

# Canola Fertility Discussion

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# WSU Extension Publication (FS045E)



+Many others

- Canola Council Encyclopedia (Canada)
- University of Idaho
- Oregon State University
- Montana State University
- KS, OK, NE...

WASH

SE

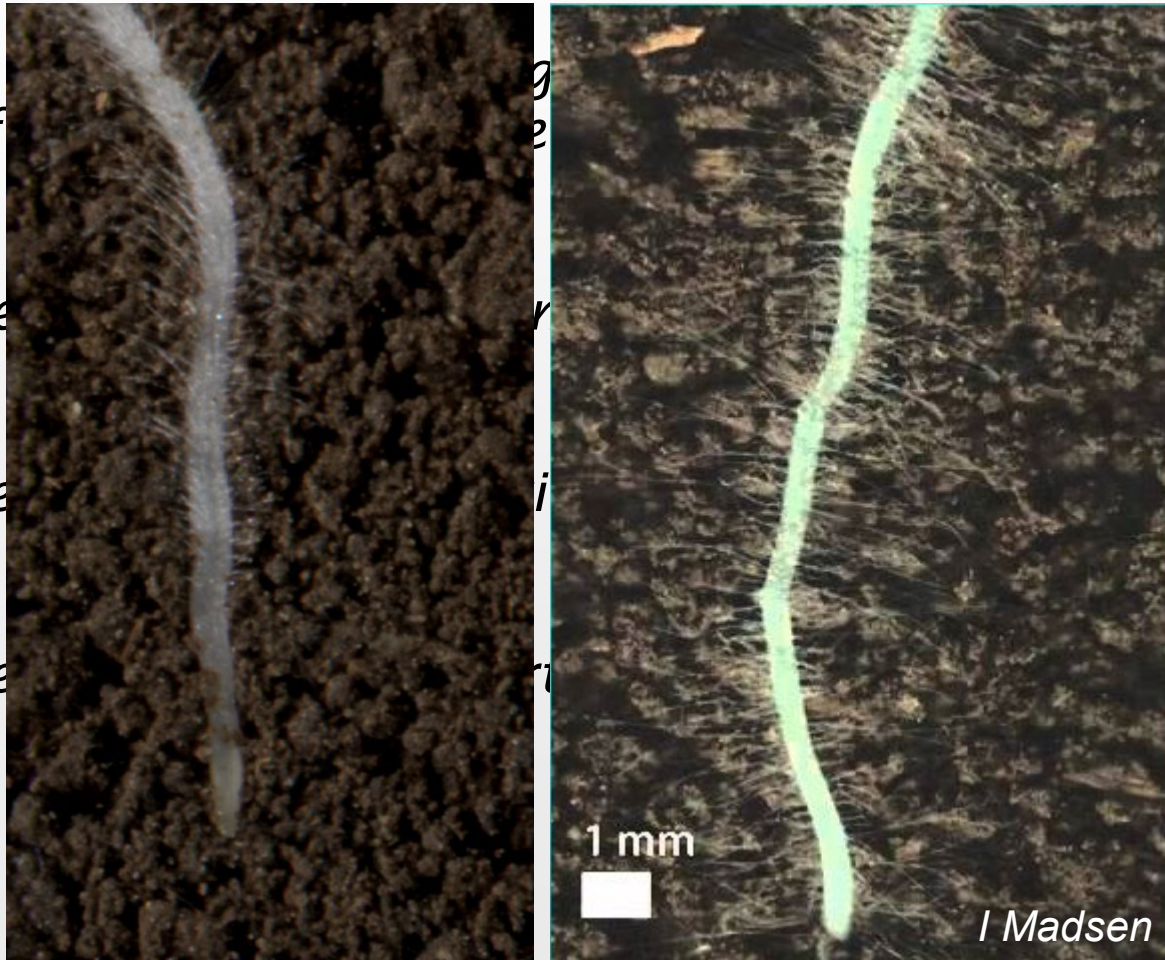
## Synopsis

The purpose of this guide is to summarize current information on canola growth and fertilizer requirements. Canola is a relatively new crop to the Pacific Northwest and little fertility research has been conducted in this region. The information contained in this guide is intended to serve as a reference until the results of ongoing, local research are available. Canola is distinct from wheat in terms of growth habit, nutrient uptake, and nutrient removal in the seed. According to published research and fertilizer recommendations, canola requires more nitrogen and sulfur than wheat to achieve the same yields. Soil test-based requirements for phosphorus and potassium are similar to wheat, but boron requirements are higher. Because canola plant residue is higher in nitrogen and phosphorus than wheat straw, cycling of nutrients from residue to the subsequent crop may be an important rotational benefit of canola.



