Variety/hybrid and location effects on soybean tissue and corn grain nutrient composition

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Effect of 8 corn hybrids on grain and silage nutrient content at Arlington ARS

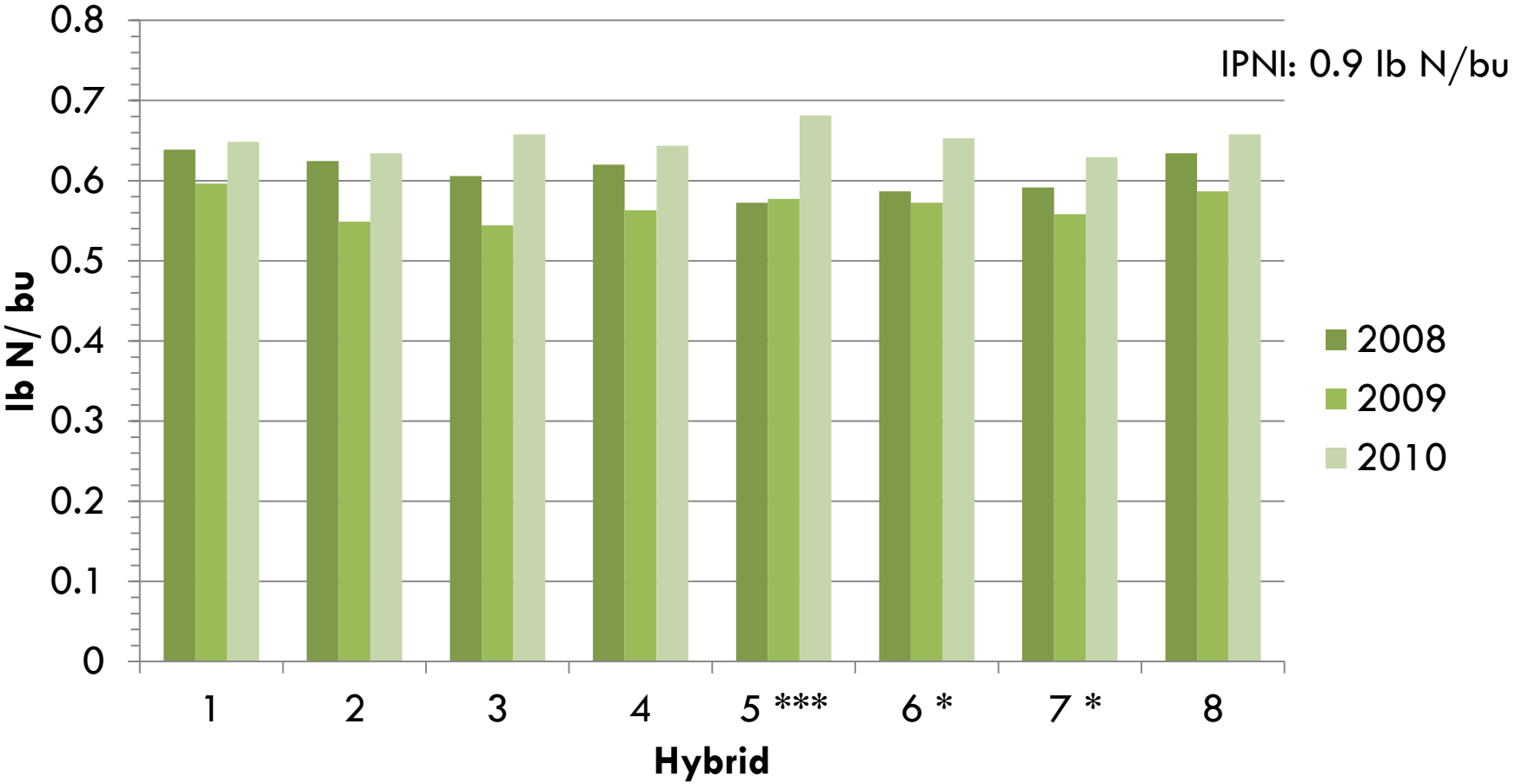
Plot details

- Sampled in N x Hybrid study
- Plano silt loam
- Soil test levels

Soil Test	2008	2009	2010
P, ppm	107 (EH)	33 (EH)	91 (EH)
K, ppm	347 (EH)	163 (VH)	146 (H)
pH	7.1	6.9	7.1
OM, %	4.1	3.2	3.5
PPNT, lb N/a	69 (19 credit)	12 (0 credit)	37 (0 credit)

- 160 lb N/a was applied as UAN after emergence

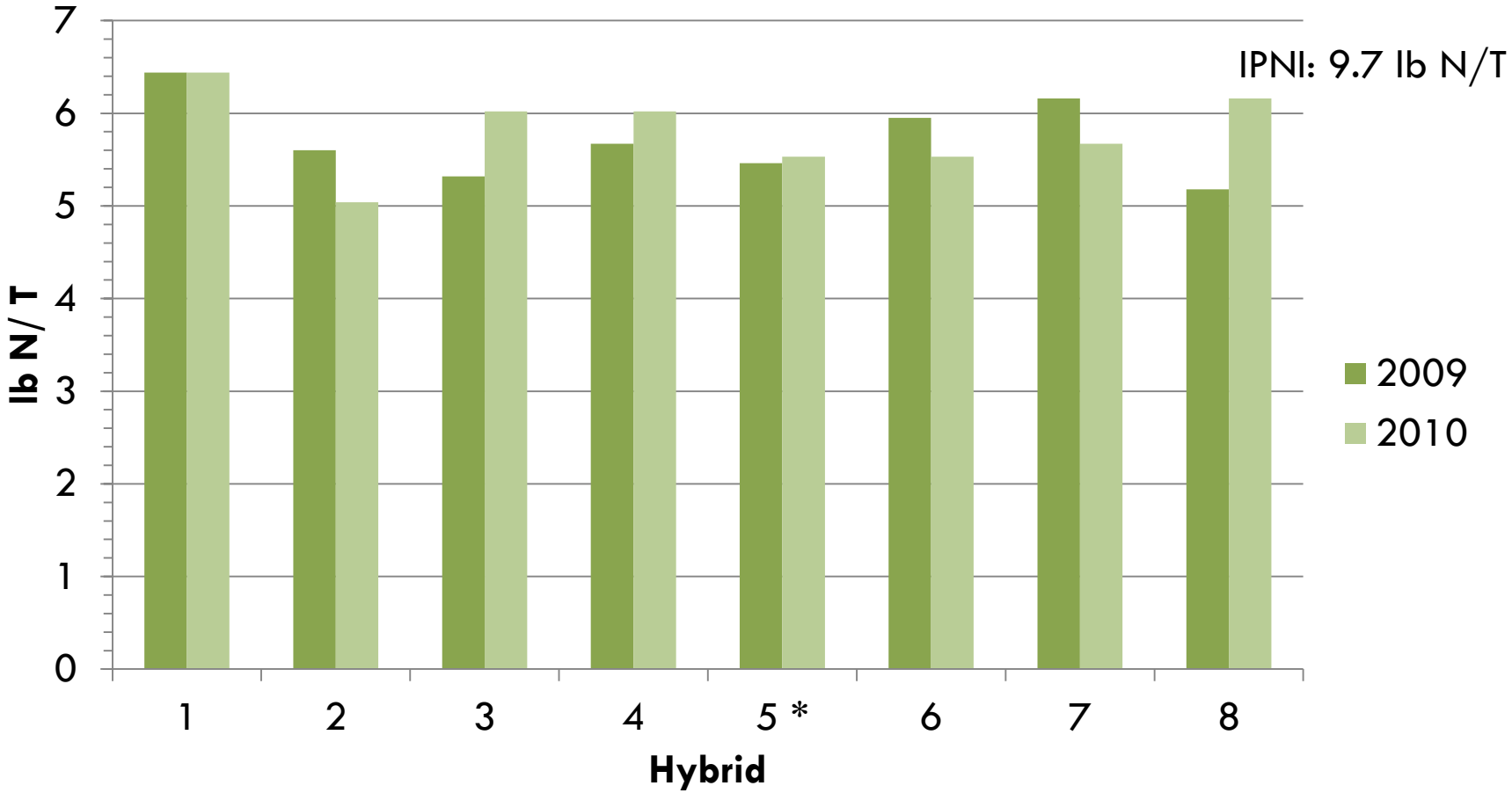
Effect of corn hybrid on GRAIN N content at Arlington ARS



* 2008 was a different hybrid than 2009 & 2010

*** 2010 was a different hybrid than 2008 & 2009

Effect of corn hybrid on SILAGE N content at Arlington ARS



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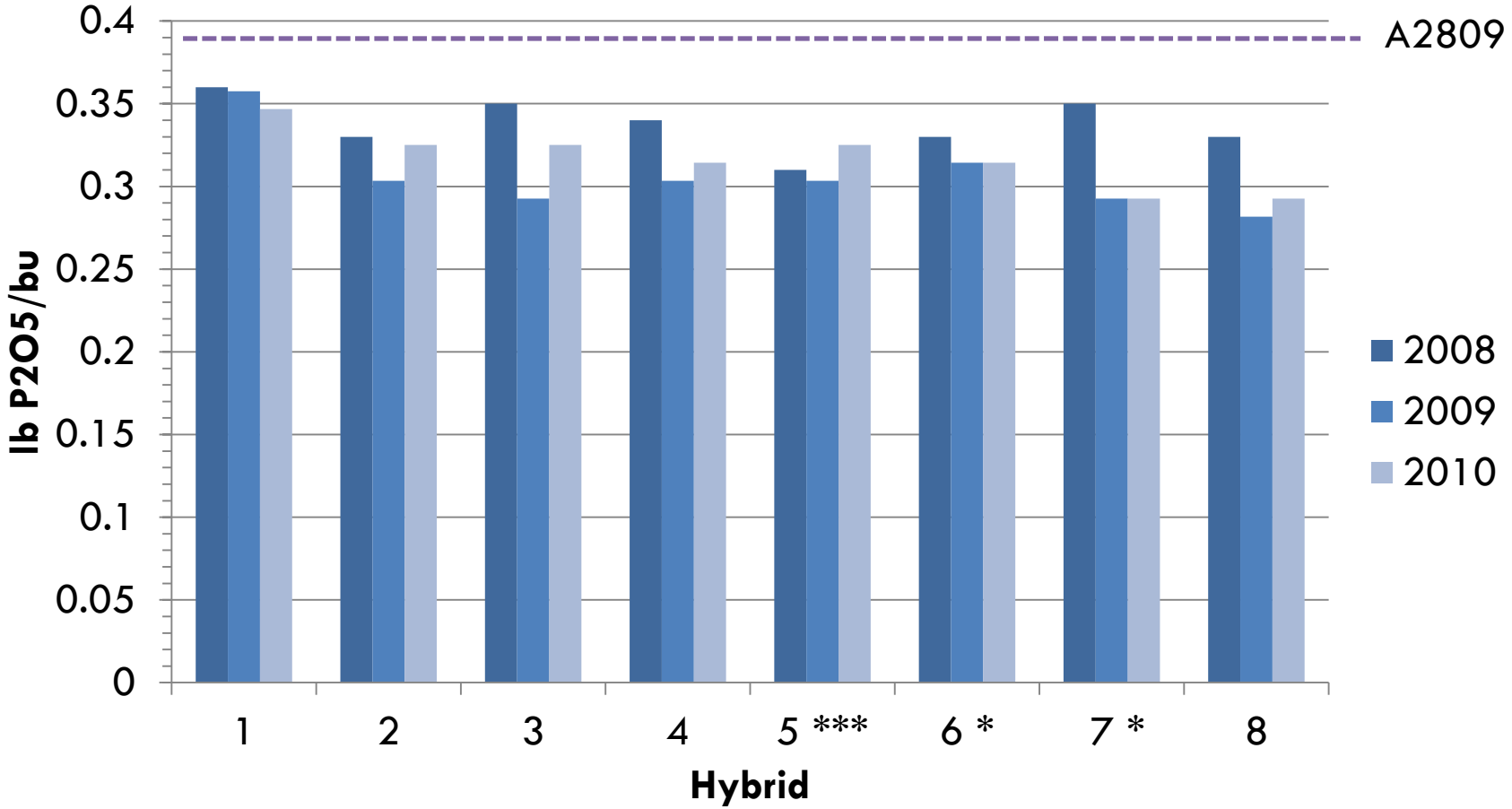
Effect of corn hybrid on GRAIN P_2O_5 content at Arlington ARS



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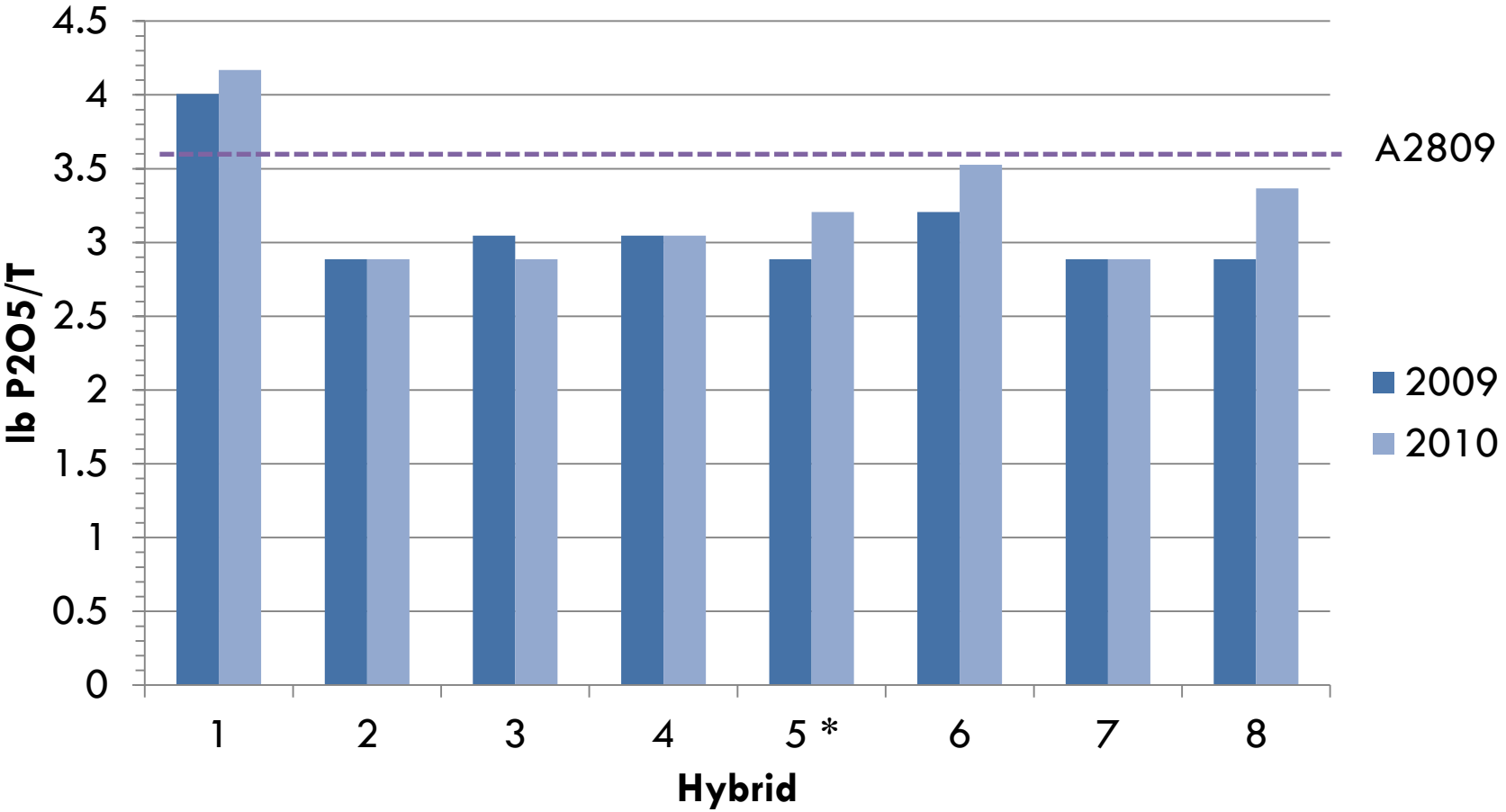

