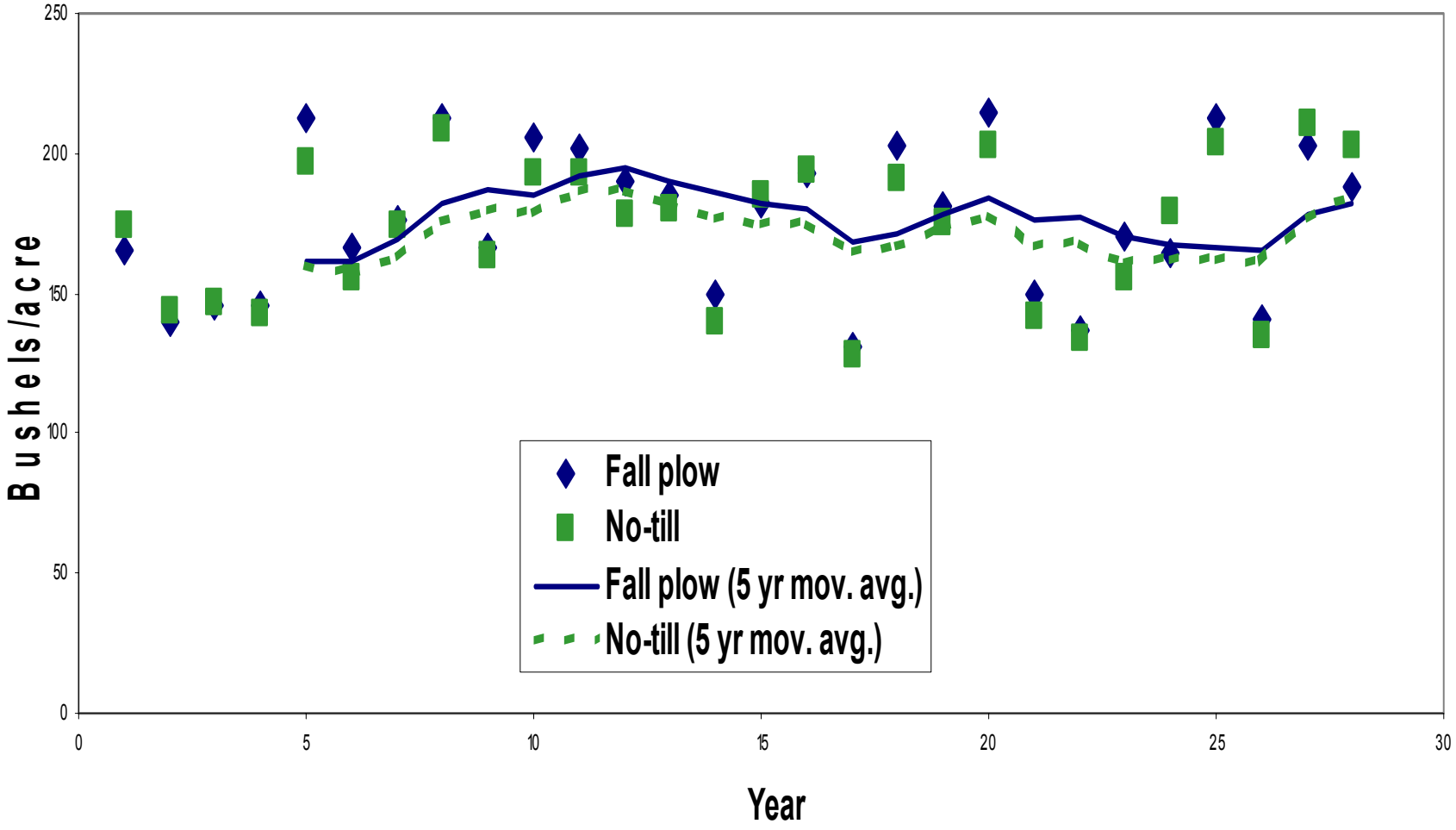
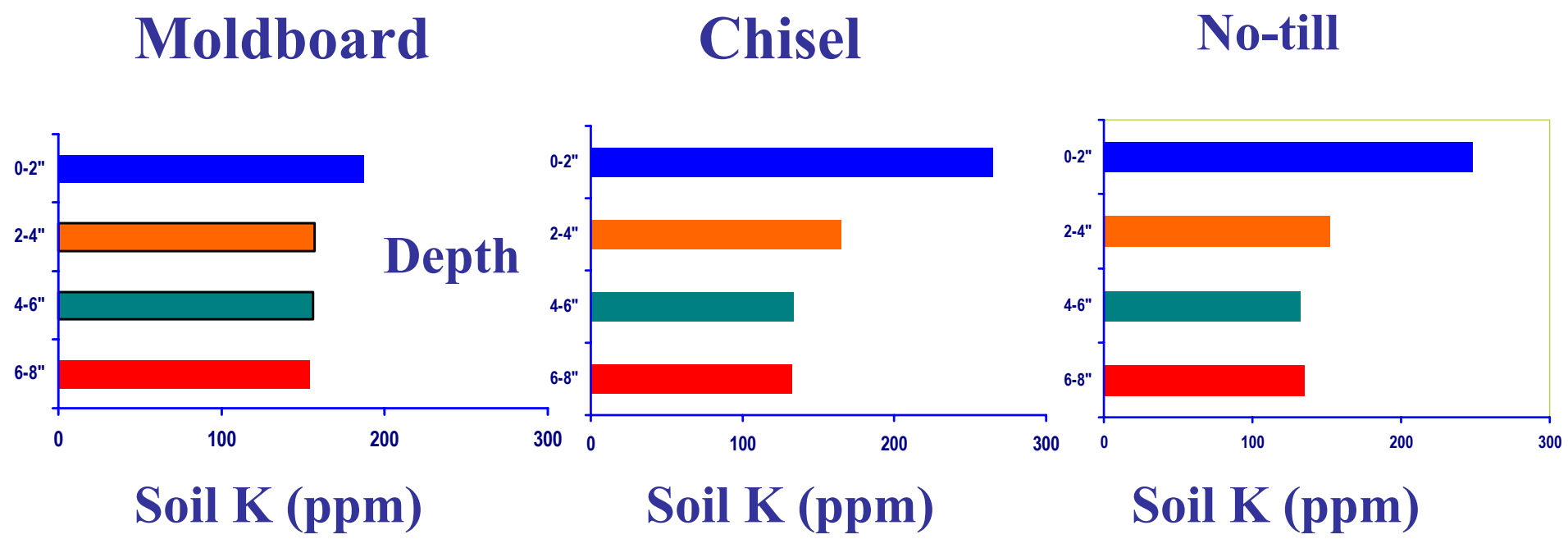
Corn Yields after Soybean (1975-02)



Potassium Stratification

Long-Term Tillage (IN, 1975-94)