## What These Sources Say About Canola

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## Fertility Diagnostic Tools/Options

- Experience
- Soil testing (reliable)
- Tissue testing (value to diagnose and confirm; too late to correct?)
  - Sap testing – intriguing...
- Visual diagnosis (too late)

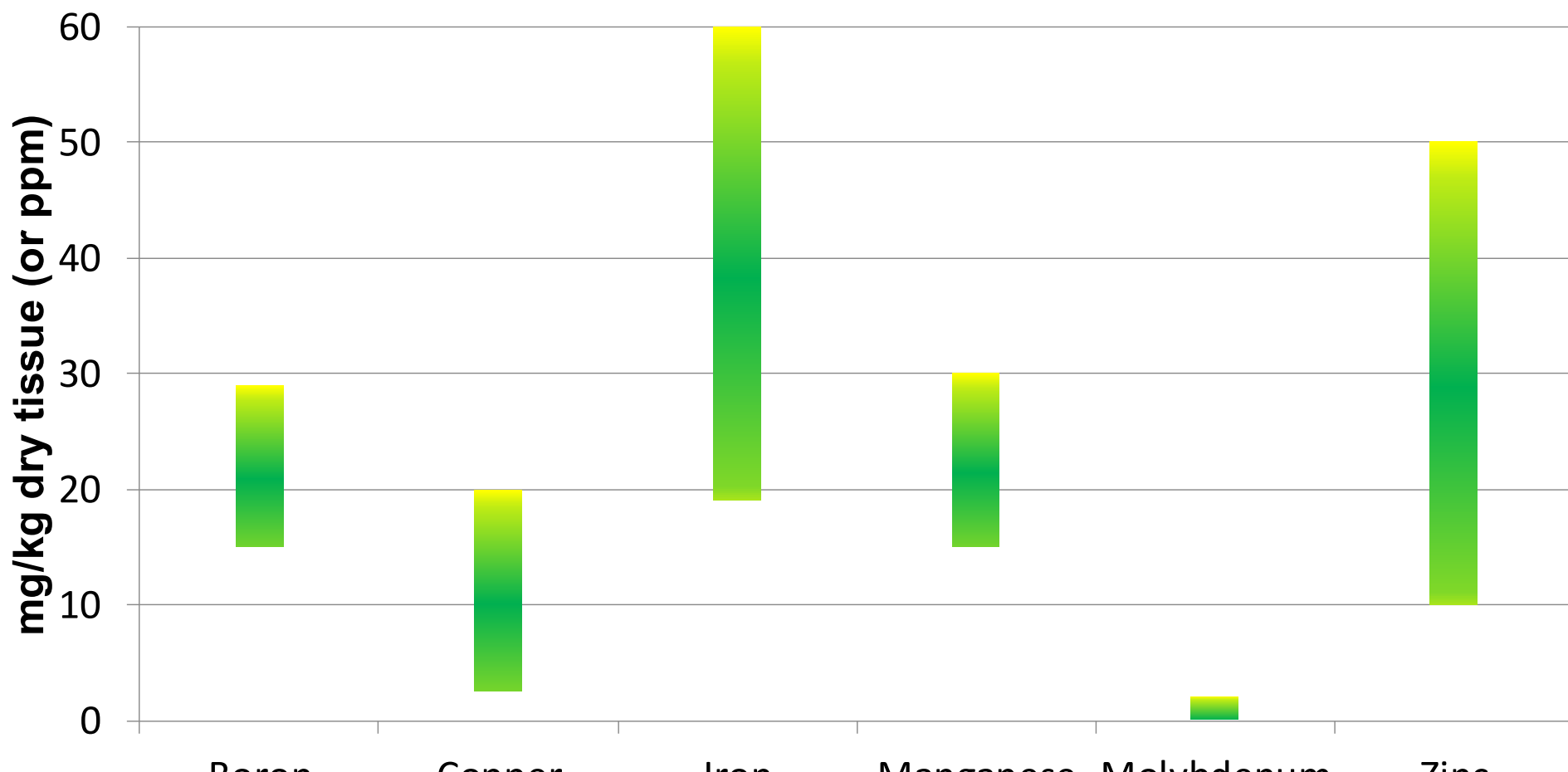
**Proactive, timely, for present**



**Reactive, late, for future**



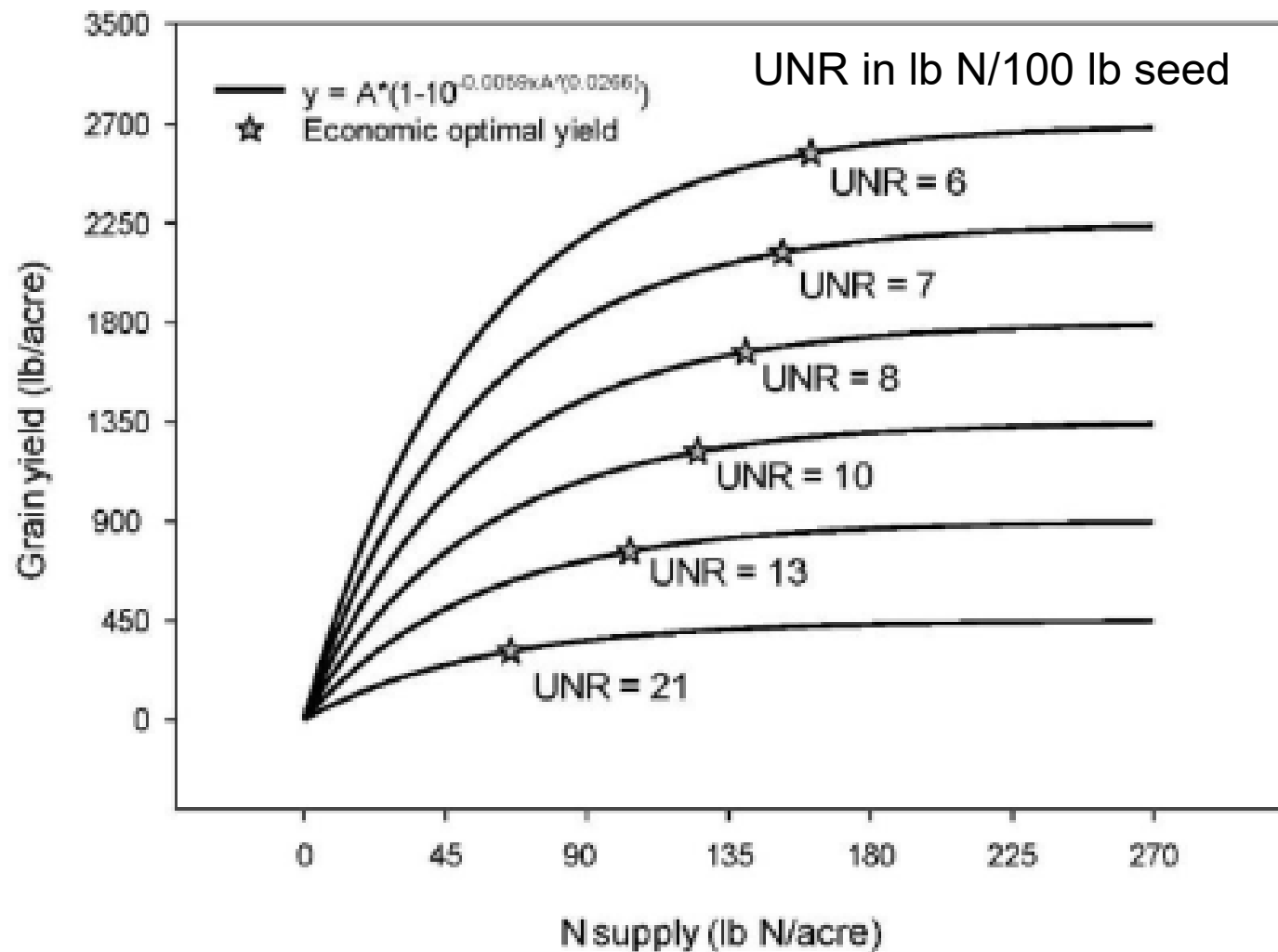
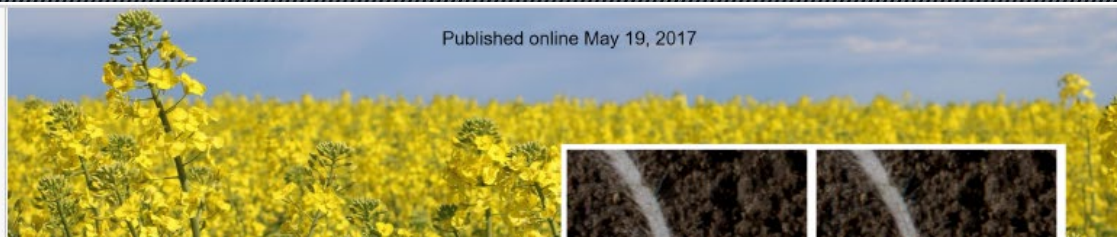
## Critical Micronutrient Tissue Concentration (Growth Stage: 'Canola at flowering')