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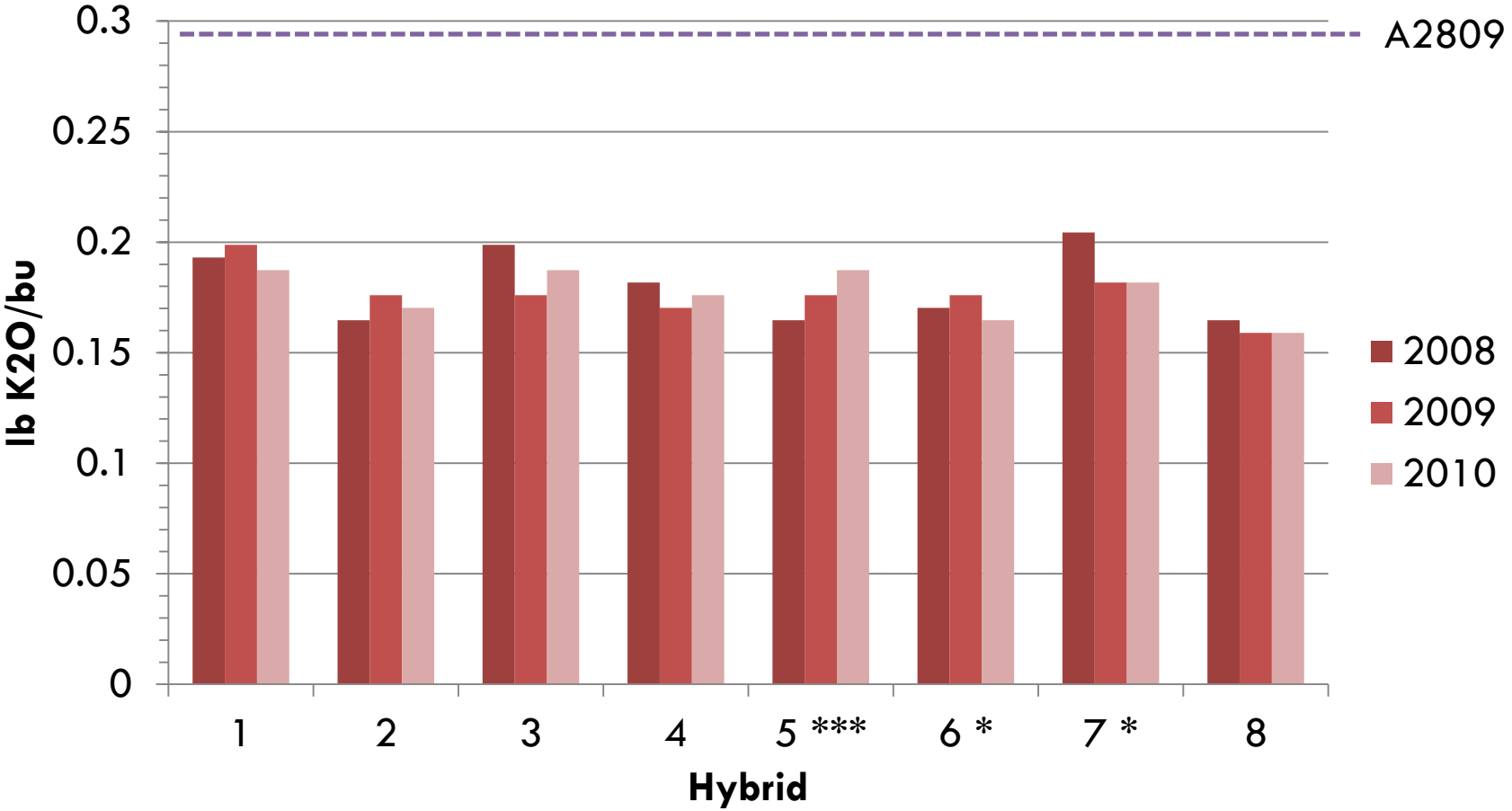
Effect of corn hybrid on GRAIN K_2O content at Arlington ARS



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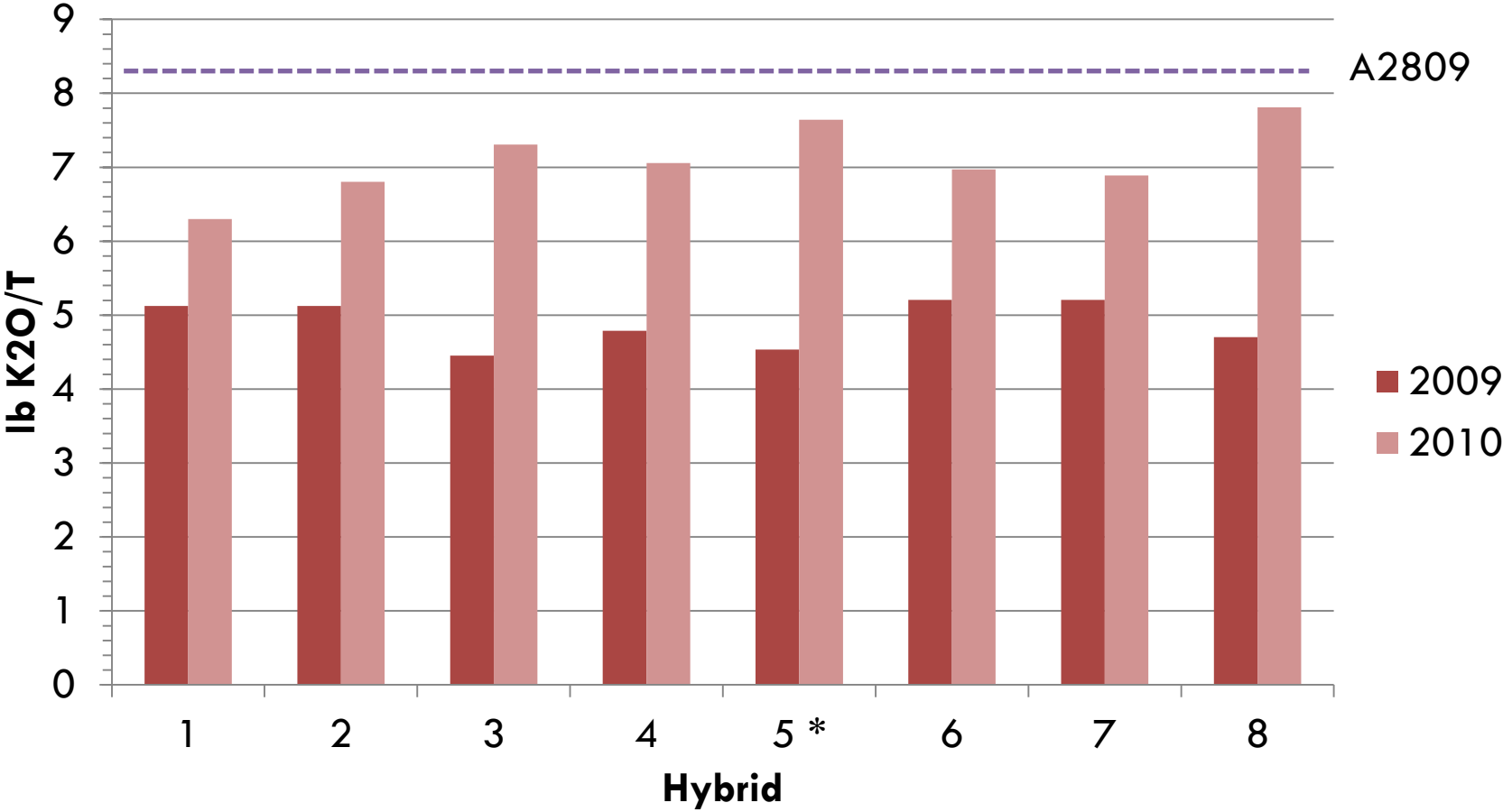

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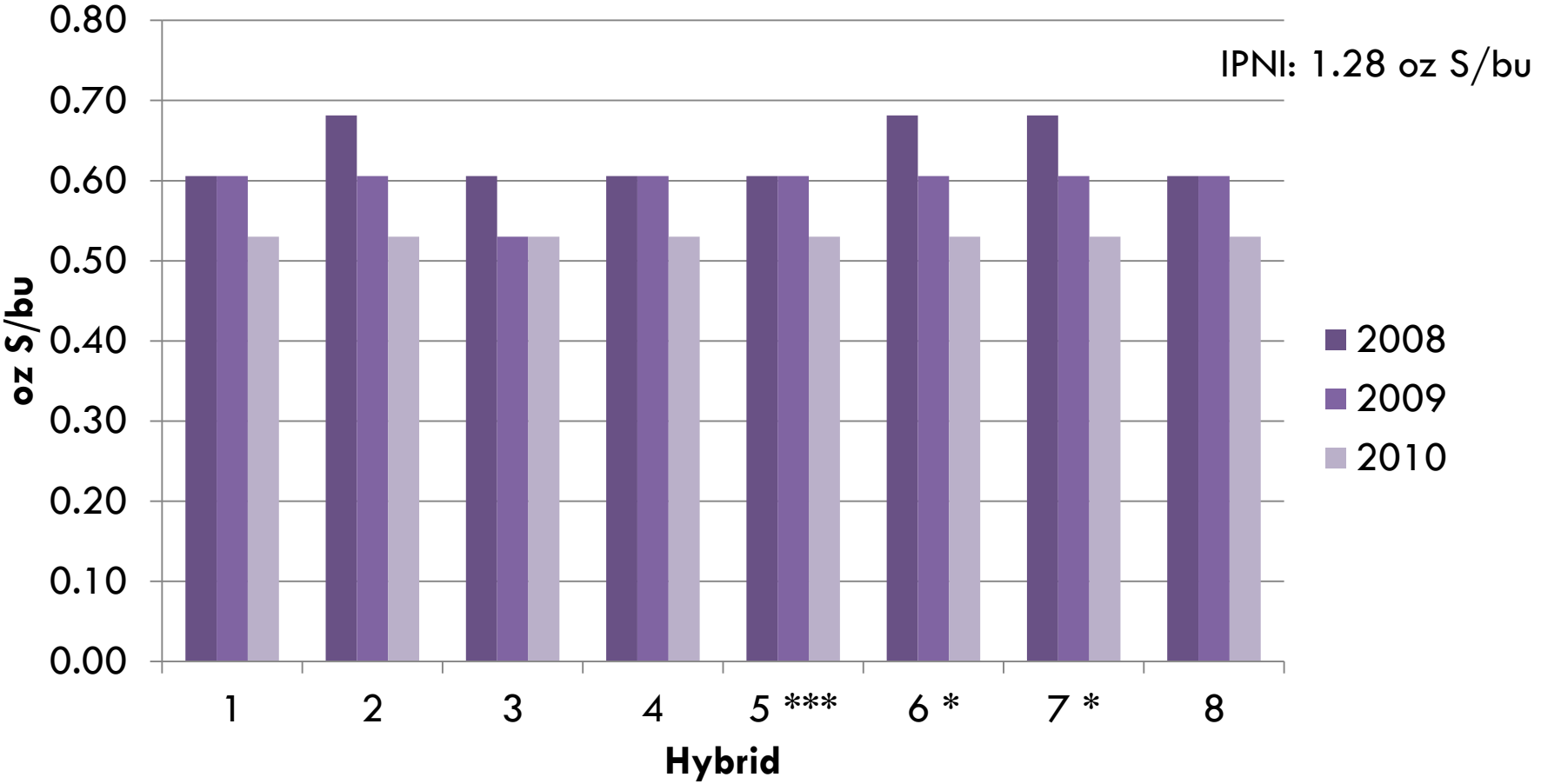
Effect of corn hybrid on GRAIN S content at Arlington ARS



