



Re-evaluating fertility recommendations  
for canola:  
the nitrogen catch and release crop

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# Purpose

1. Meet biodiesel production demand
2. Provide alternatives to current crop rotations

# Current Knowledge

## **Canola is a N catch crop**

N requirement ranges from 5 – 11 lb N 100 lb grain<sup>-1</sup>

N uptake is high but 40% is left in residue

Leaf residue N content is 2X that of remaining residue

## **Residue N is released to following crops**

Canola accumulates more N and S than wheat

S critical level – 62 lb ac<sup>-1</sup>



# Experimental Design

- 4 Site Years
- Randomized Complete Block
- 5 Nitrogen Rates
  - Urea
- 2 Sulfur Rates
  - Ammonium Sulfate
- 4 Replicates



# Experimental Design

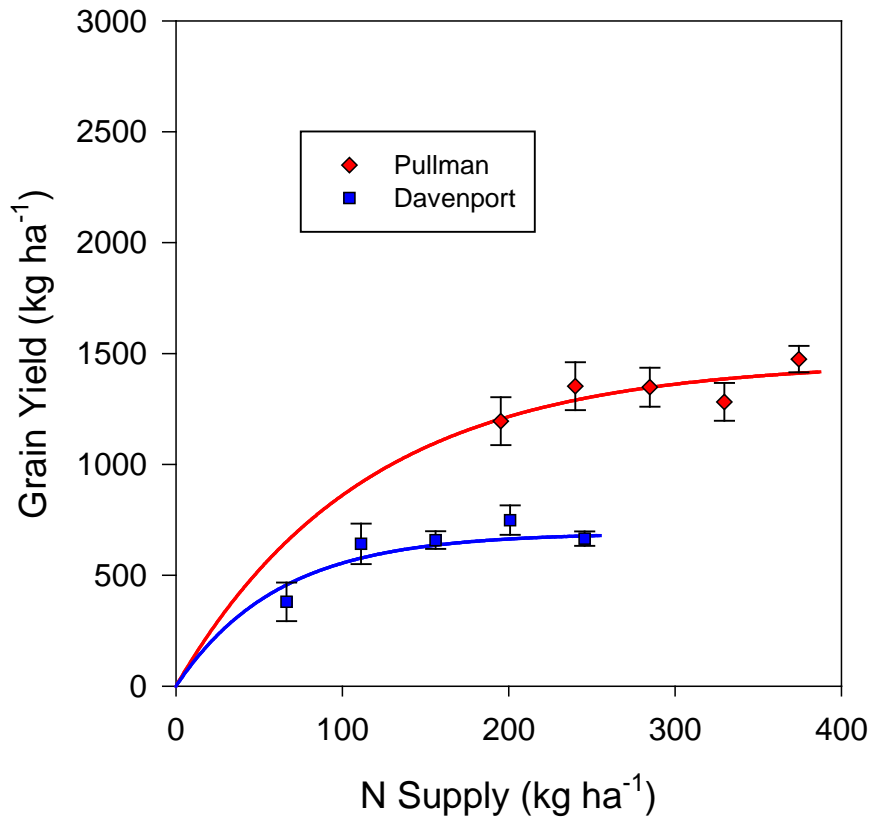
- Winter canola seeded to fallow
  - cv Dekalb DKW 41-10
- Problematic Establishment
  - low seed zone moisture
  - winter kill
- Spring canola seeded
  - cv Dekalb Genuity