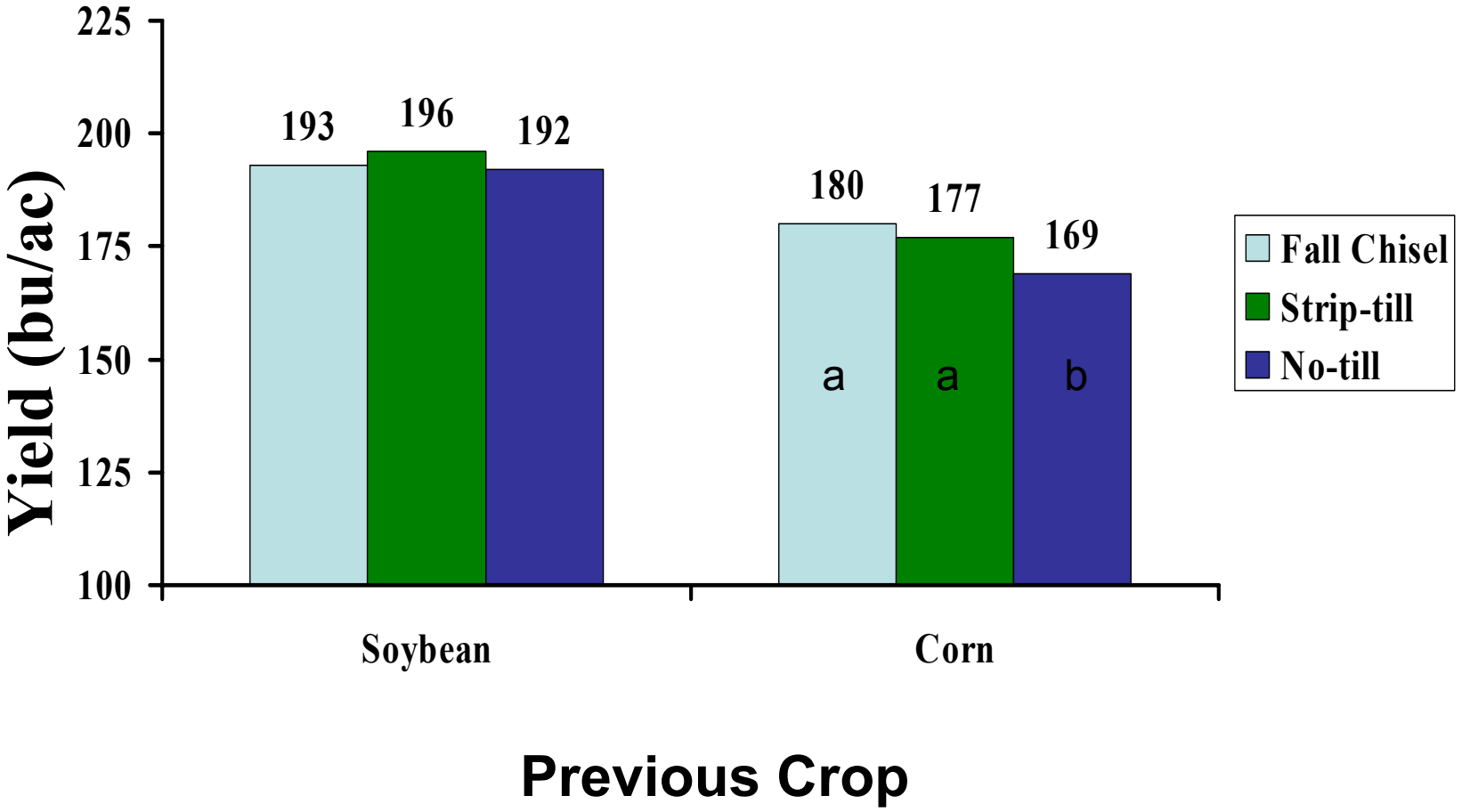
Source: Holanda et al. (1998)