Copper  
Iron  
Manganese  
Zinc

[illegible]





## Canola Nitrogen (N) Use

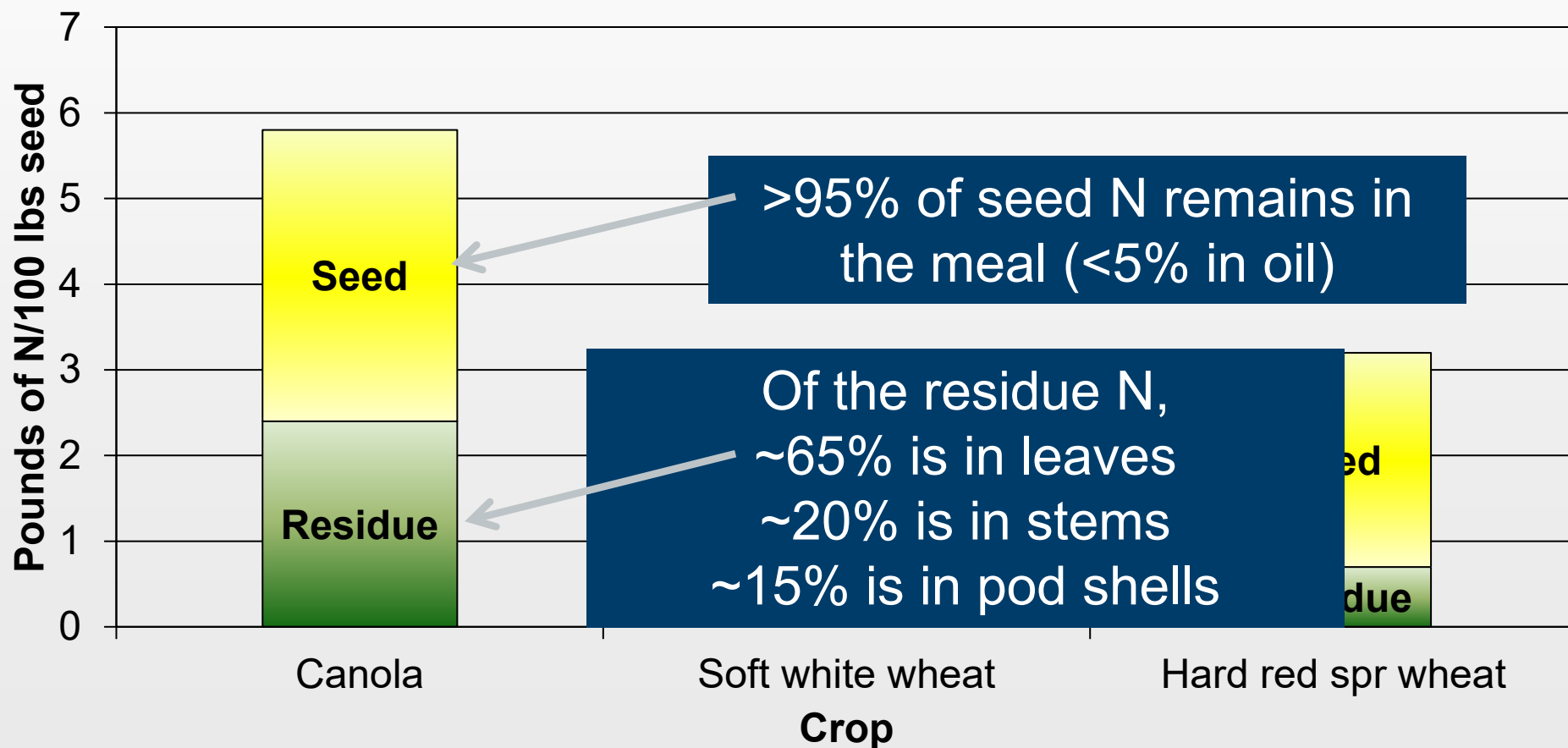
	Canola	Soft white wheat (9% protein)	Dark northern spring wheat (14% protein)
	----- Pounds of nitrogen [N] per 100 lbs of seed -----		
<b><i>Uptake</i></b> by the plant	5.8	2.3 (1.35 lb/bushel)	3.2 (1.8 lb/bushel)
<b><i>Removal</i></b> in the seed	3.4	1.6 (1.0 lb/bushel)	2.5 (1.5 lb/bushel)
<b><i>Difference</i></b> (left in field)	2.4	0.7	0.7
<b><i>Recommendation</i></b> *	5 to 12	4.5 (2.7 lb/bushel)	6.0 (3.6 lb/bushel)