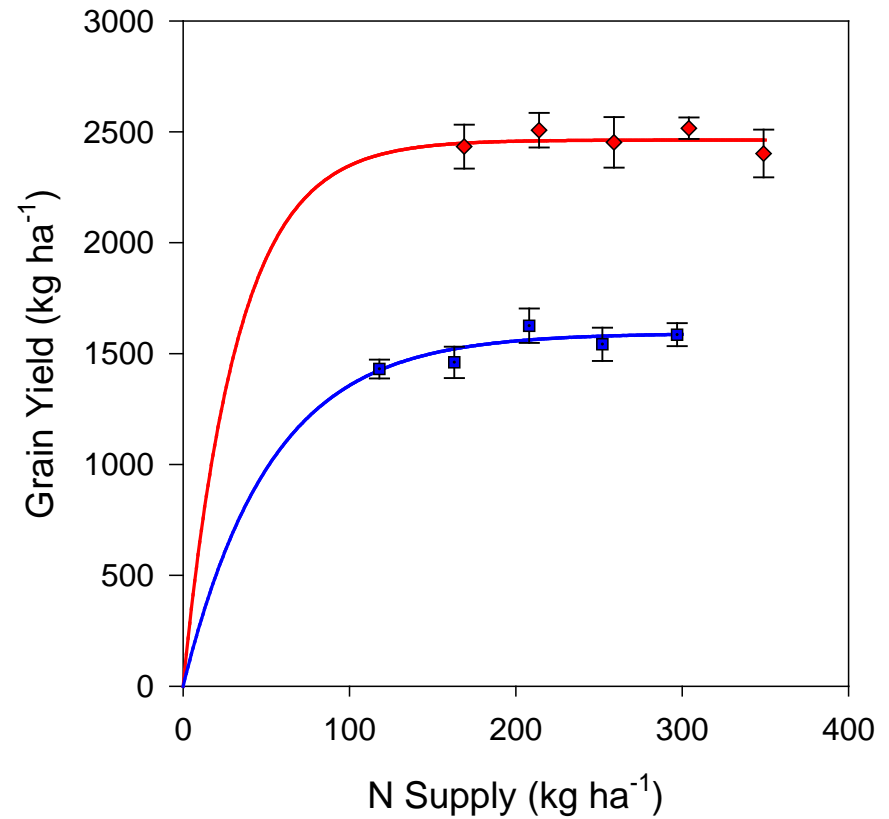


# Grain Response to Nitrogen

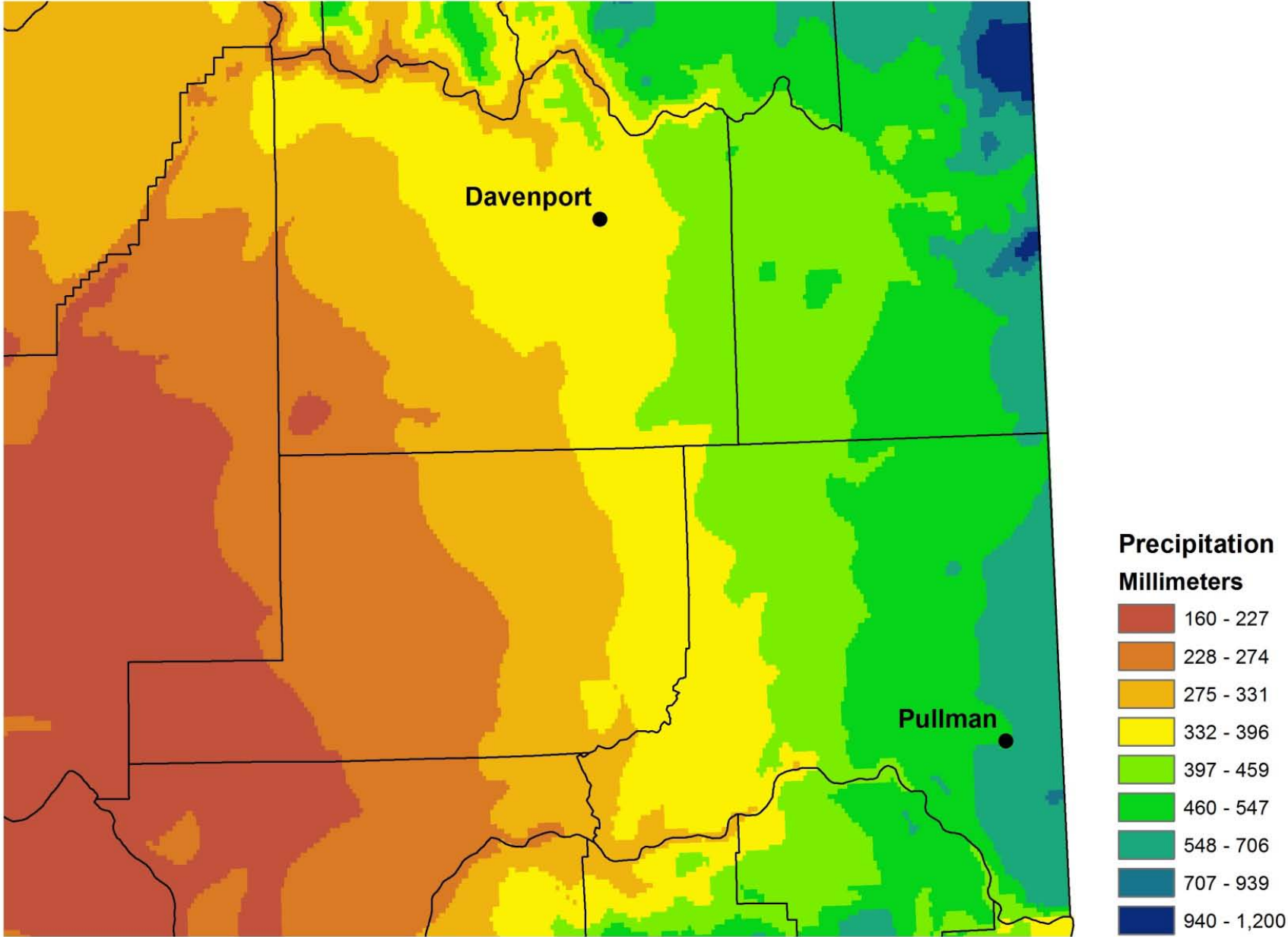
2008