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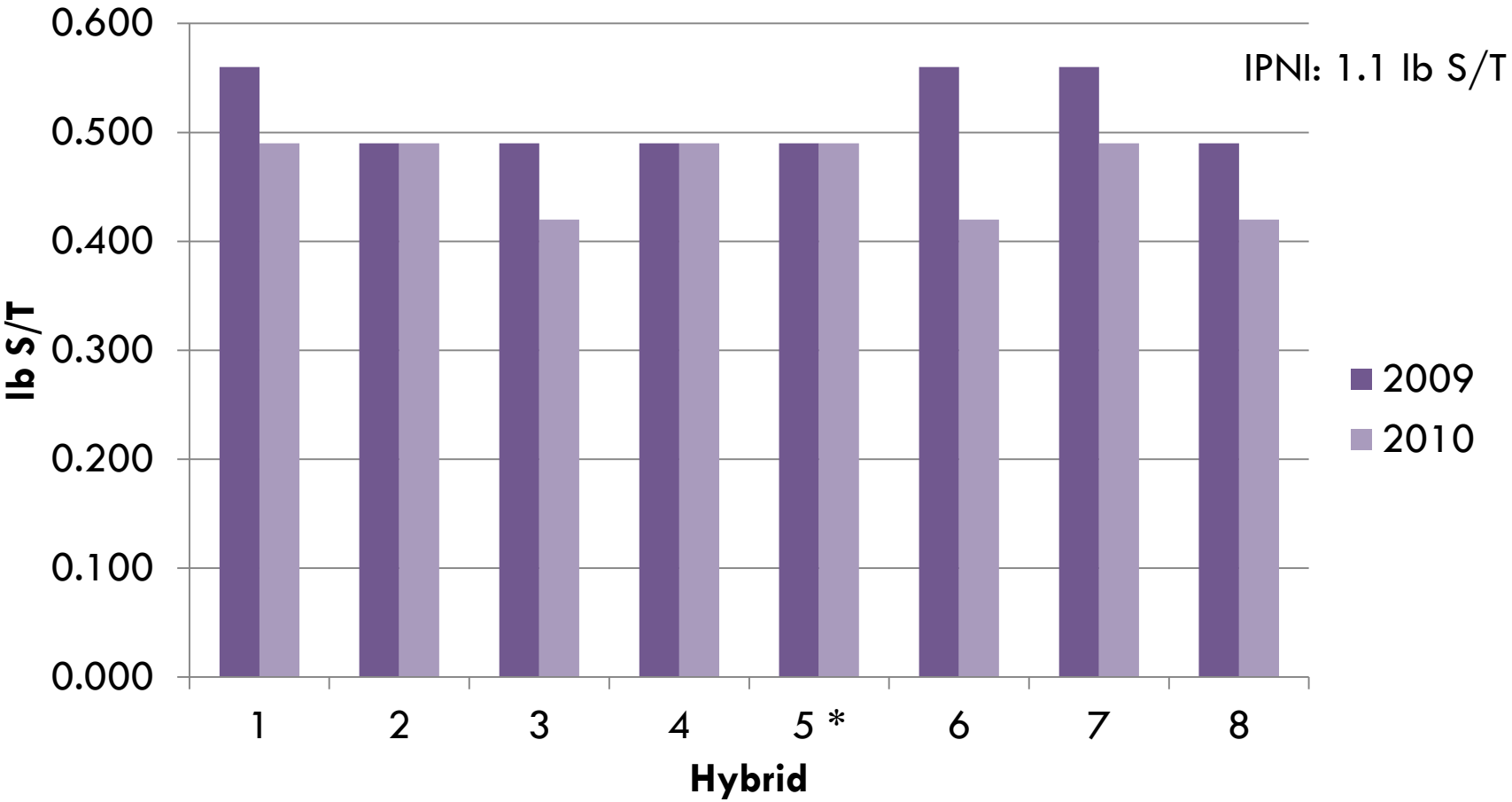

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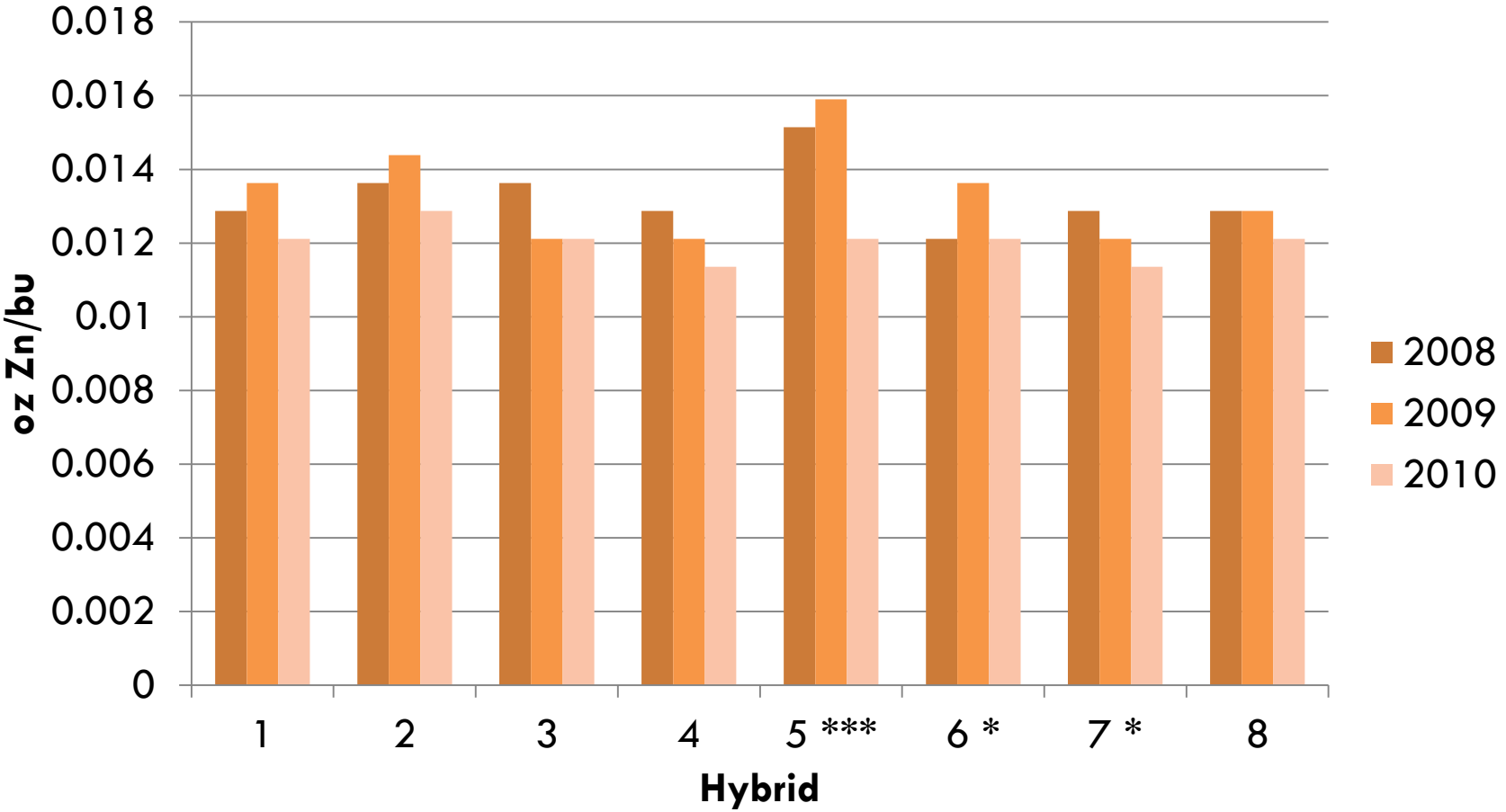
Effect of corn hybrid on GRAIN Zn content at Arlington ARS



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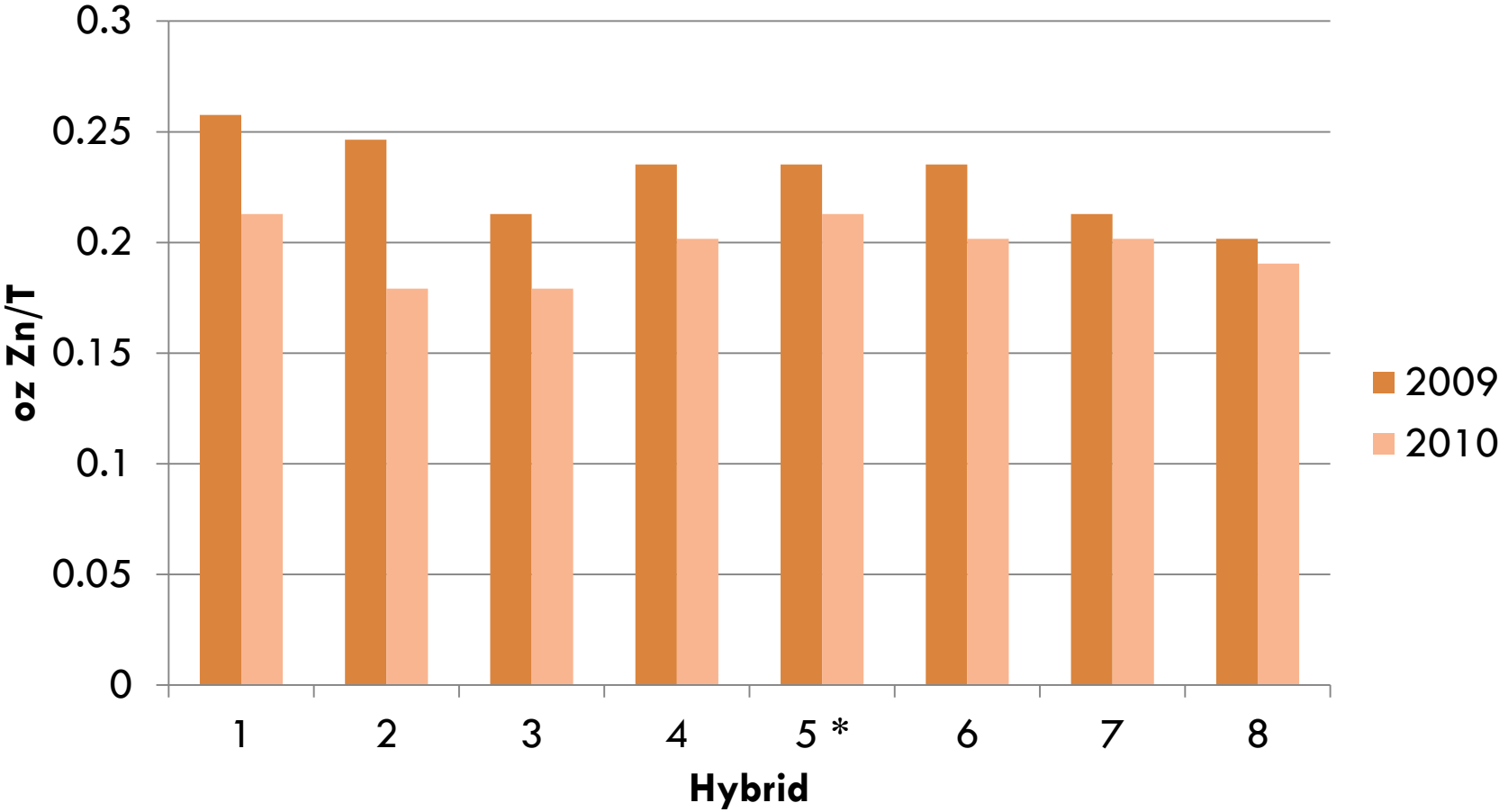
Effect of corn hybrid on SILAGE Zn content at Arlington ARS



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Conclusions

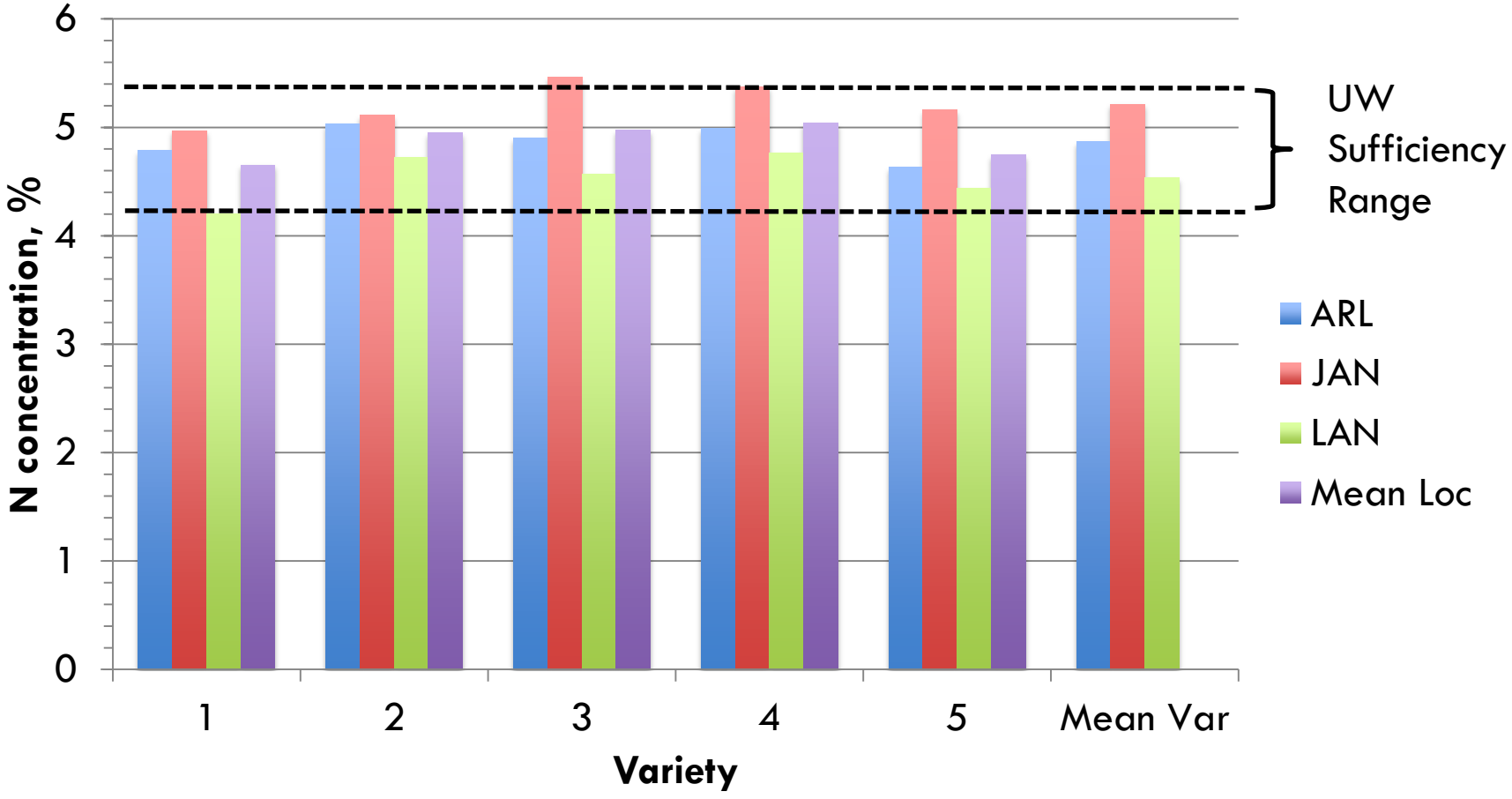
- Corn grain and silage nutrient removals vary by:
  - Hybrid
  - Year/environment
- Nutrient removals are often less than book values
  - Even though yield levels were generally very good