Conservation Tillage Doesn't Alter K distribution appreciably

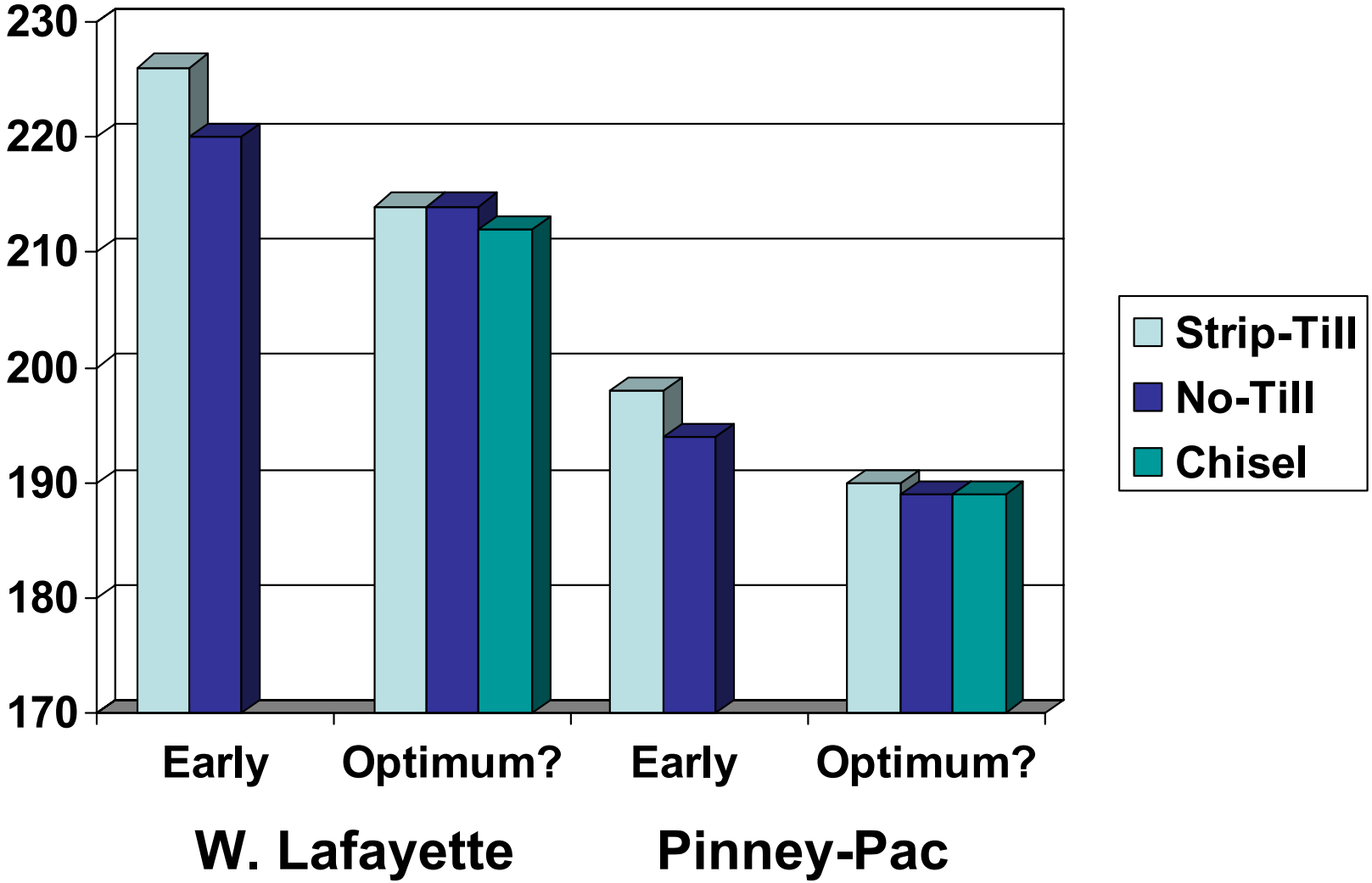
Strip Tillage with Fertilizer Banding

1. Does K placement Matter?
2. Implications for Management?

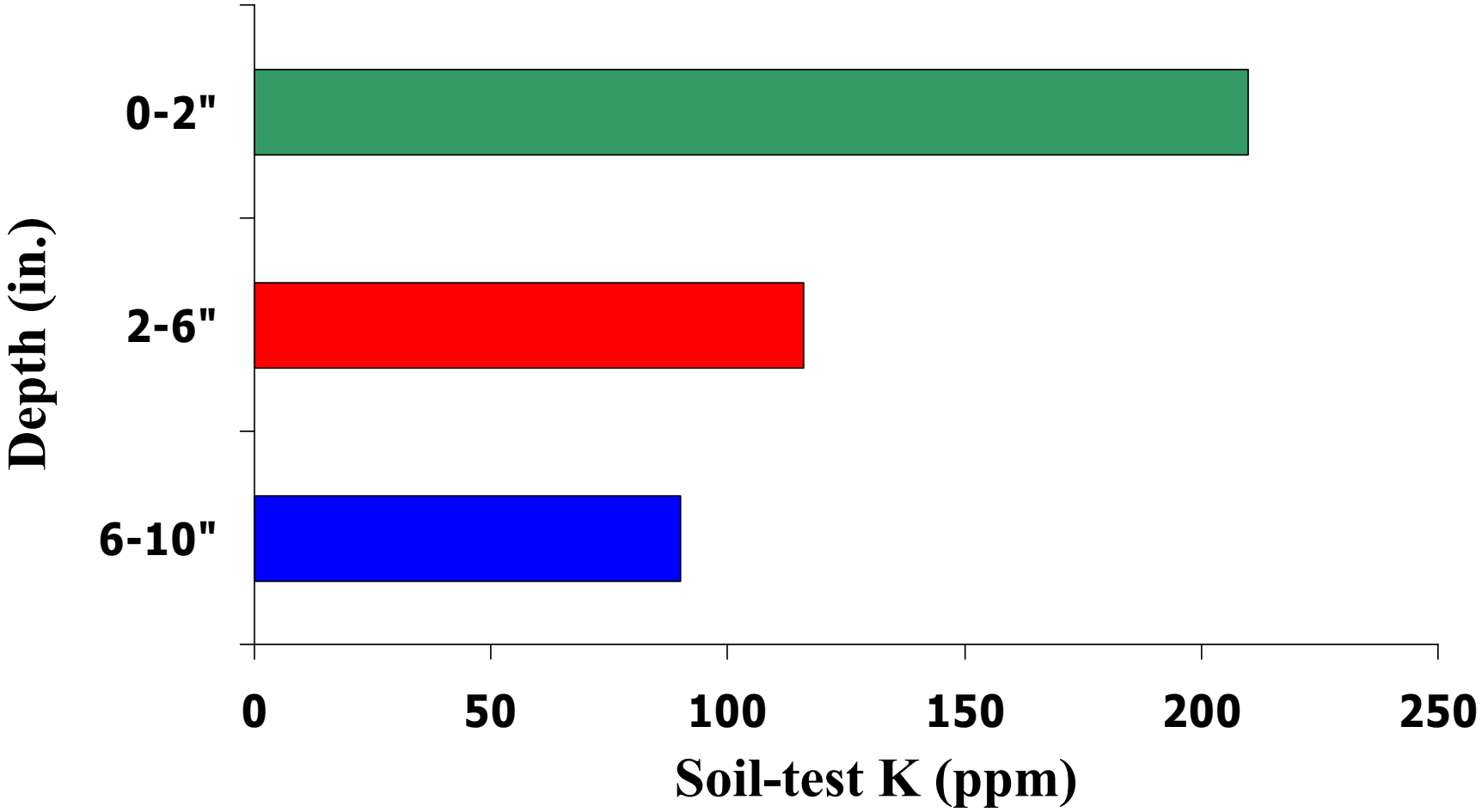
Strip Tillage for Corn in N. Indiana, Loam (2001-03)