\*Soil+fertilizer N from various university fertilizer guides for canola and WSU guides for wheat



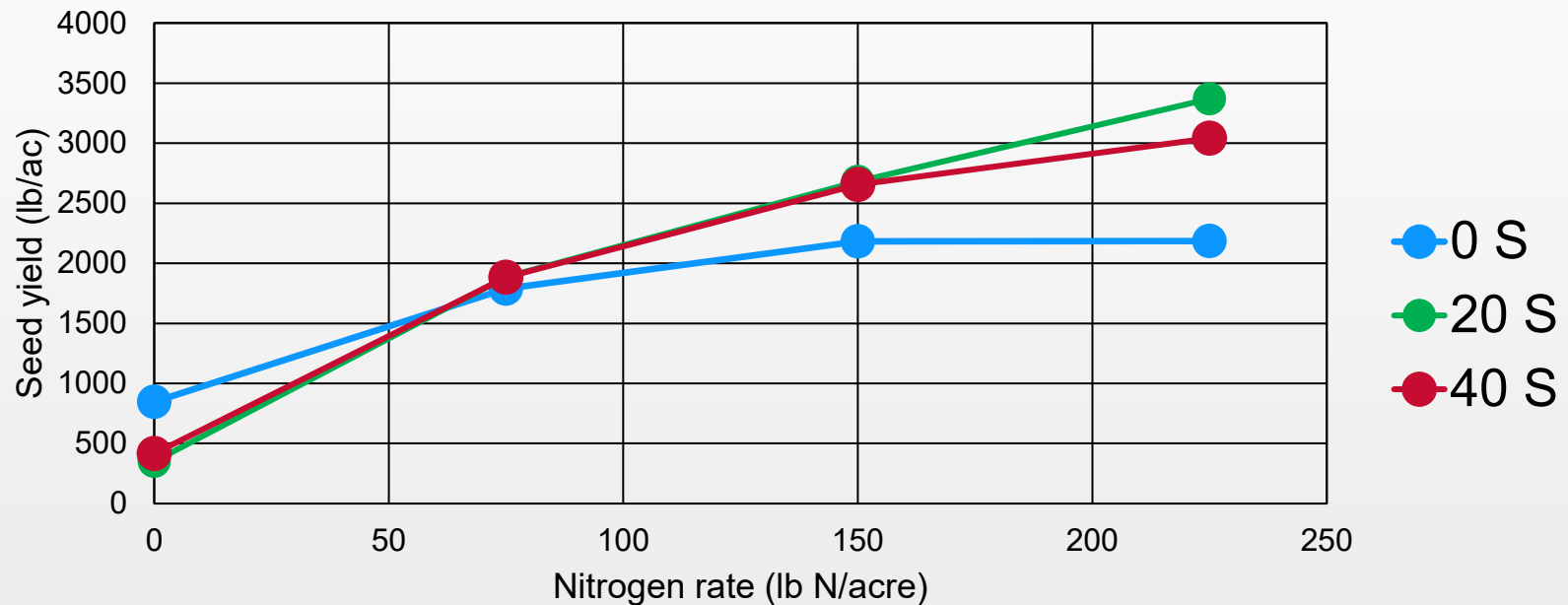


## Plant Nitrogen (N)





## Spring Canola Response to N and S in Montana (this is one of 5 location-years)\*



*\*G. Jackson, MT State Univ. (1995; Effects of N and S on canola yield and nutrient uptake, Agron. J. vol. 92)*