Effect soybean variety & location on R1 tissue nutrient concentrations

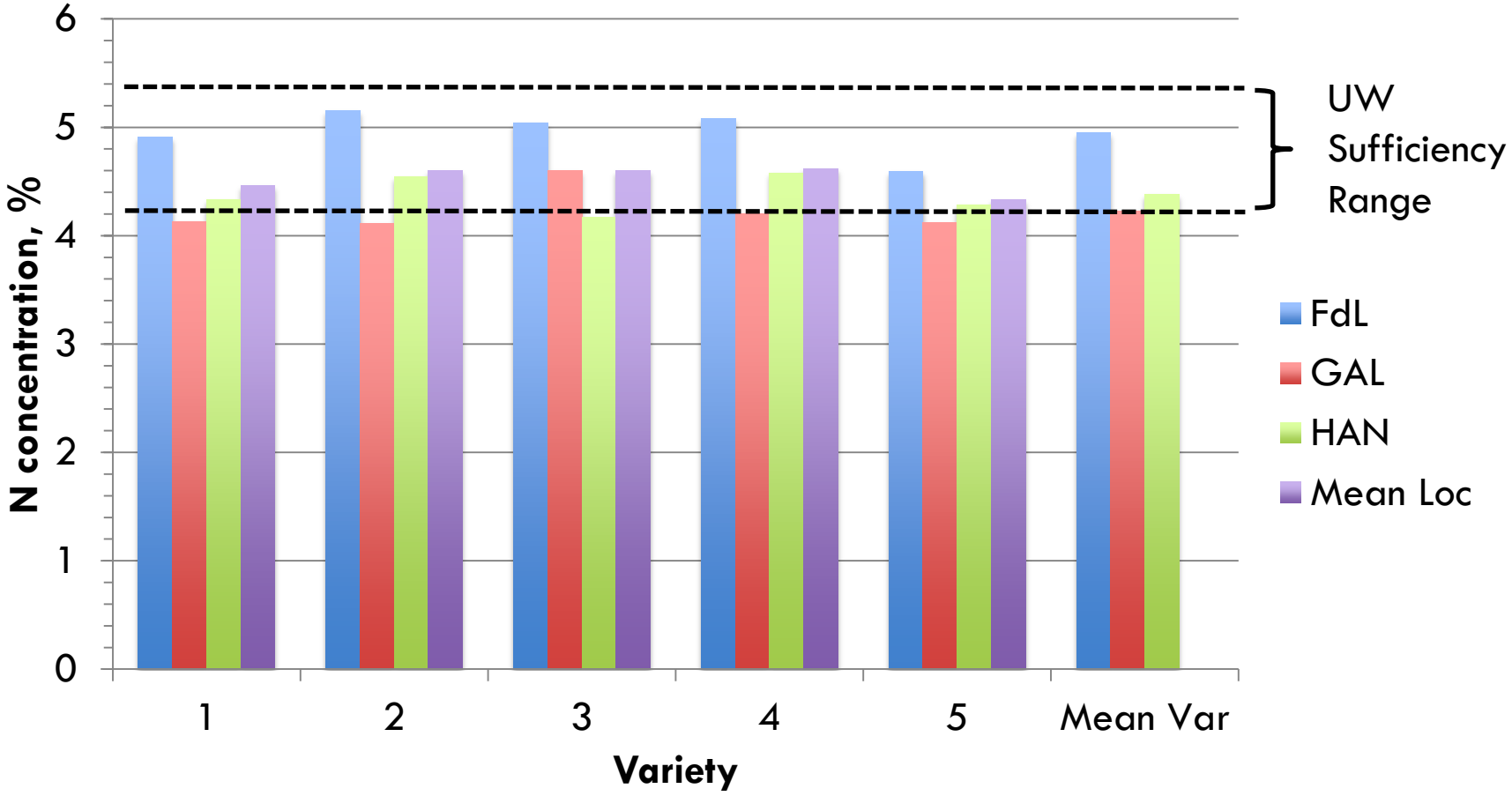
Sampling details

- Uppermost fully developed leaf at R1 sampled
- Sampled in Soybean Variety Trail Plots
  - Varieties sampled within a region are the same
  - Varieties were different between regions
- No visual deficiency symptoms
- Some maturity differences were evident
- Soil samples were also collected
  - Data not yet available

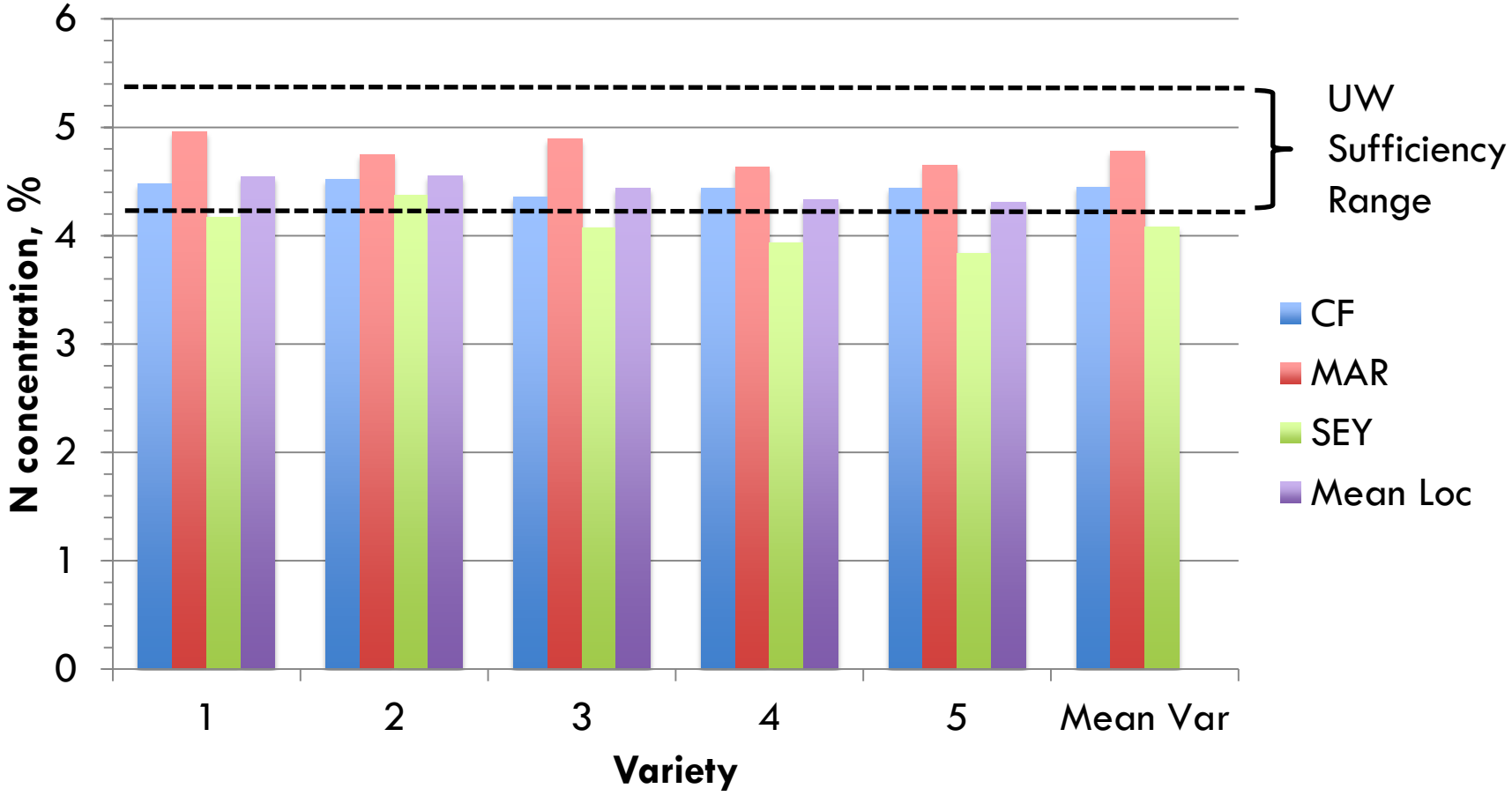
Effect of variety & location on soybean tissue N concentrations at R1, Southern WI



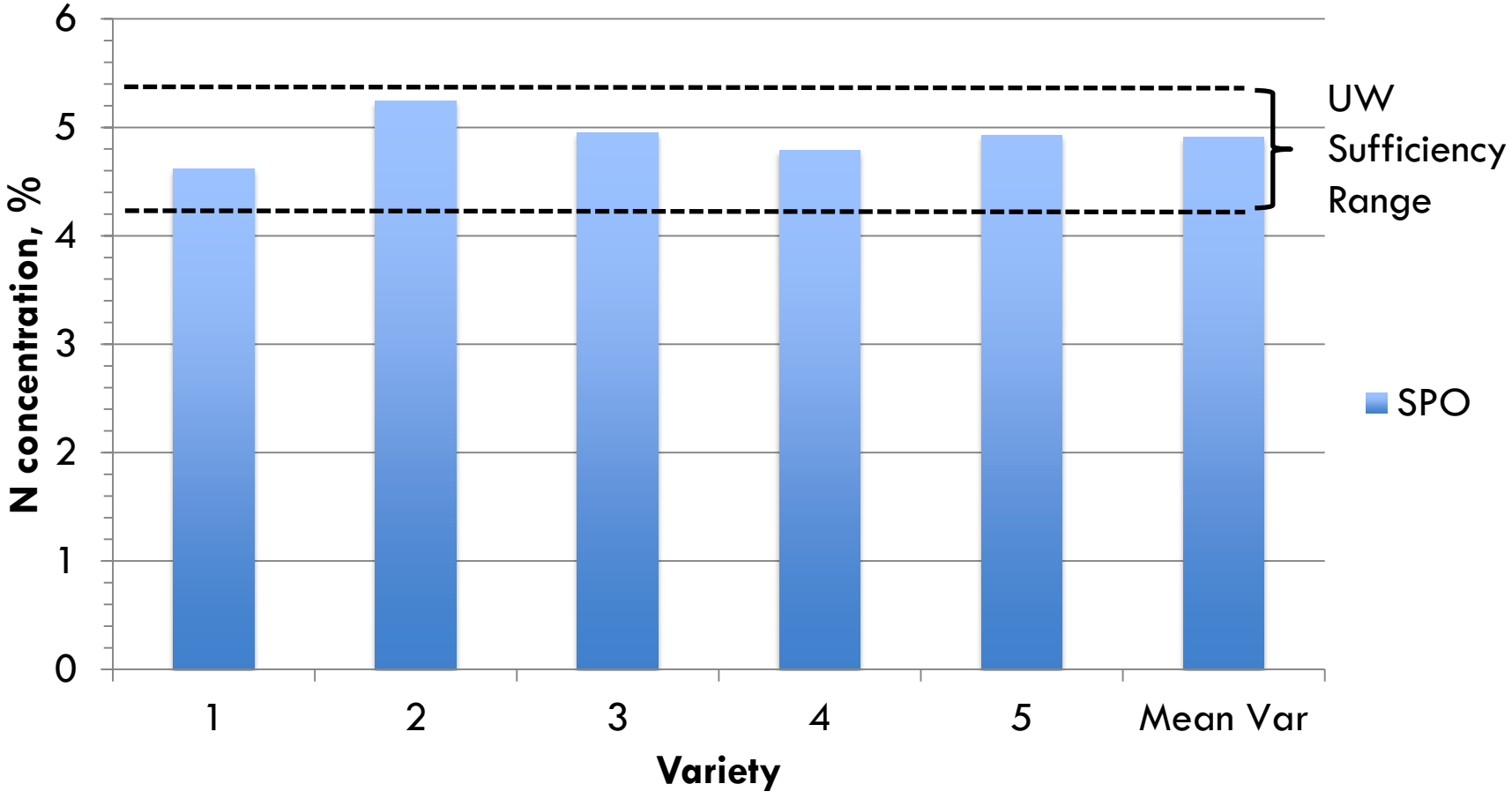
Effect of variety & location on soybean tissue N concentrations at R1, Central WI



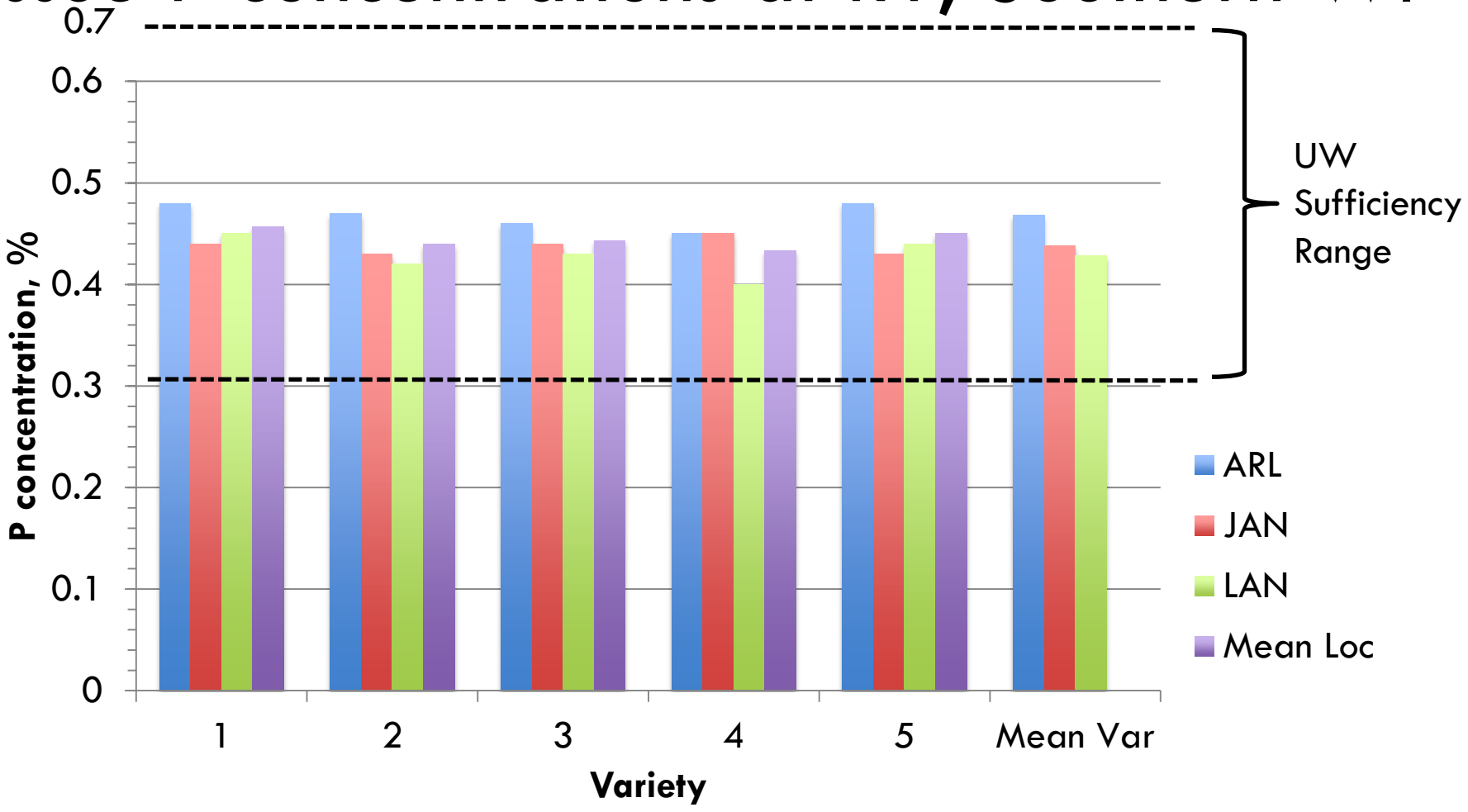
Effect of variety & location on soybean tissue N concentrations at R1, N. Central WI