Planting Date Effects in 2003

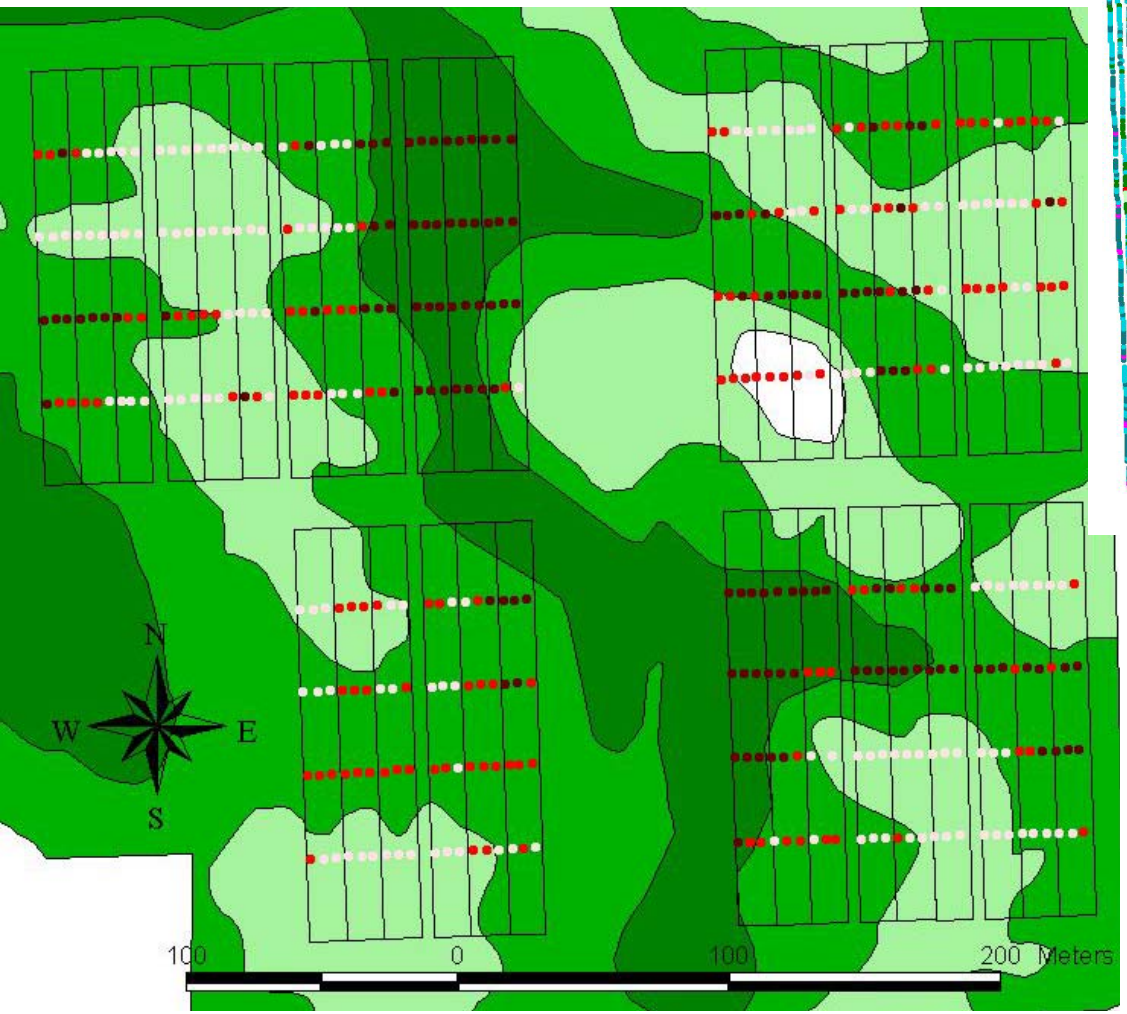


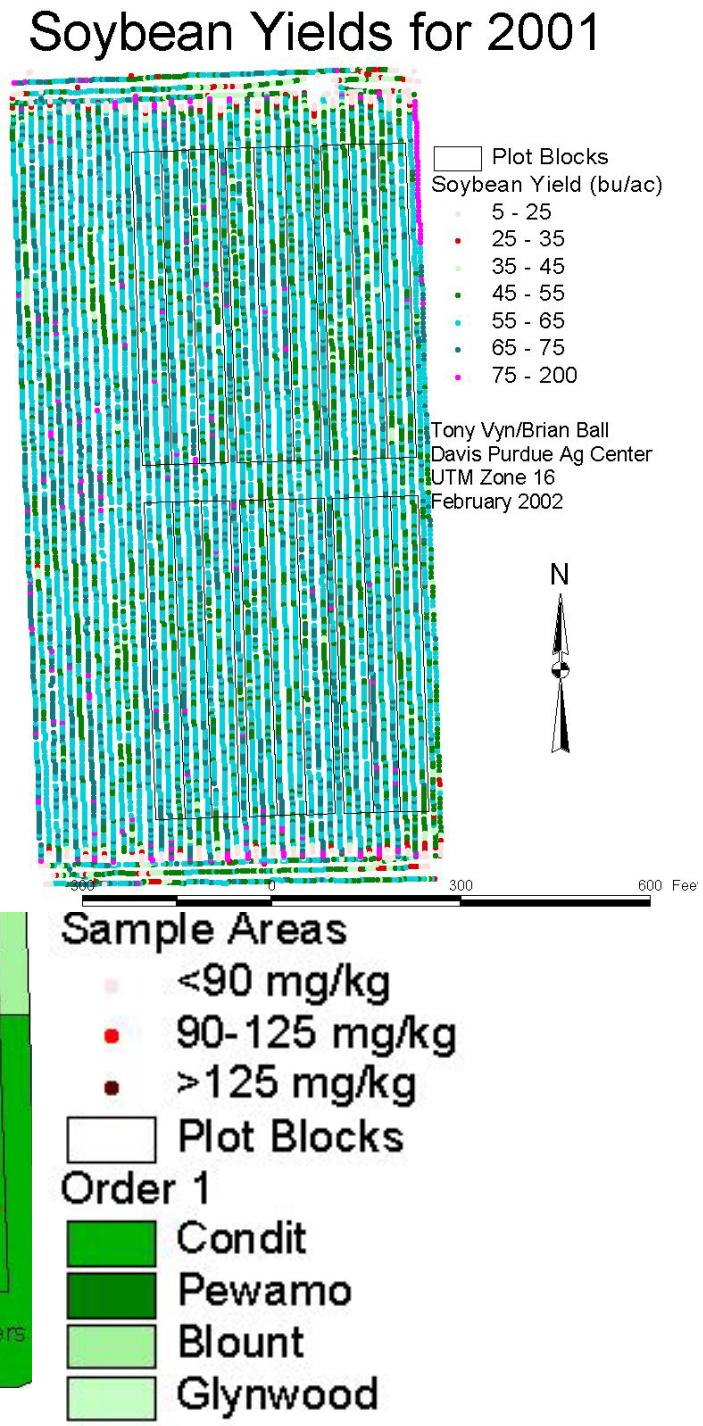
Mean Soil-test K Stratification at Davis-PAC