*Initial soil test S = ~50 lb/ac (interpretation: adequate)*

*Response to nitrogen at 5 of 5 location-years; response to sulfur at 2 of 5*



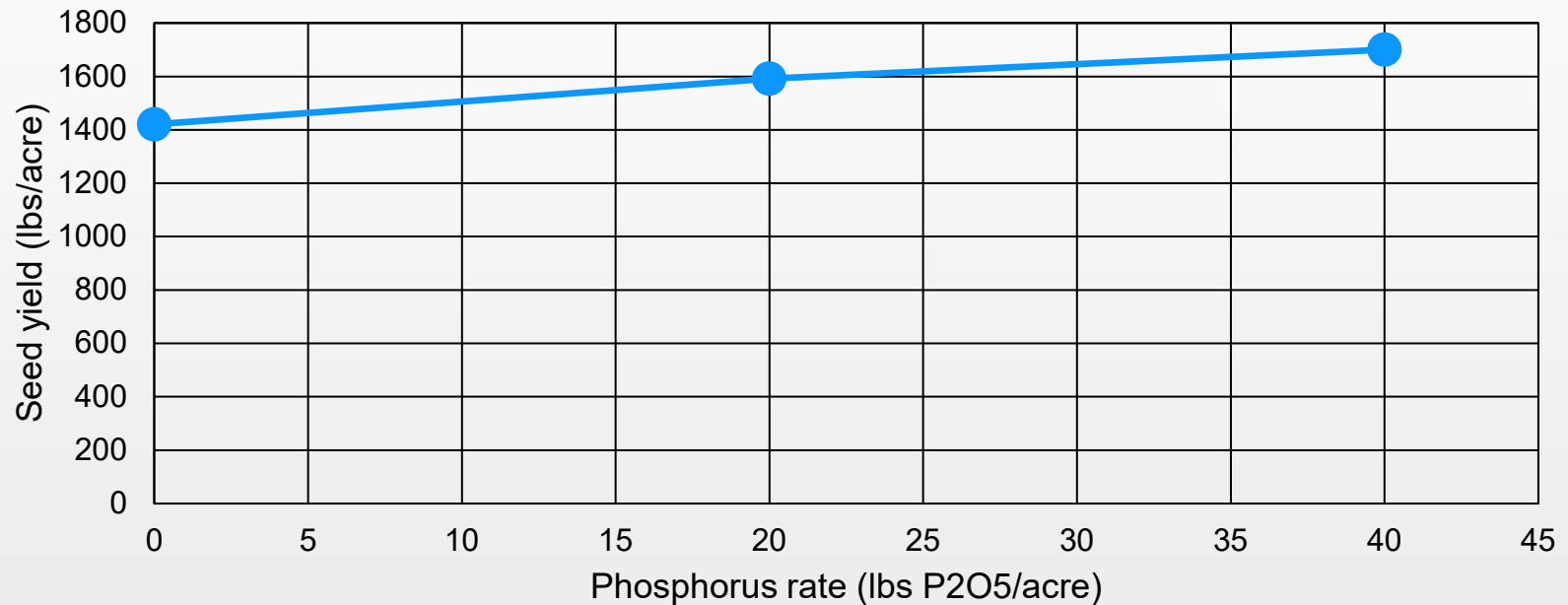
## Canola Phosphorus ( $P_2O_5$ ) Use

		Dark northern spring wheat (14% protein)
		per 100 lbs of seed -----
<b>Removal</b> in the seed		0.9 (0.5 lb/bushel)
<b>Uptake</b> by the plant		1.1
<b>Difference = what is left in field (residue)</b>		0.2