Effect of variety & location on soybean tissue N concentrations at R1, Northern WI



Effect of variety & location on soybean tissue P concentrations at R1, Southern WI



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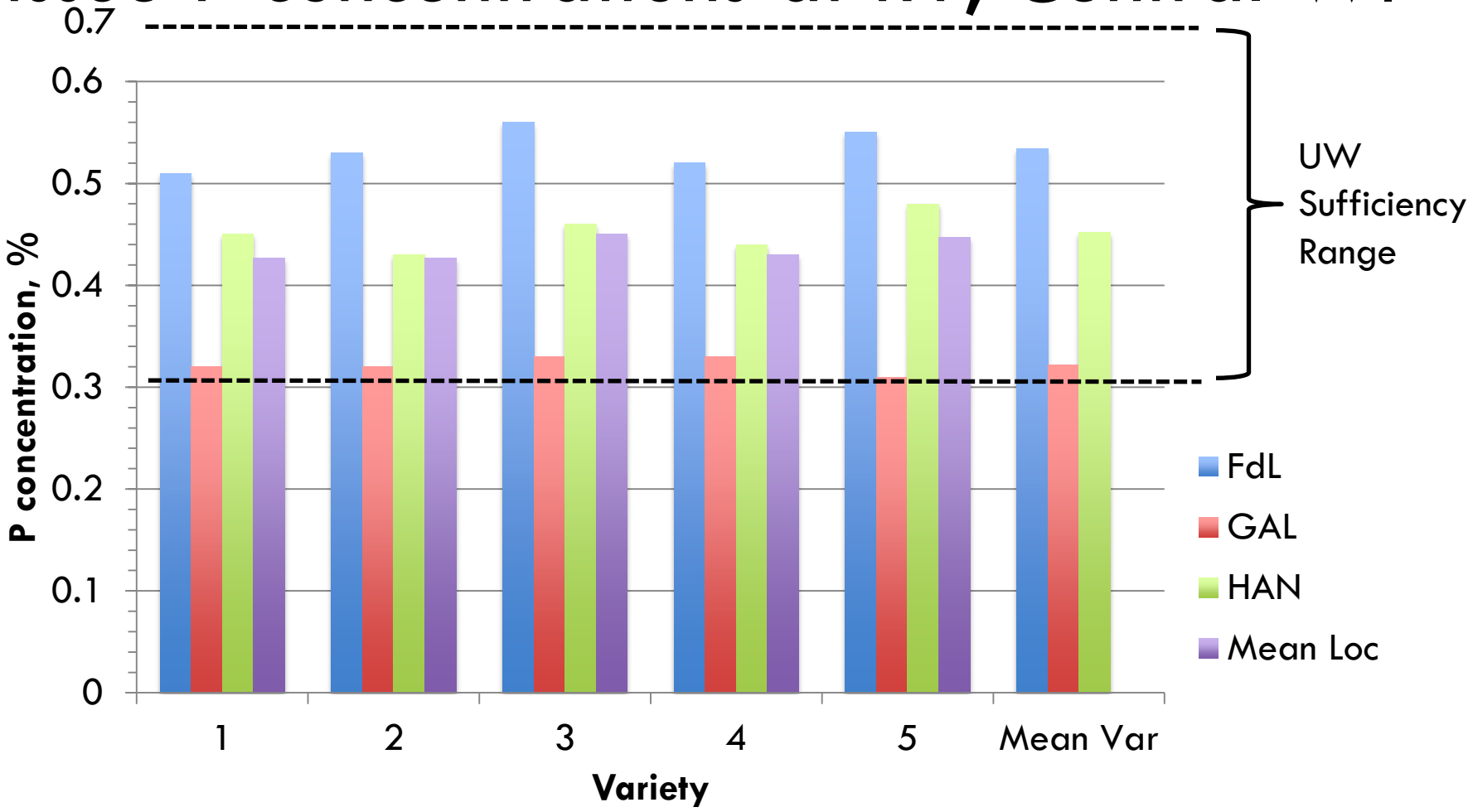

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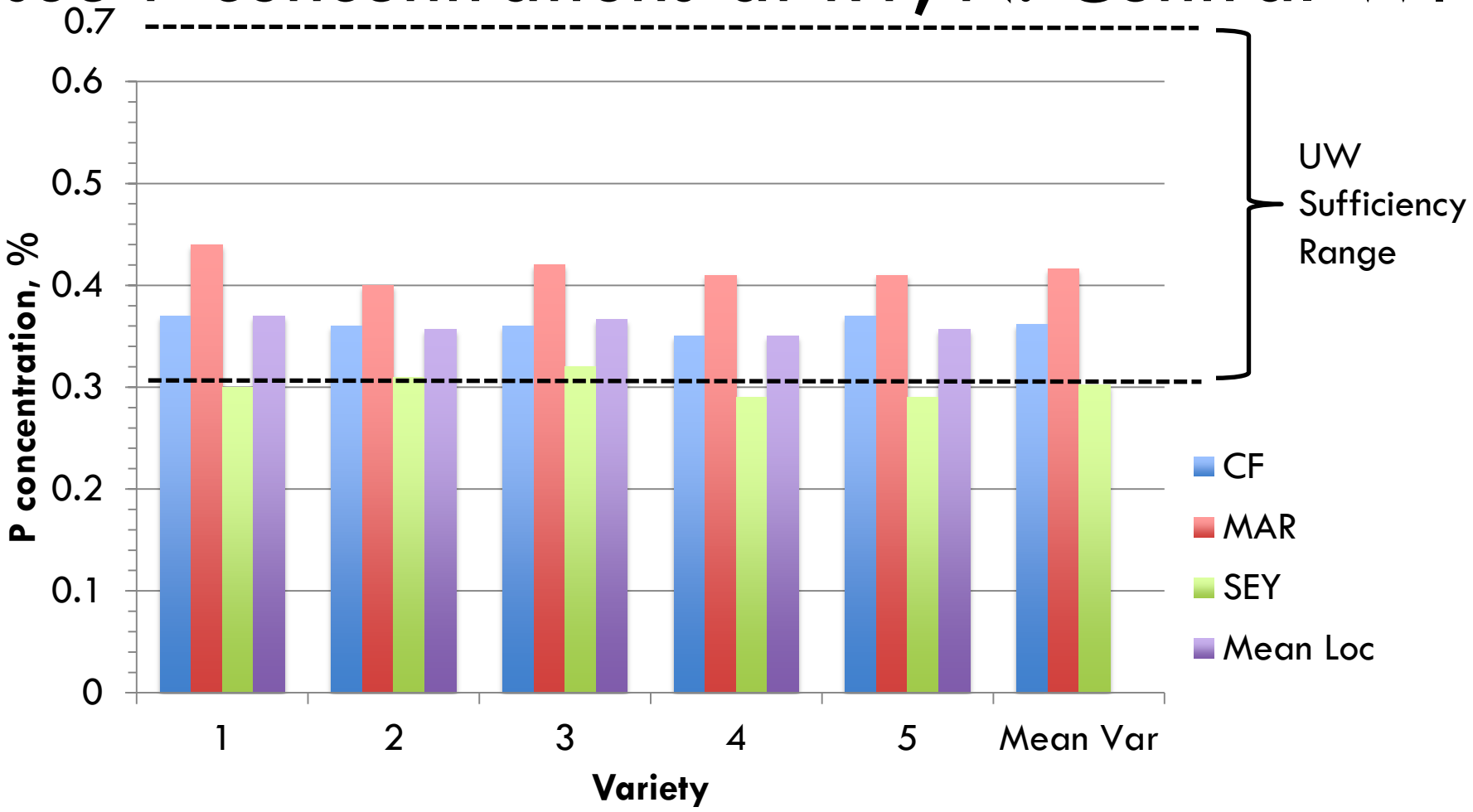

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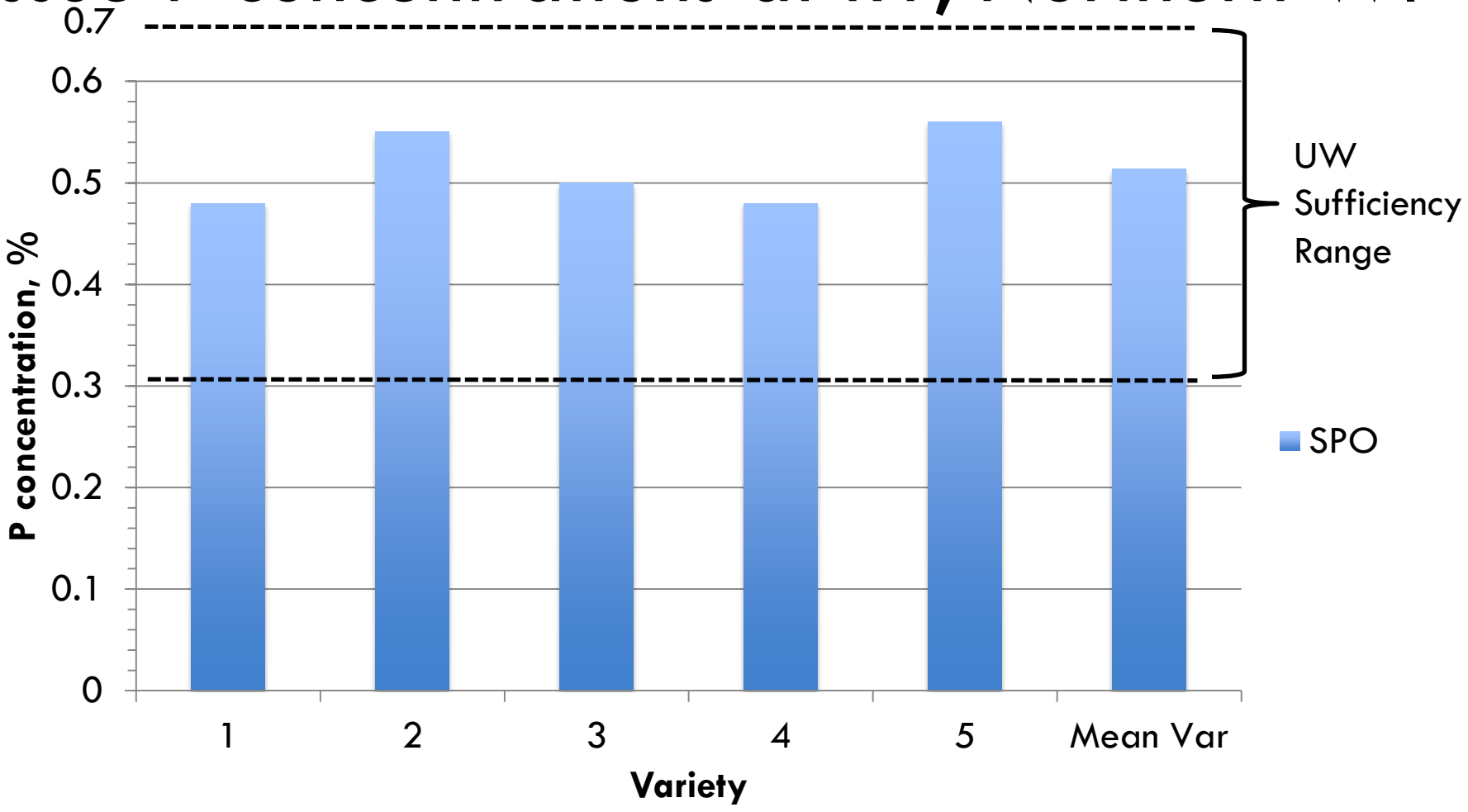
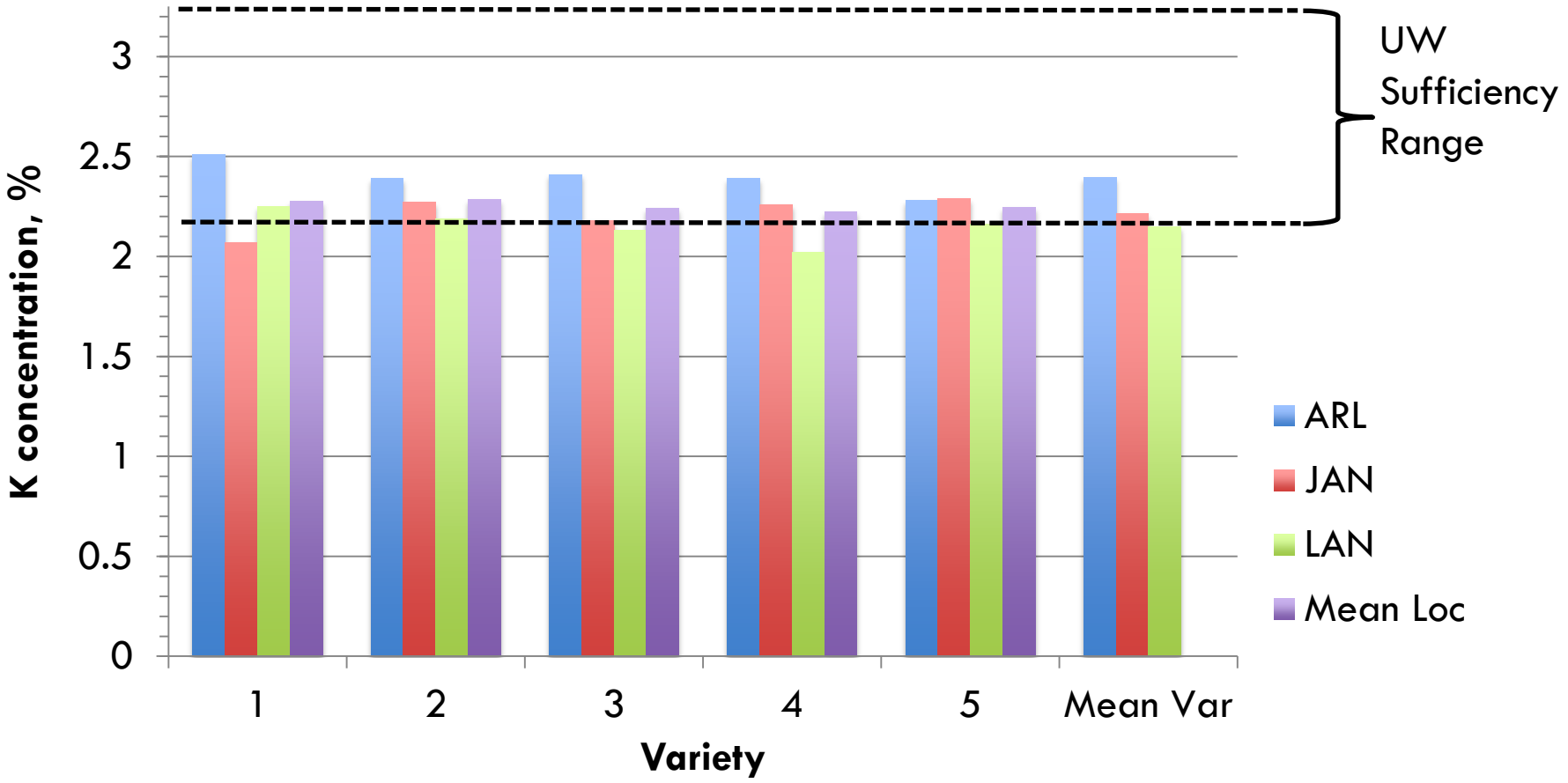