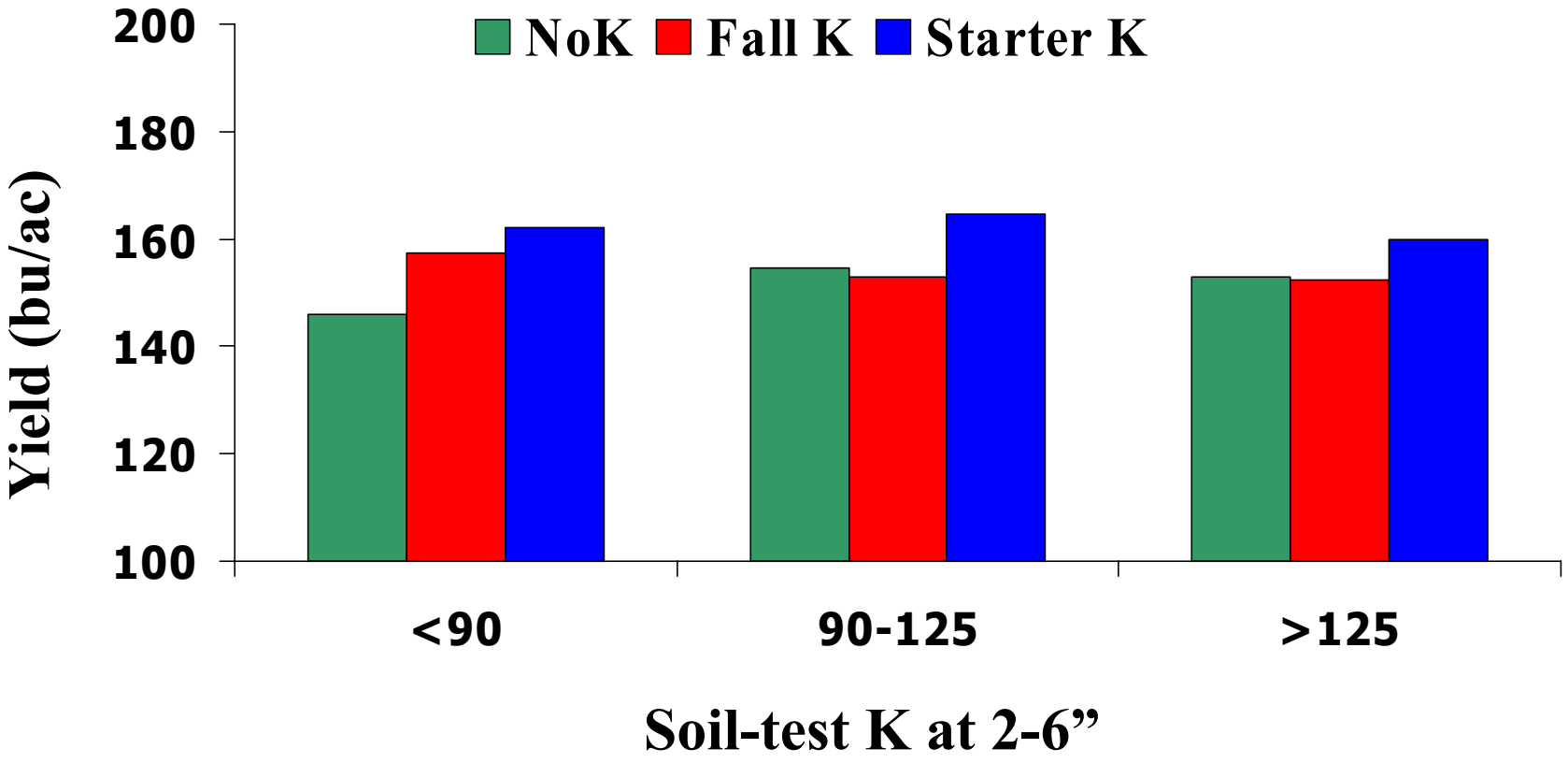
Source: Vyn et al., Better Crops #4, 2002

Placement in presence of high soil K variability?





High oil corn yields in response to K placement (Davis-PAC 2000-01)



Source: Vyn et al., Better Crops #4, 2002

No-till Soybean Height Differences at Davis PAC in 2003

No K (2000-2002)

Broadcast plus Starter K (2000,2002

Impact of K Banding Depth in Corn?

High Yield Corn Response to Placement

Hybrids: 1. Pioneer 34B24
2. Pioneer 34M95

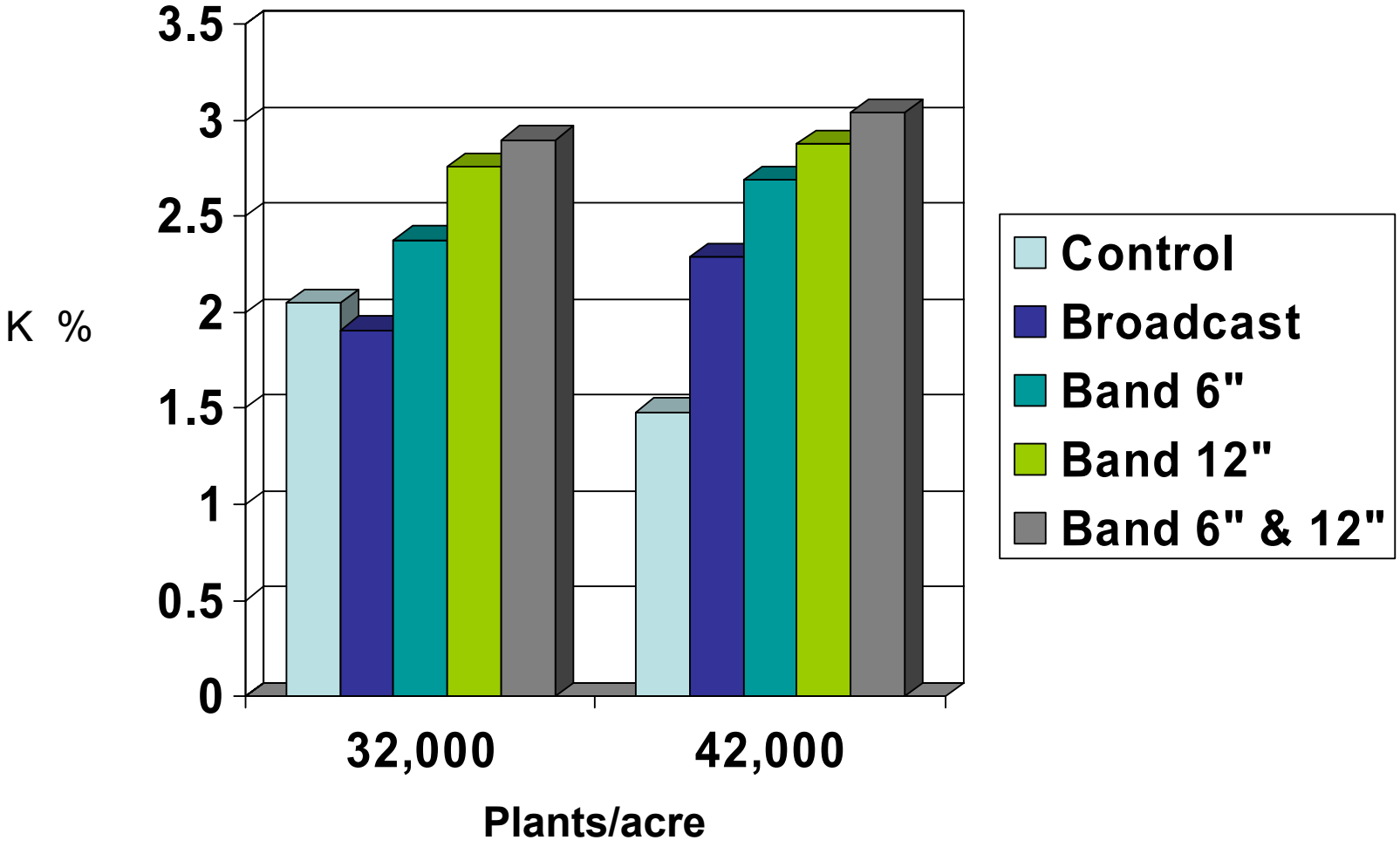
Populations: 1. 32,000
2. 42,000

P&K Fertilizer Placements:

1. Control
2. Broadcast
3. Shallow Band (6”)
4. Deep Band (12”)
5. Shallow + Deep (6 and 12”)

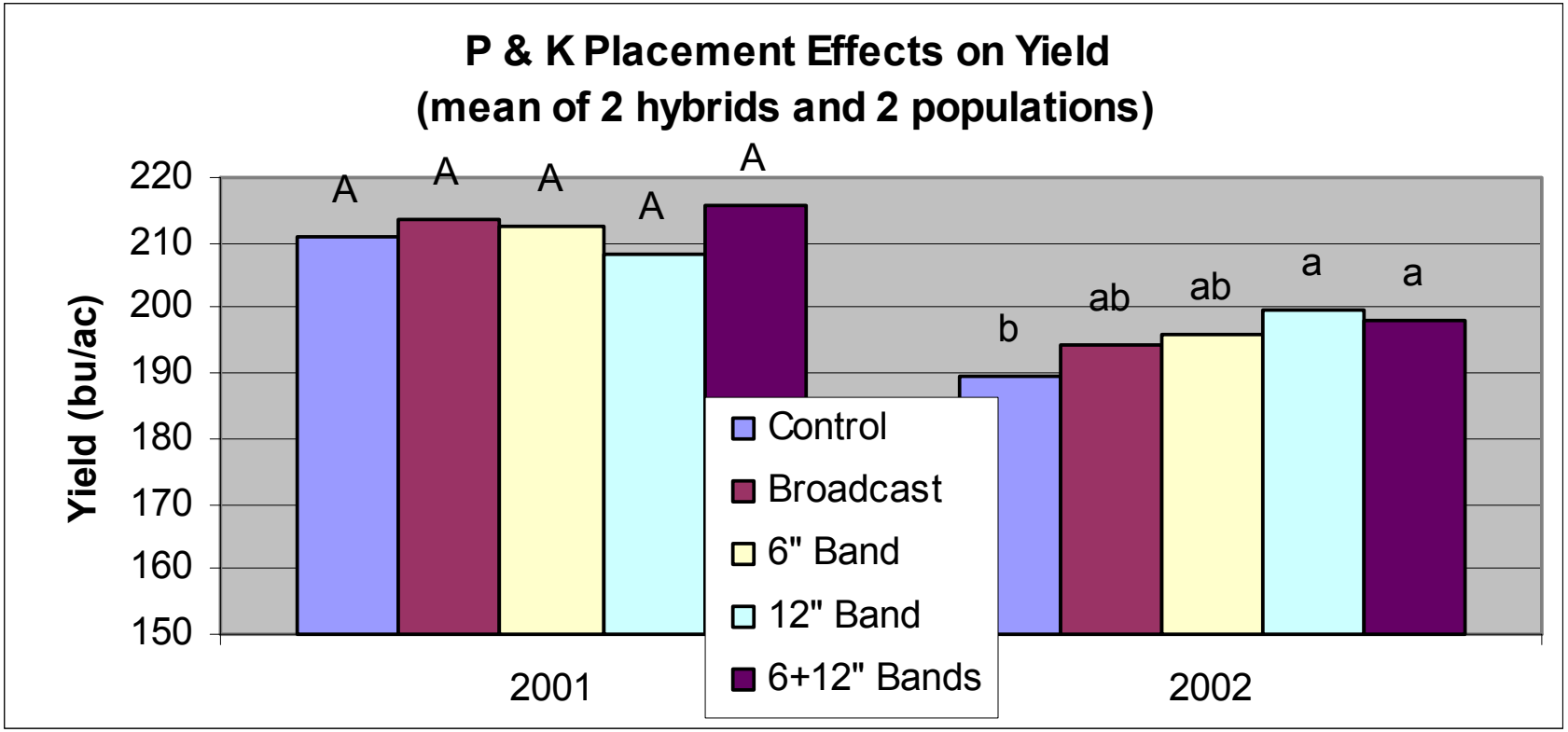
Sponsor: PPI-FAR 2001-2003

Placement Effects on Leaf K %
Pion. 34M95 in 2003

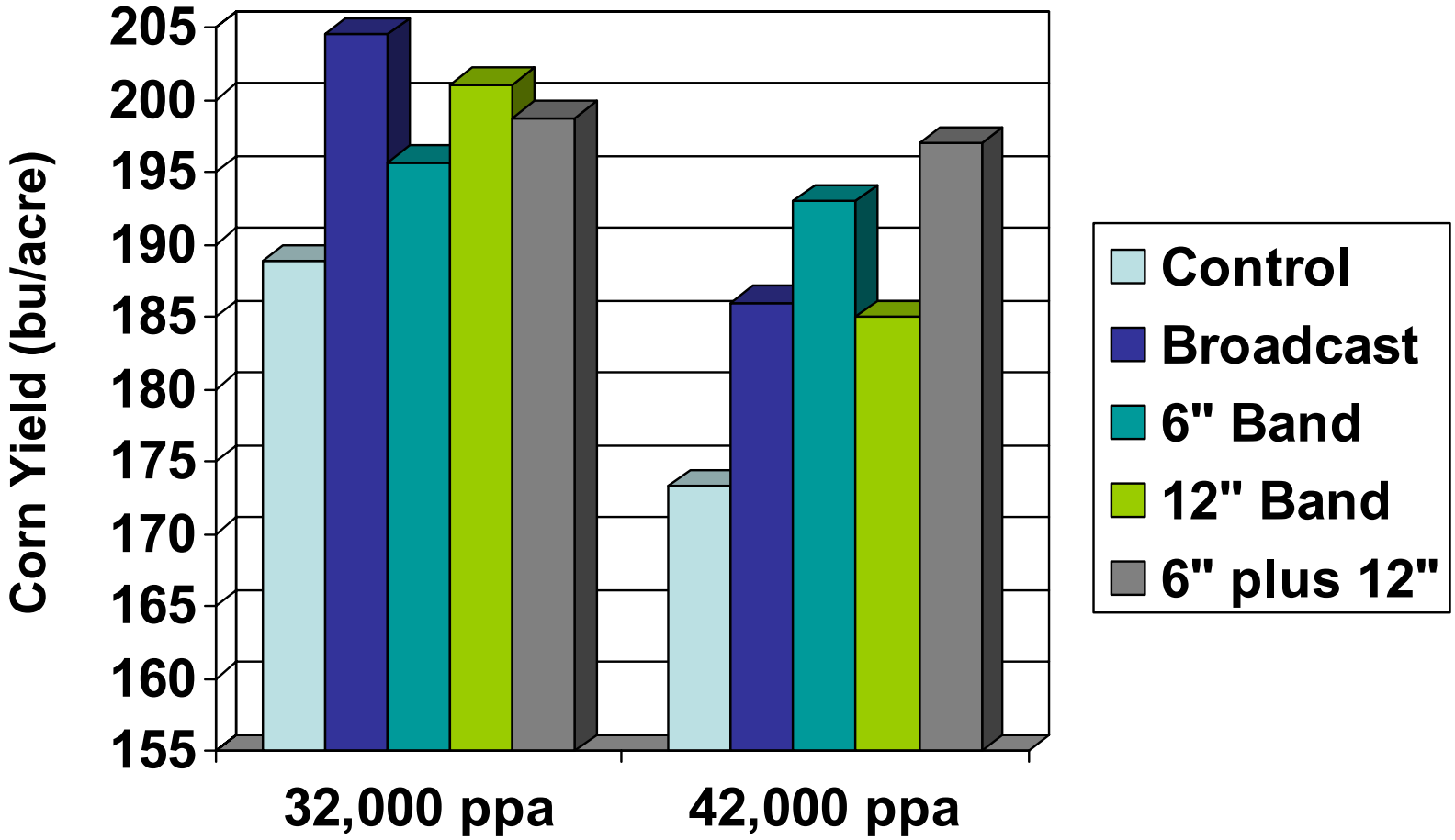