\*Recommendations are based on soil test phosphorus concentration and similar to wheat



## Spring Canola Response to Injected P (APP)



*H. Tao data (2020) from Wilke Farm near Davenport, WA*

*Initial soil test (Olsen) P = 21 (interpretation: adequate)*

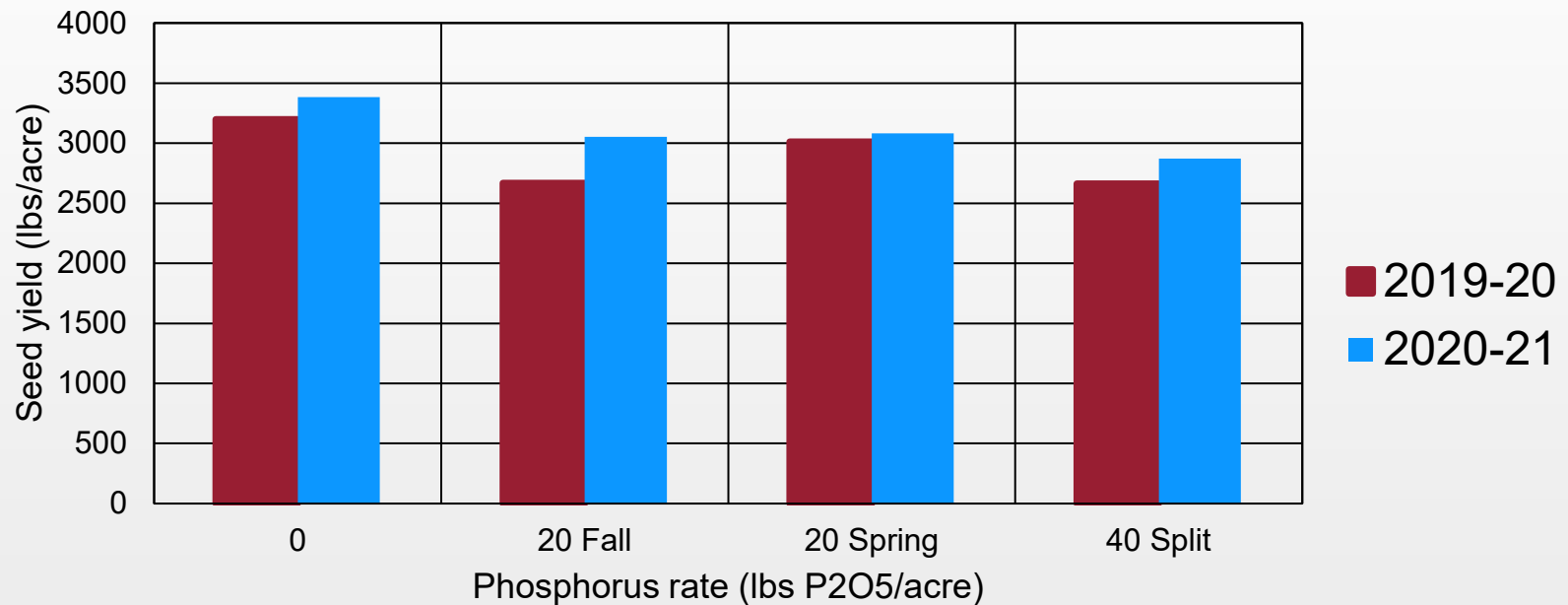
*+/- zinc treatments*

*No statistical significance among treatments – P or Zn*





## Winter Canola Response to Injected P (APP)



*H. Tao data from Wilke Farm near Davenport, WA*

*Initial soil test (Olsen) P = 21 and 23 (interpretation: adequate)*

*No statistical significance among treatments*



## Other Knowns/Unknowns About Canola Nutrient Use

- Potassium (potash) use is the same as wheat
  - PNW soils often high in potassium (K)
- High boron requirement (more similar to alfalfa)
  - Rate, source, timing considerations
- Others – zinc, manganese, copper???