Effect of variety & location on soybean tissue K concentrations at R1, Southern WI



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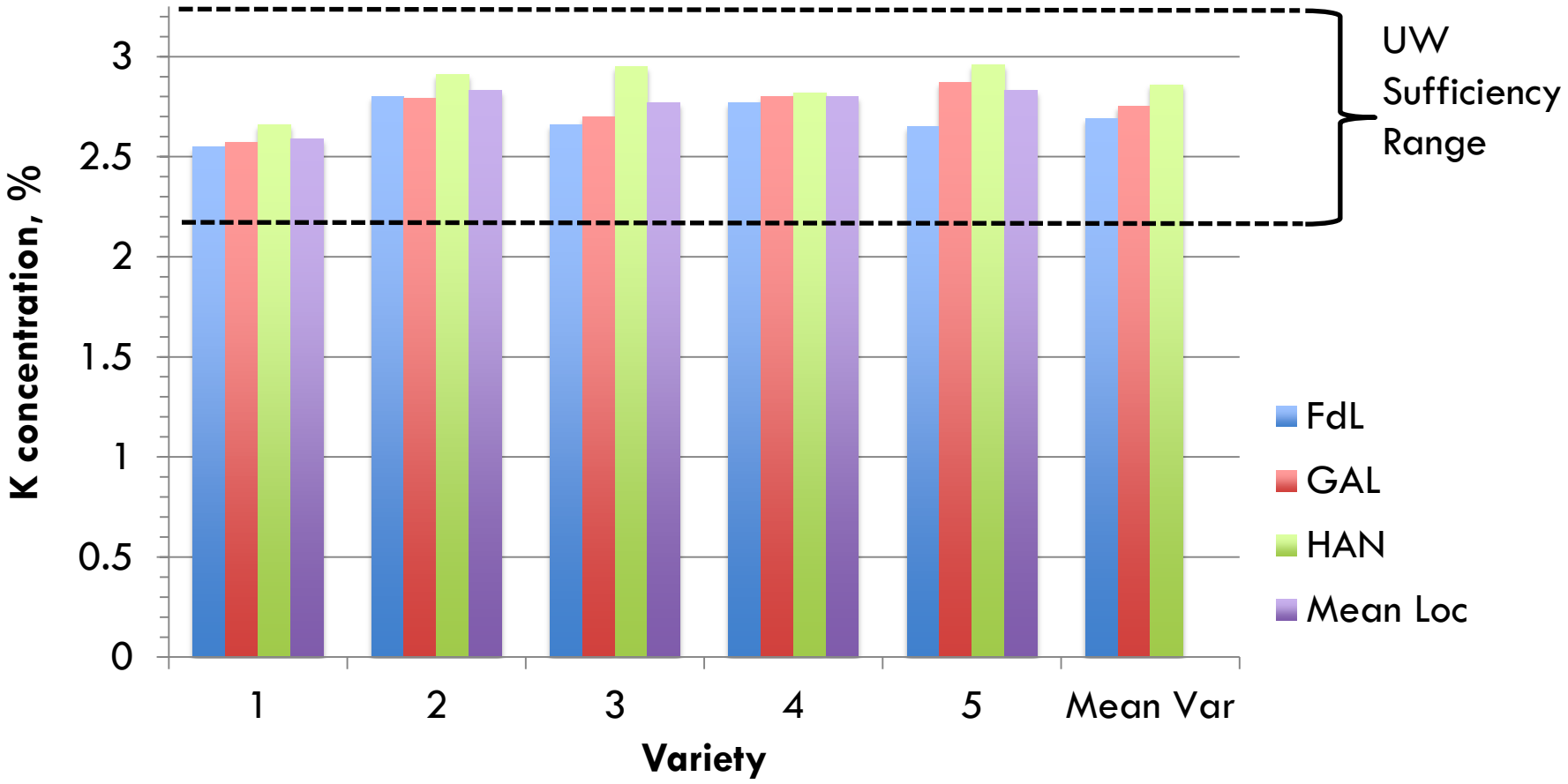

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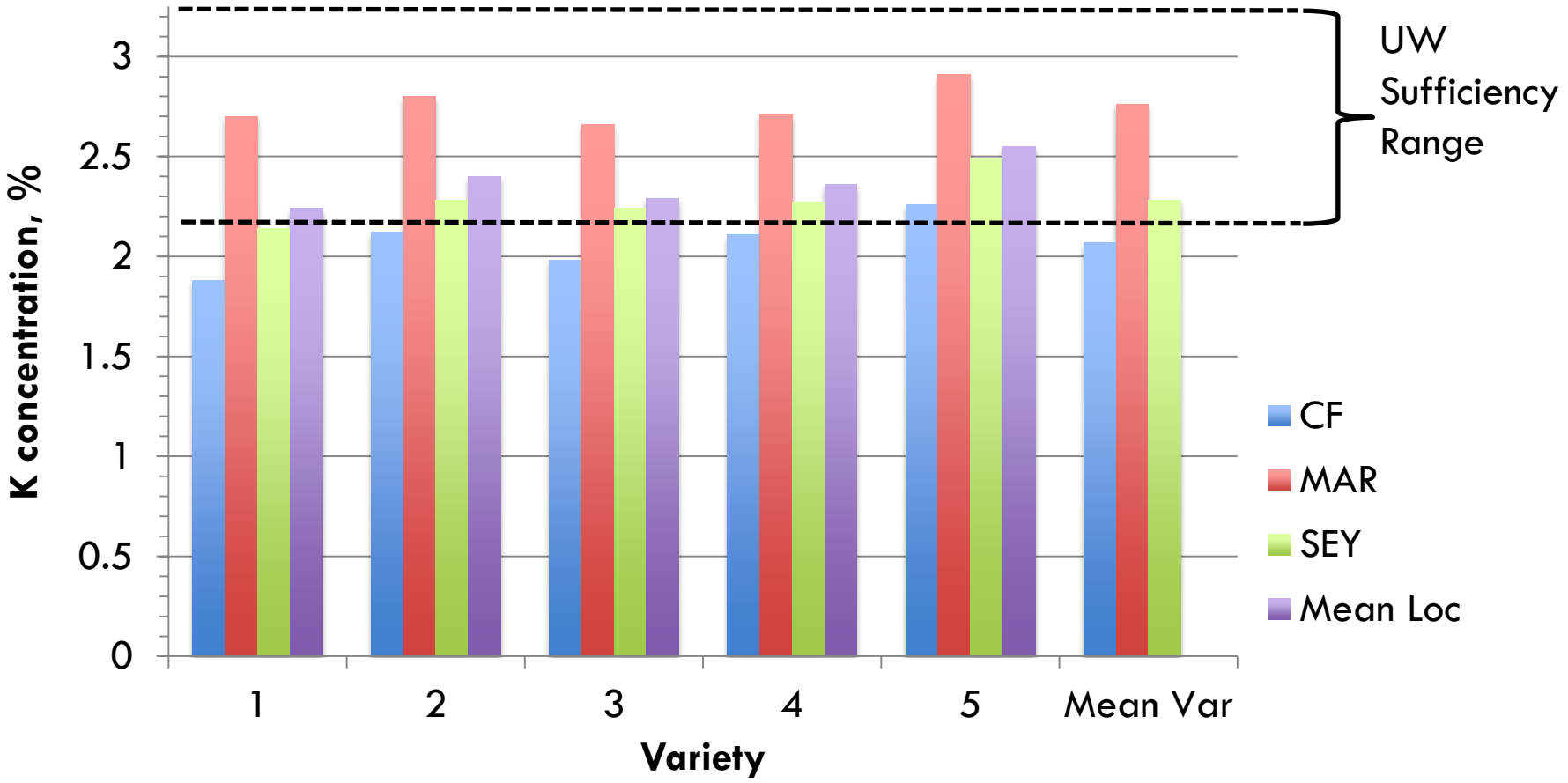

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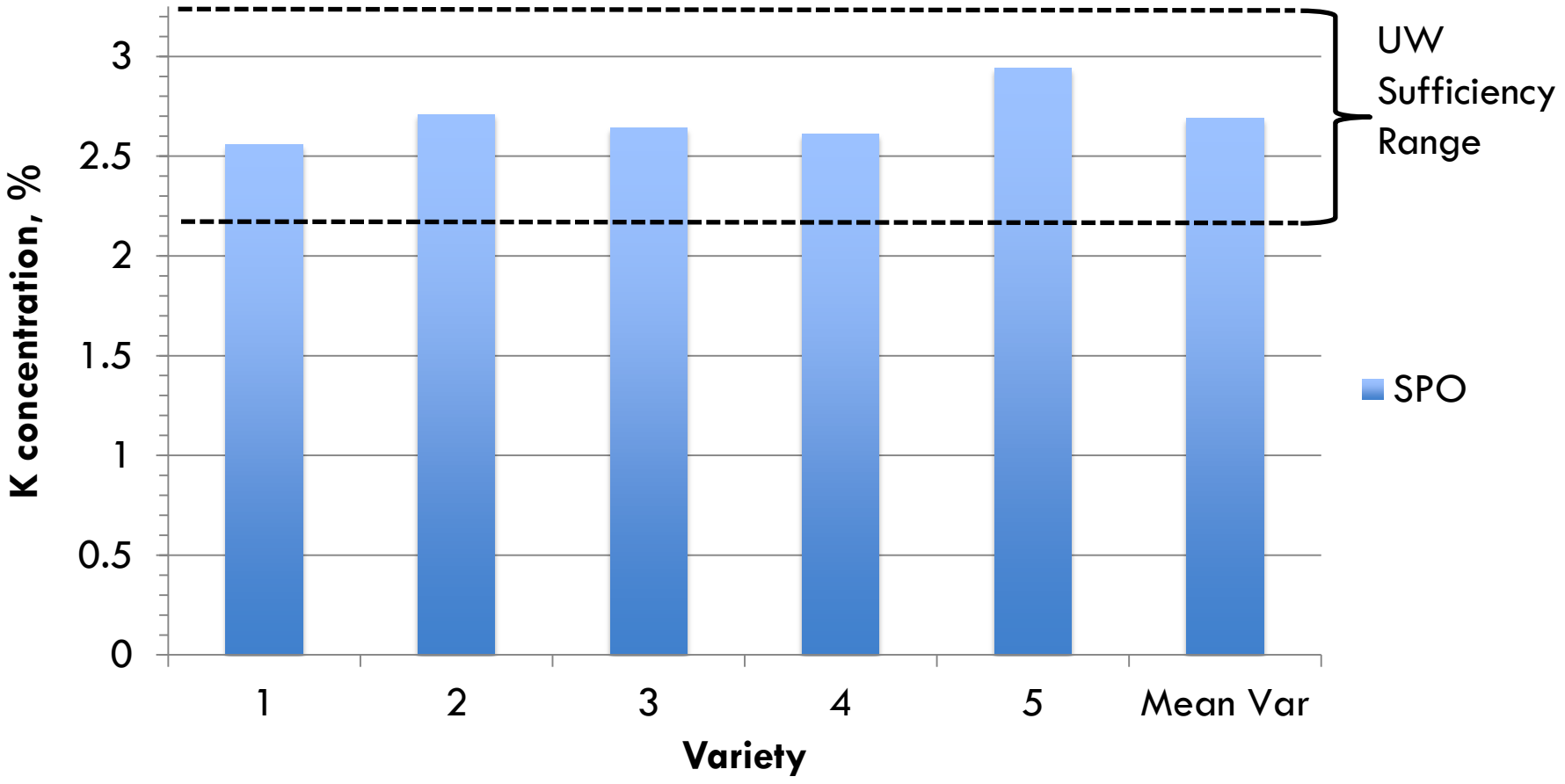
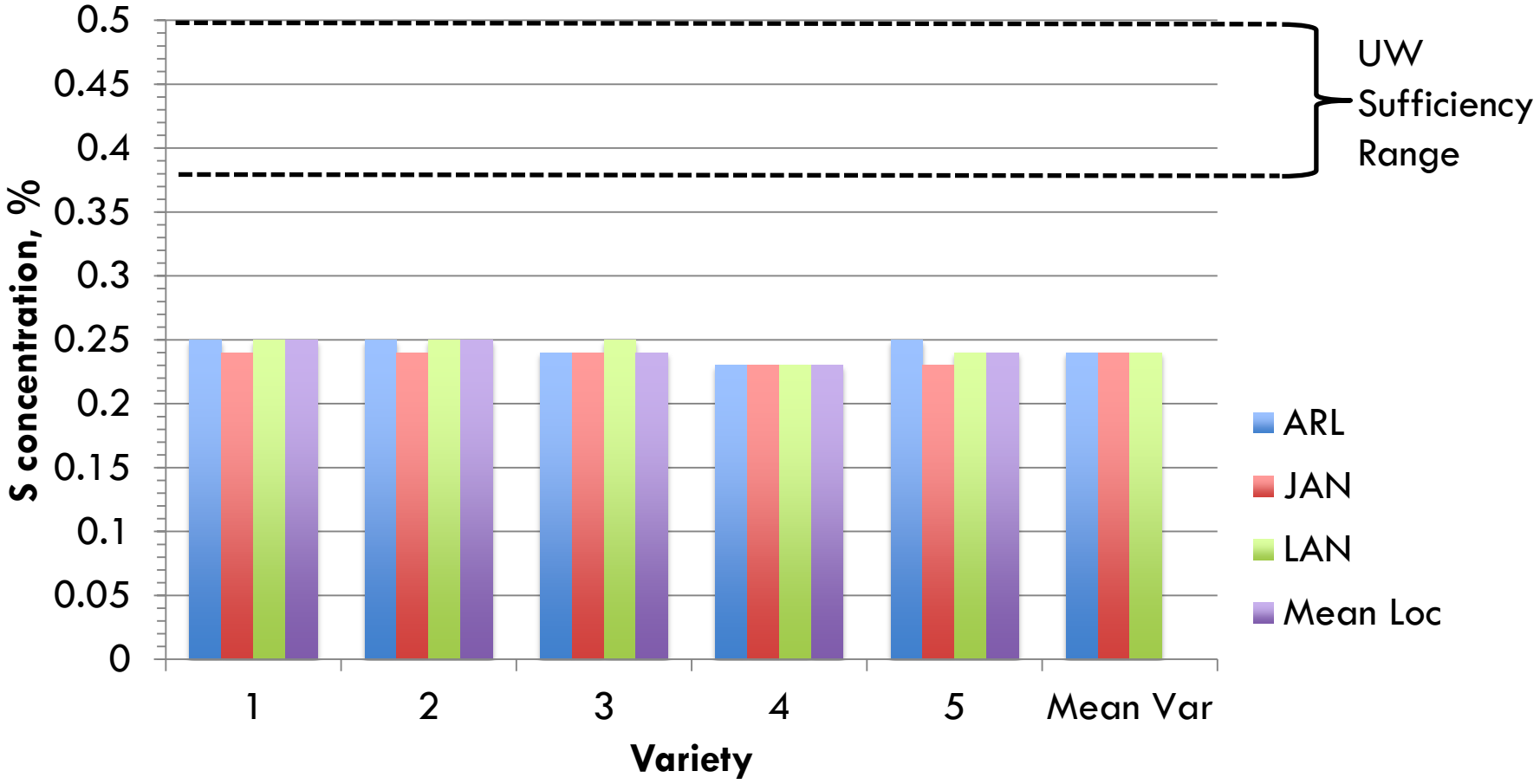