Yield Evaluation

Yield Responses to Placement in 2001-2002

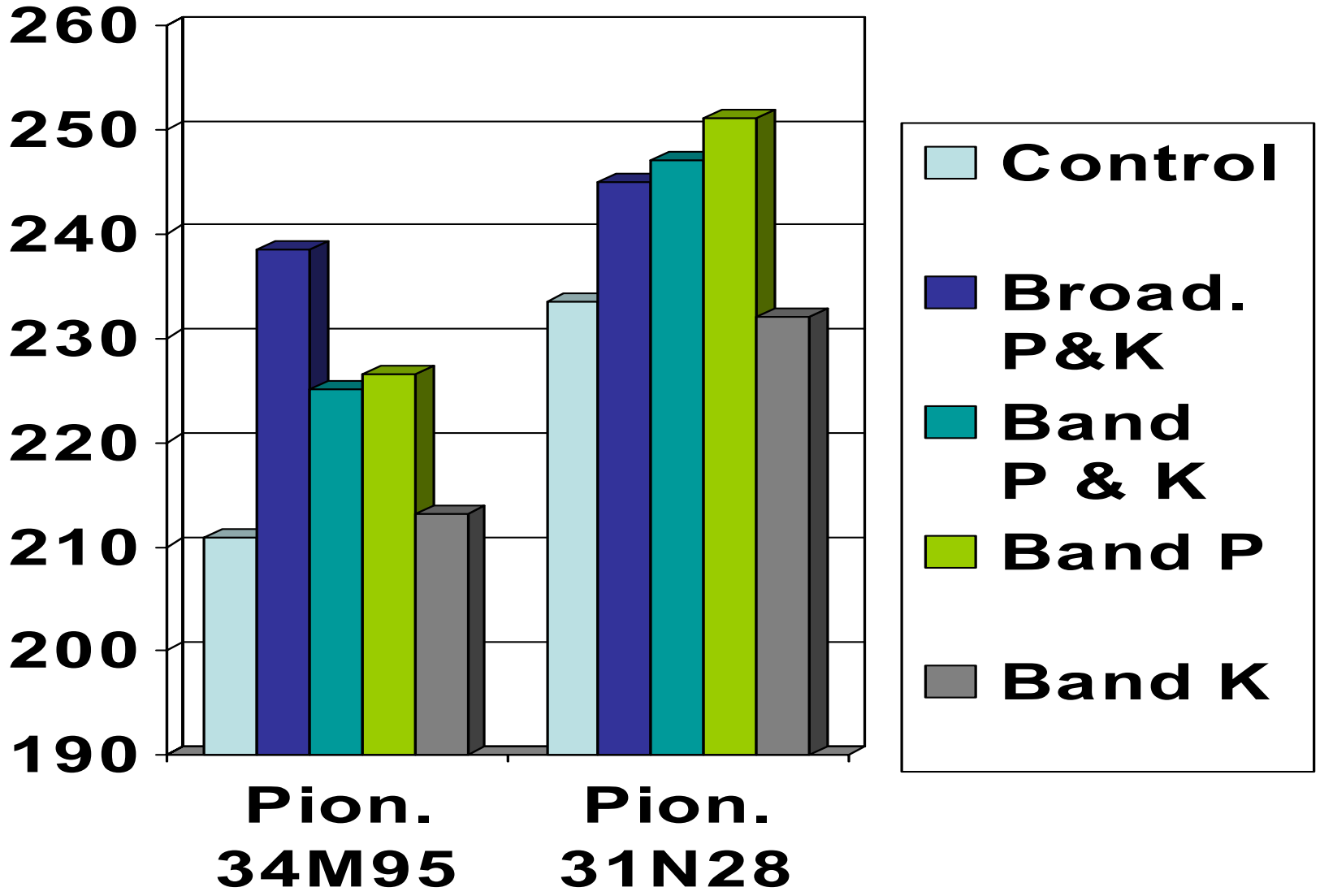


Corn Yield Response of Pion. 34M95 to Alternate P plus K Placements in 2003



Consistency of Resource Availability in High Population Environments ?