Effect of variety & location on soybean tissue S concentrations at R1, Southern WI



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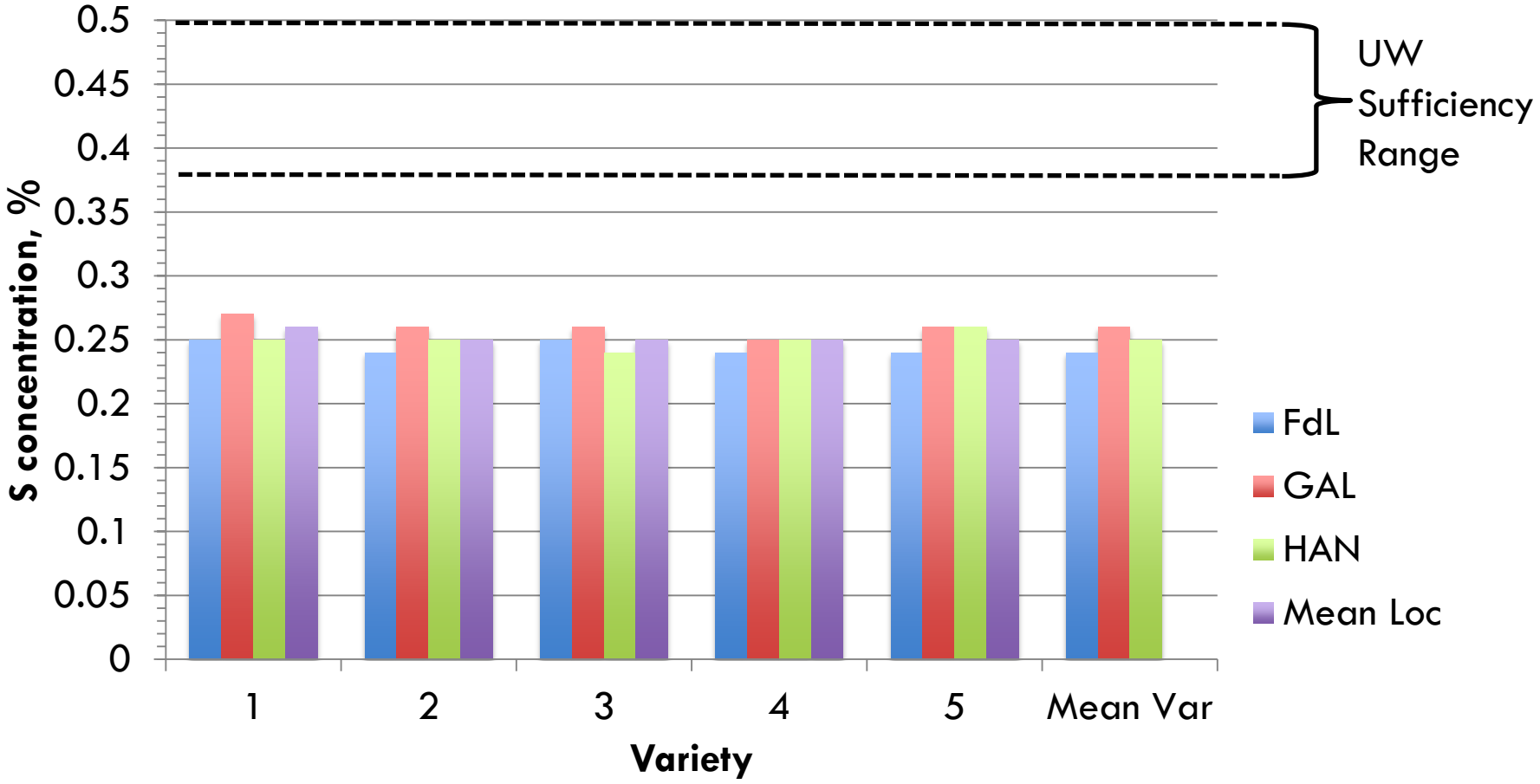

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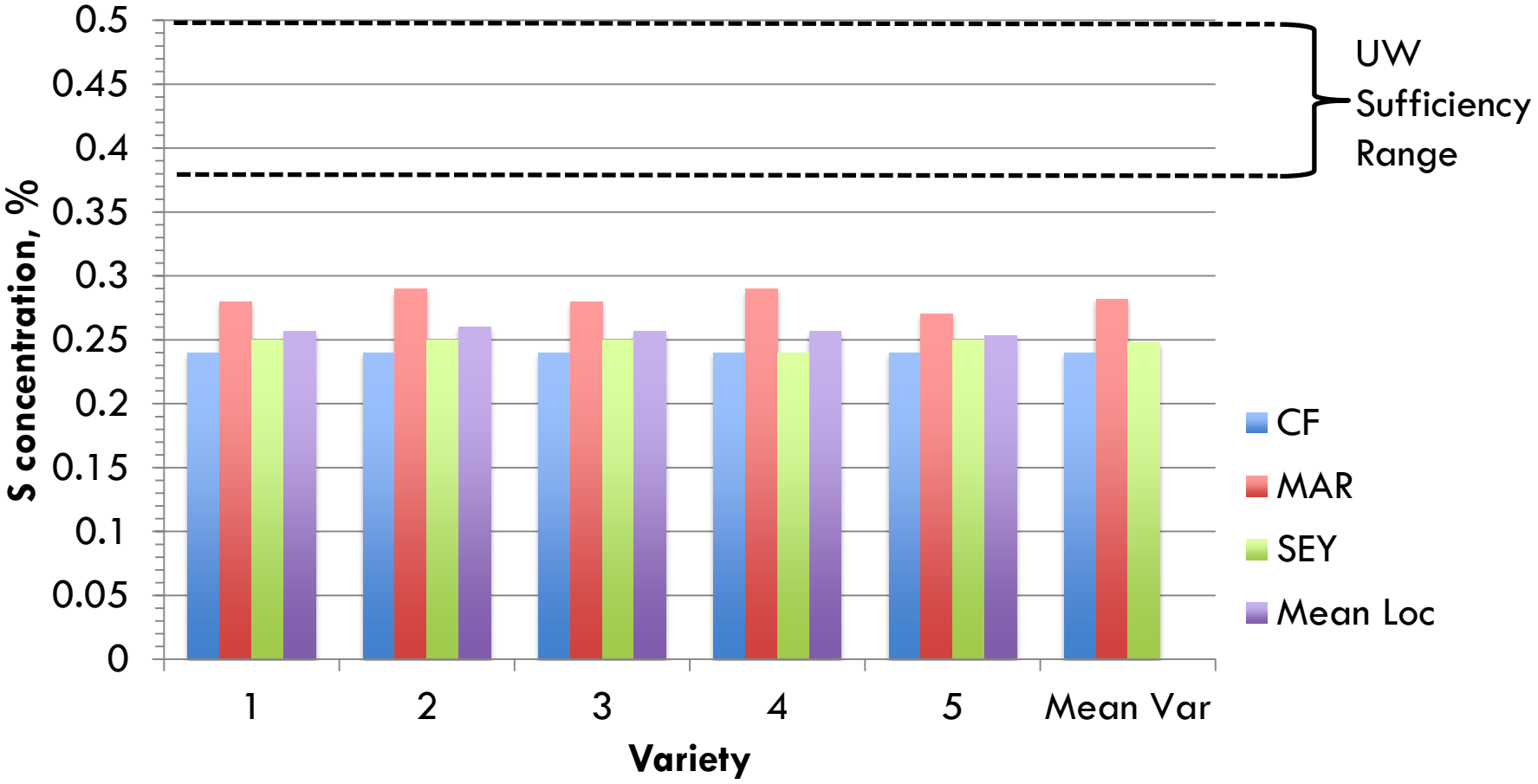

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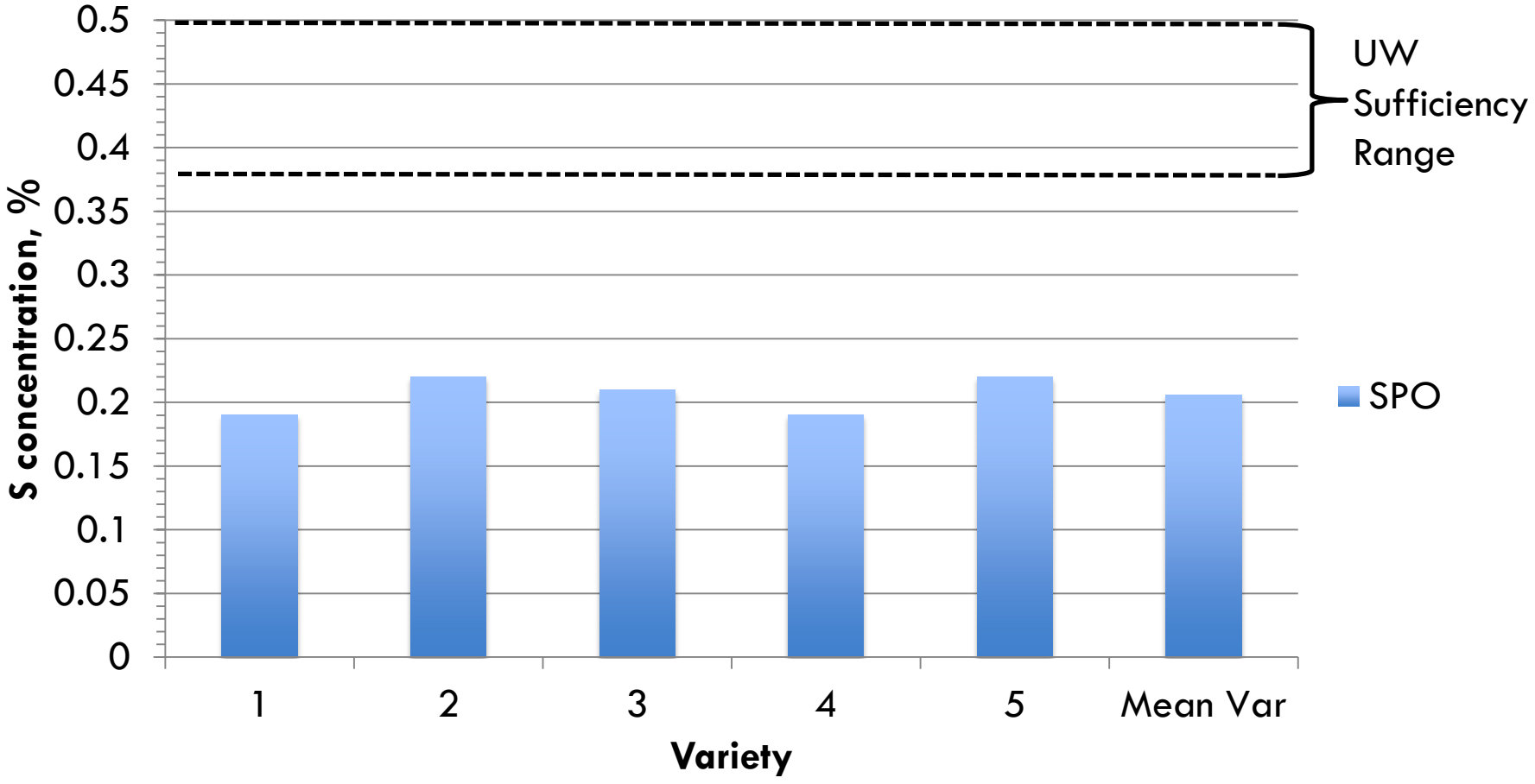
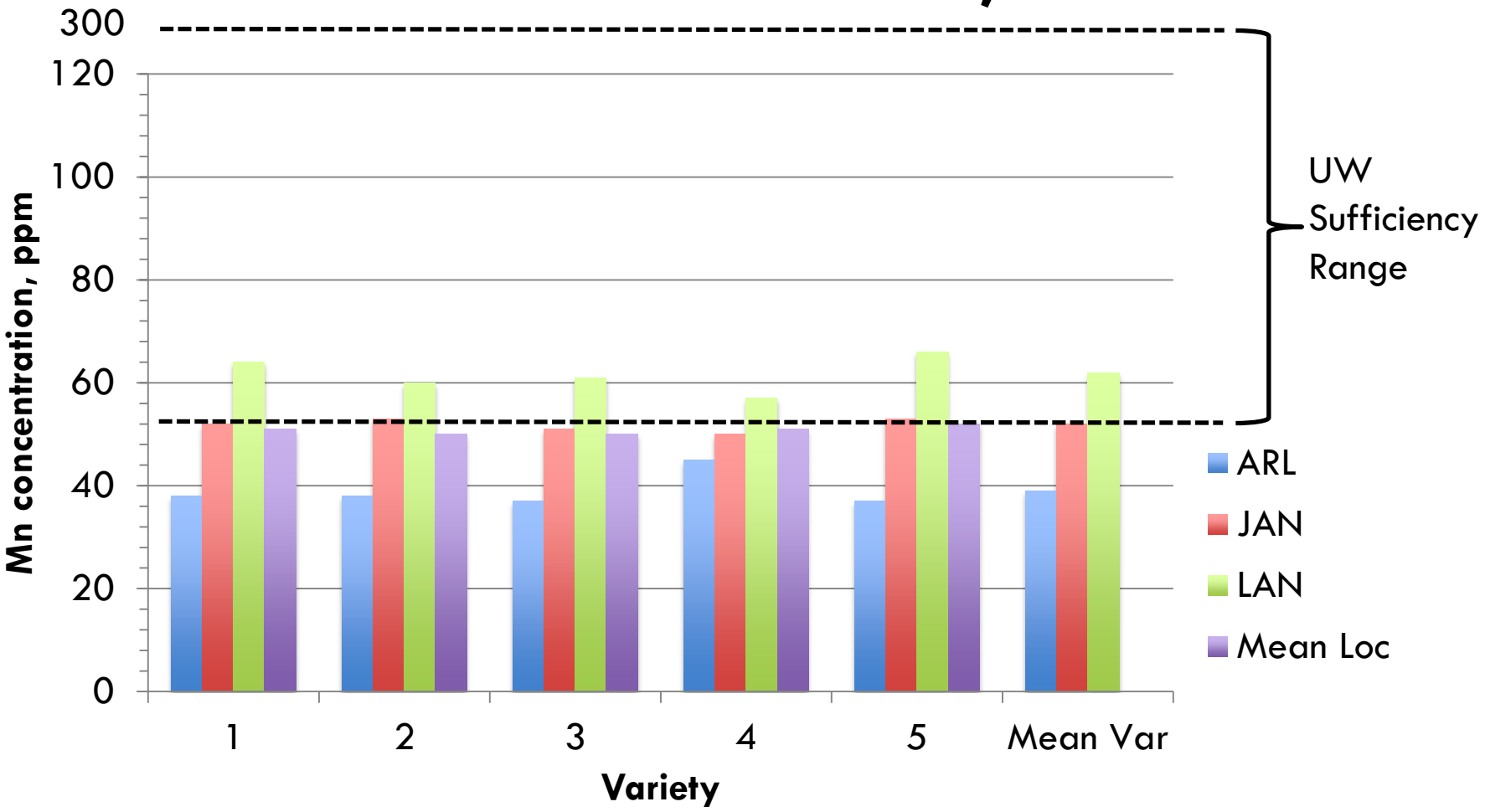


Effect of variety & location on soybean tissue Mn concentrations at R1, Southern WI



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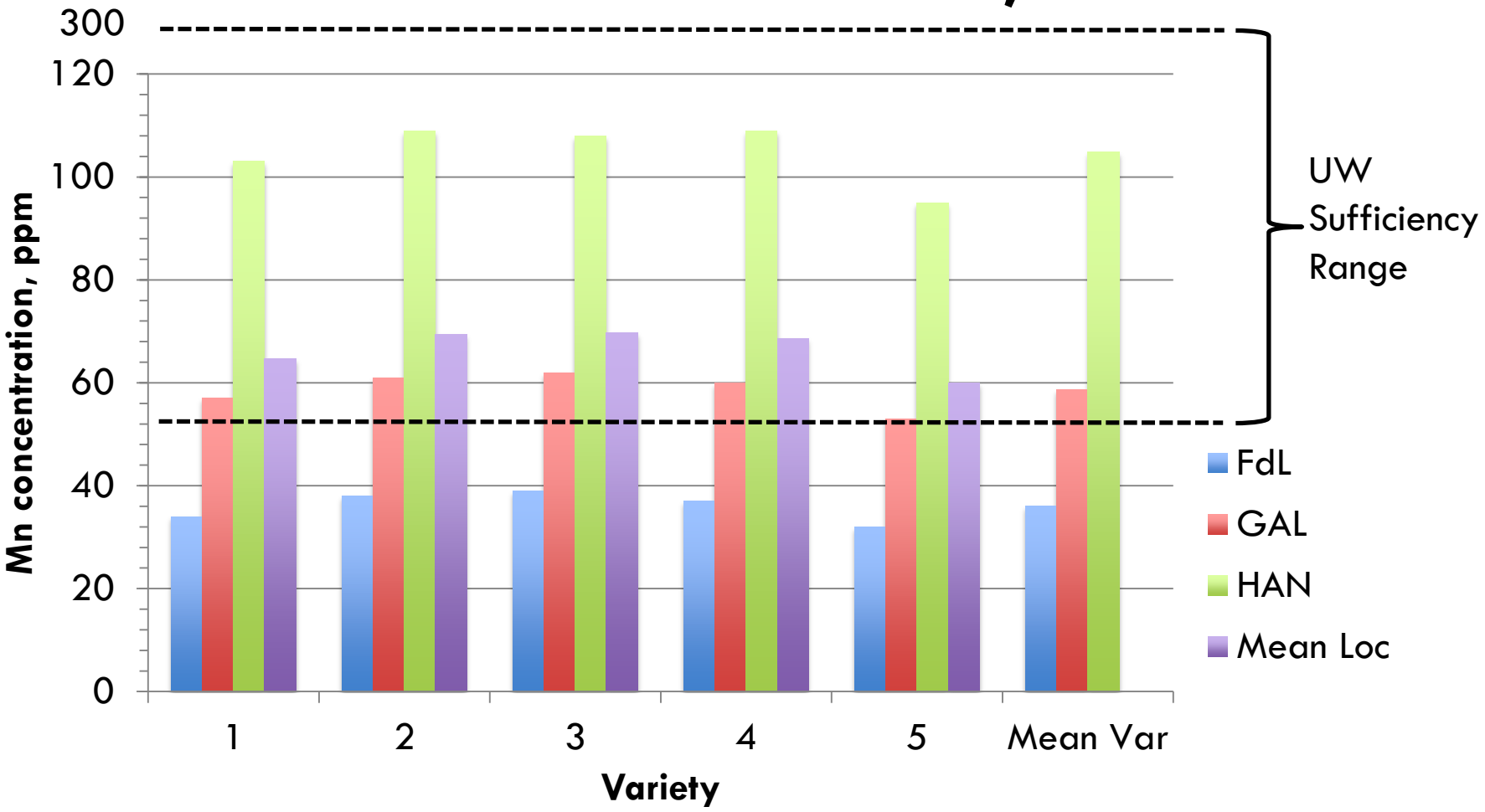
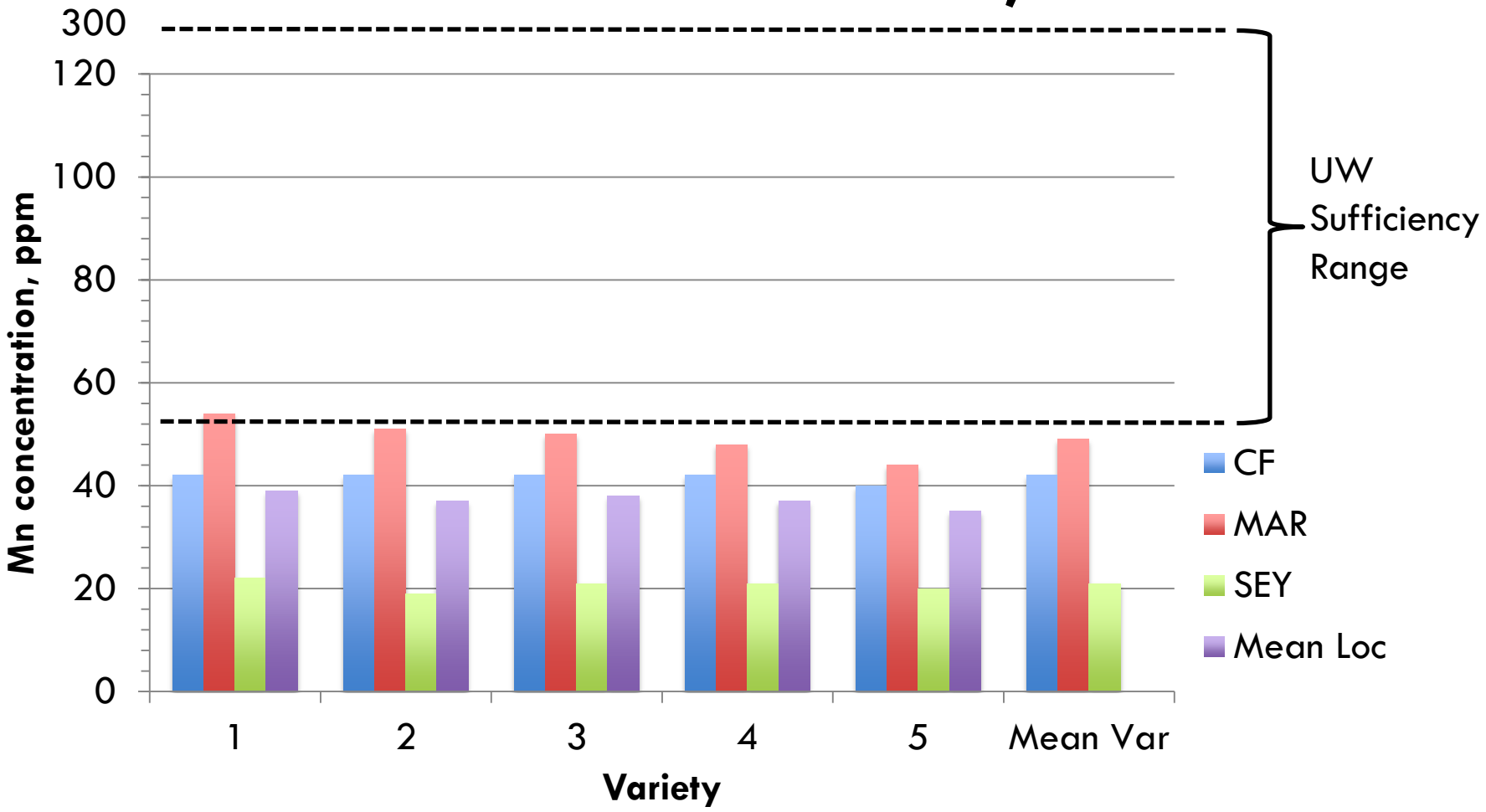


Effect of variety & location on soybean tissue Mn concentrations at R1, N. Cent.WI



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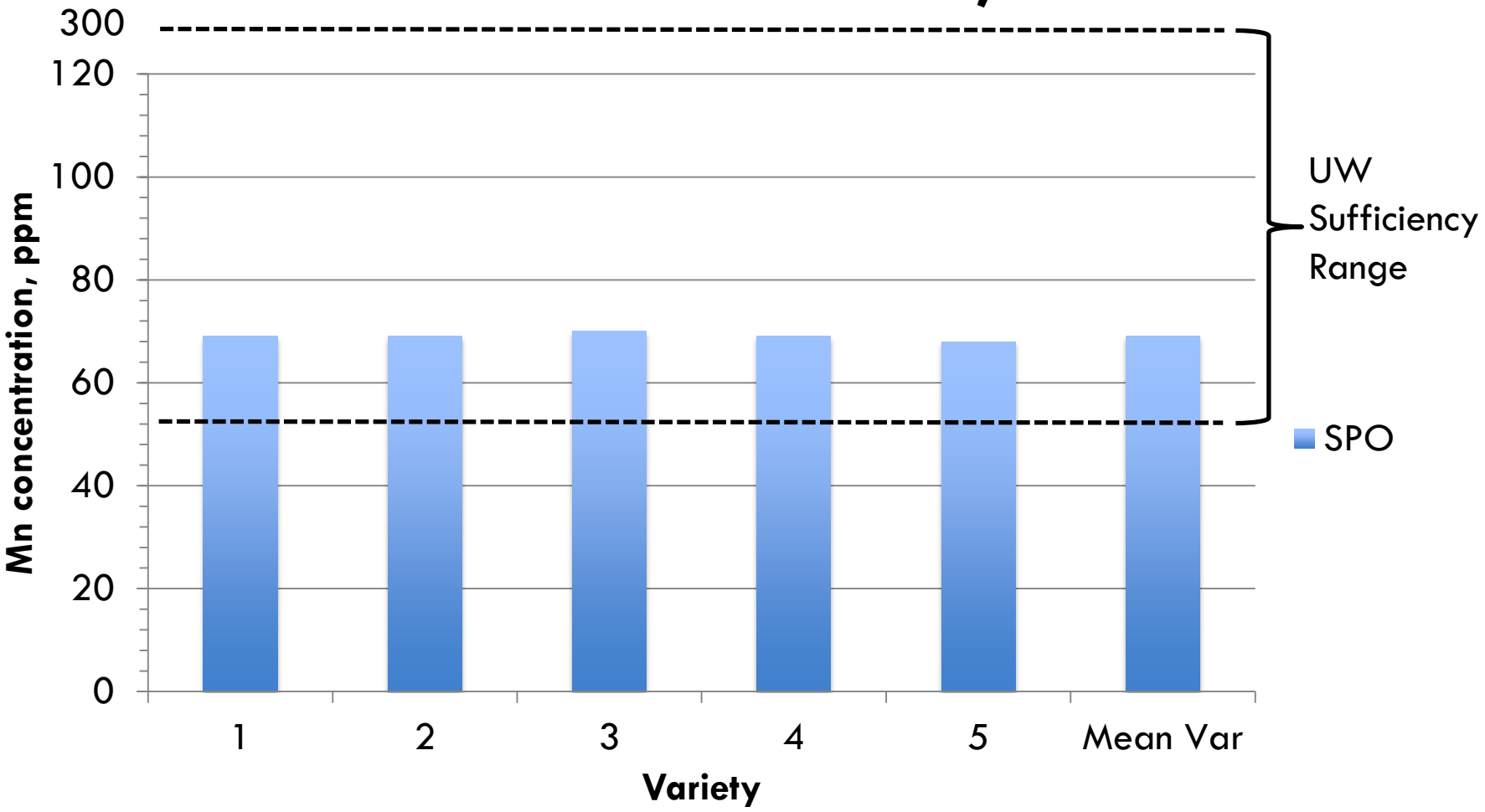

Effect of soybean variety on yield

Variety	Yield, bu/a						
	ARL	JAN	LAN		FdL	GAL	HAN
1	70.9	87.7	76.5		67.4	61.8	83.3
2	67.4	78.8	75.0		66.3	60.9	81.2
3	66.4	75.6	69.0		68.5	66.0	86.1
4	57.9	60.9	60.9		65.0	53.9	77.9
5	72.4	89.5	78.4		60.9	52.1	60.9
	CF	MAR	SEY		SPO		
1	60.9	62.5	60.9		50.3		
2	54.0	60.9	55.5		43.6		
3	61.0	66.2	63.0		50.7		
4	54.2	61.7	60.7		60.9		
5	49.8	59.6	50.6		45.3		

Conclusions

- At a given location, soybean variety will effect R1 tissue nutrient concentrations
- For a given variety, location will effect R1 tissue nutrient concentrations
- Additional data analysis is needed to correlate R1 & R3 tissue nutrient concentrations, seed nutrient concentration, and yield

Questions?

Thanks to:

- Todd Andraski
- Shawn Conley & the soybean program
- Wisconsin Soybean Marketing Board
- Fluid Fertilizer Foundation
- Wisconsin Fertilizer Research Program

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