6-7” Placement Effects in 2003



USB-FAR Projects in 2003

<u>Split-split plot Treatments:</u>

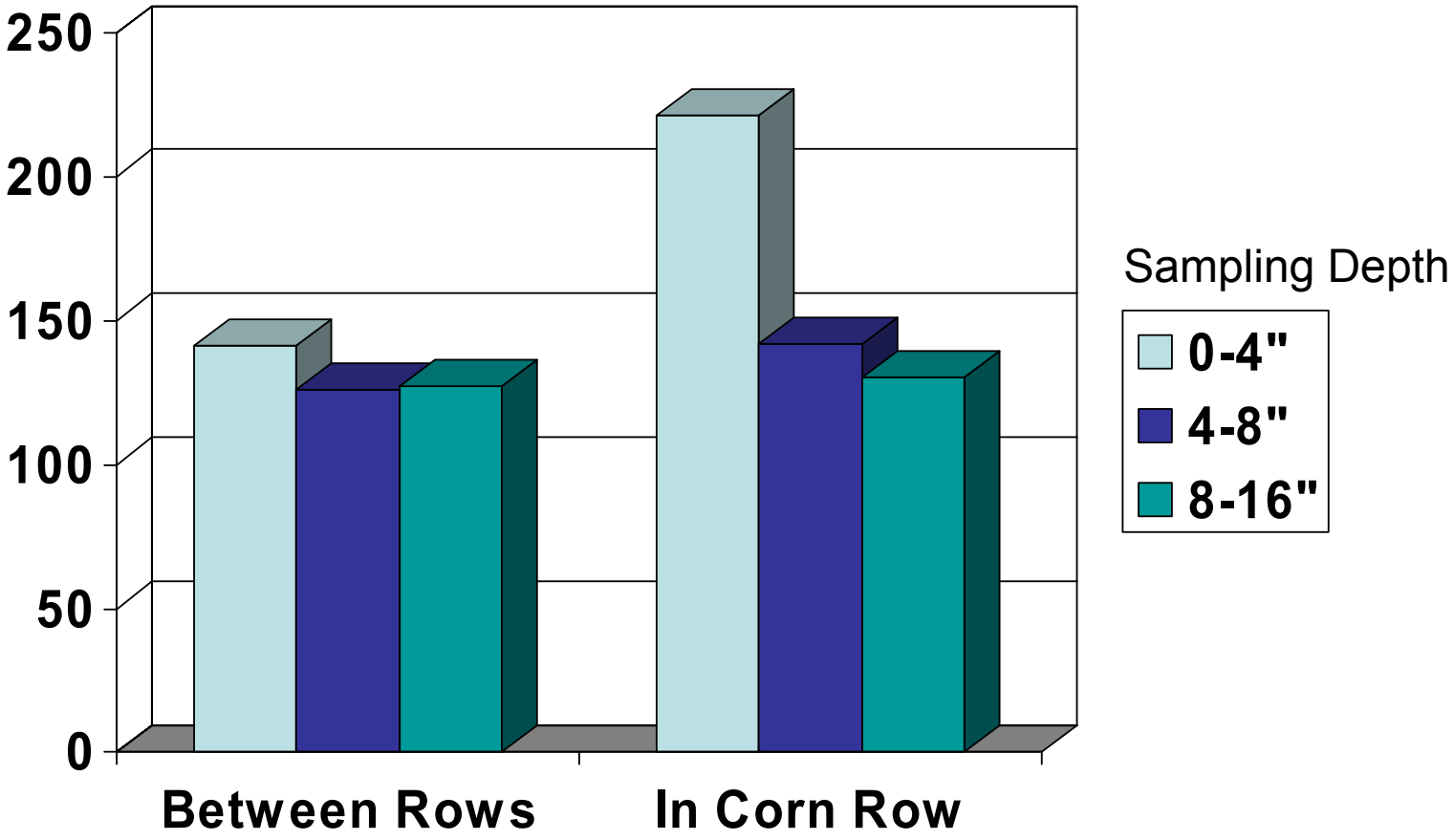
Prior Corn Hybrids (2)

Prior Fertility:
1. Control
2. Broadcast P and K
3. Band P and K (6”)
4. Band P alone
5. Band K alone

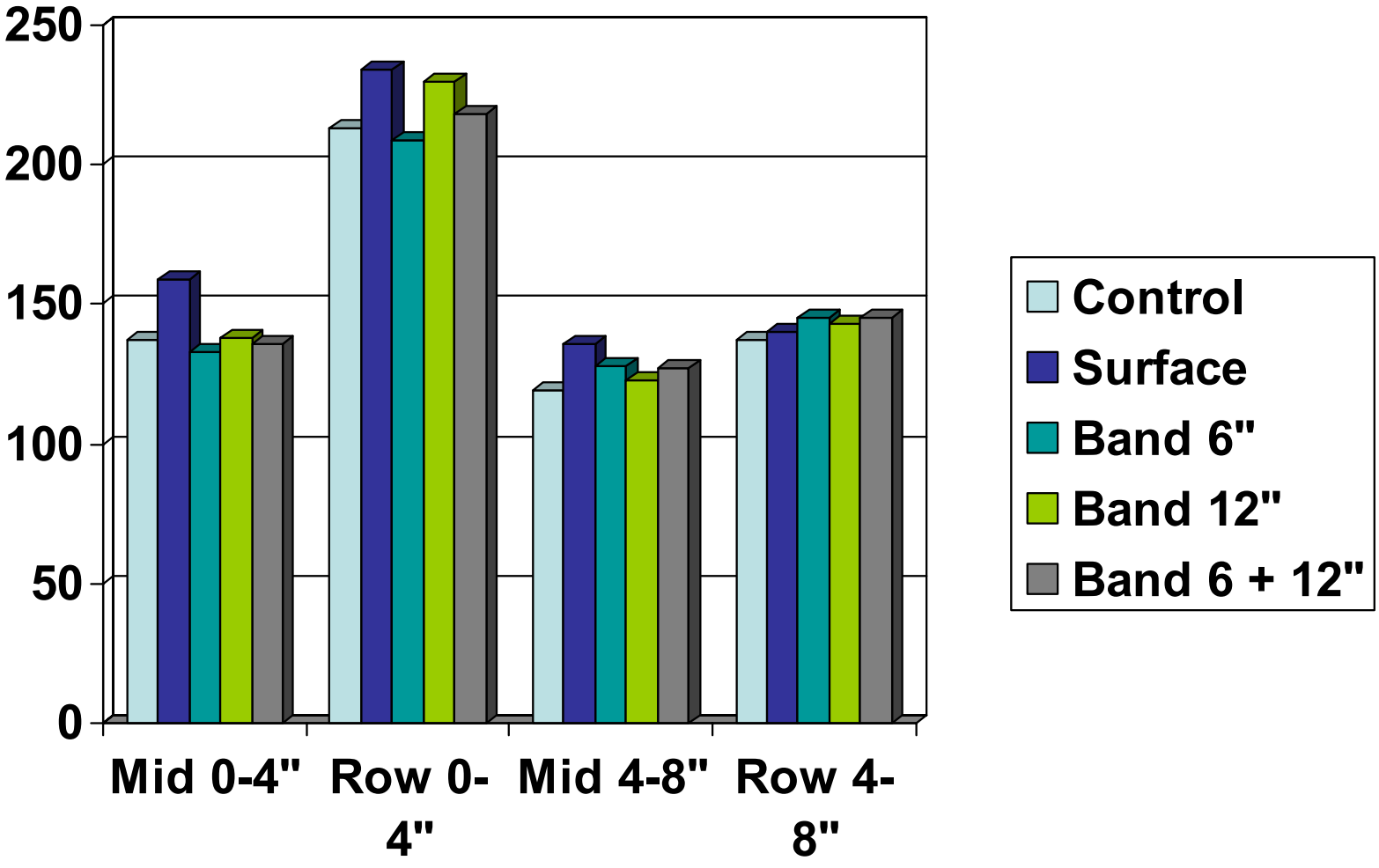
Potassium in 2003:

1. **None**
2. **Broadcast**

Row position effects on Exch. K ppm High Yield Corn Plots, 2002



Row Position Effects on Soil K



Conclusions

1. Strip tillage has numerous advantages for corn producers.

2. Banding of K has possible advantages in stratified soils, dry summers, and in high yield situations.

3. Banded K may be more beneficial with certain hybrids and environments (high populations)

4. More research required on rates, mixtures, and impact on no-till soybean..

Thanks!

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Case

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