2009

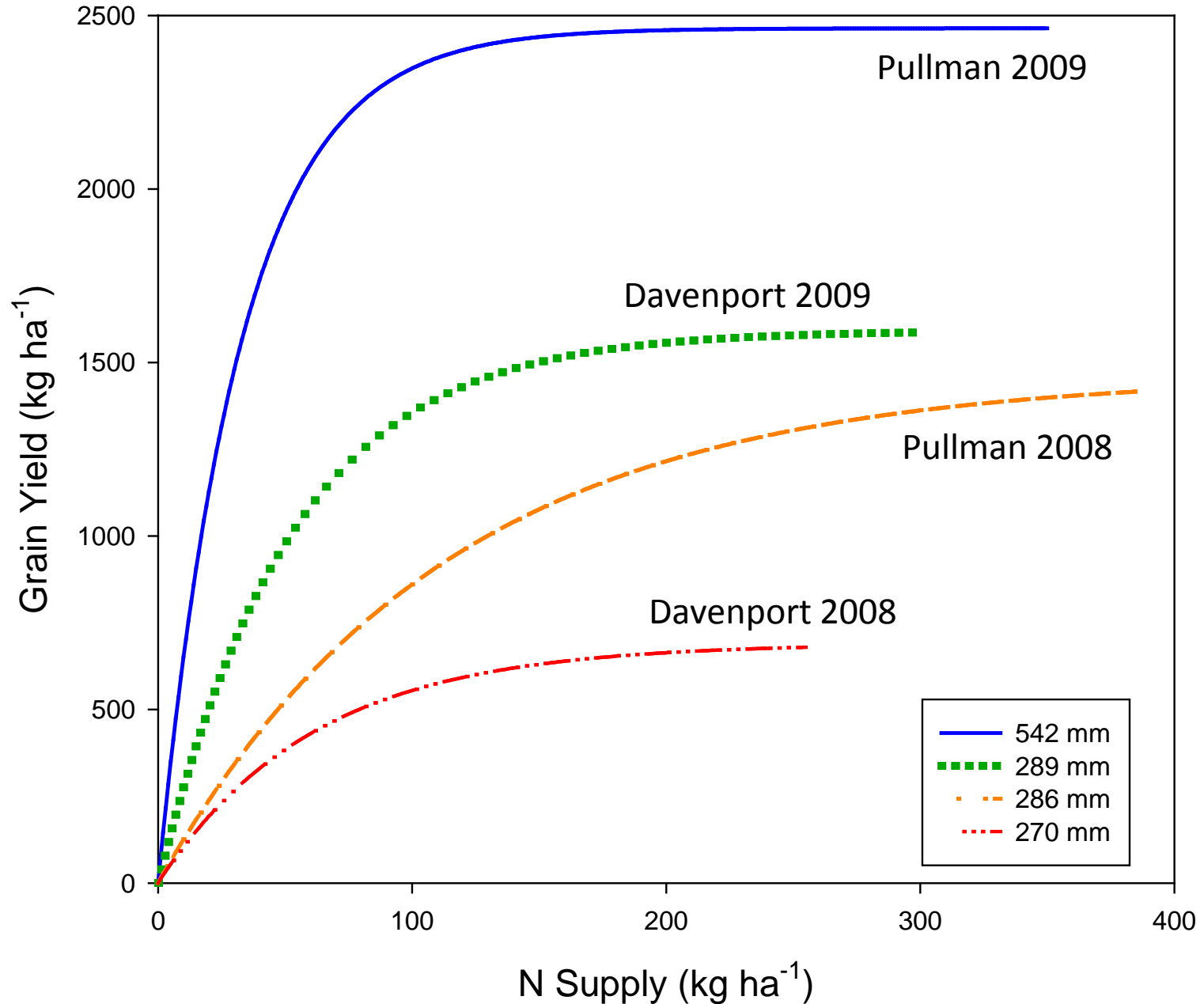


# Eastern Washington Precipitation Gradient



Courtesy of Rick Rupp

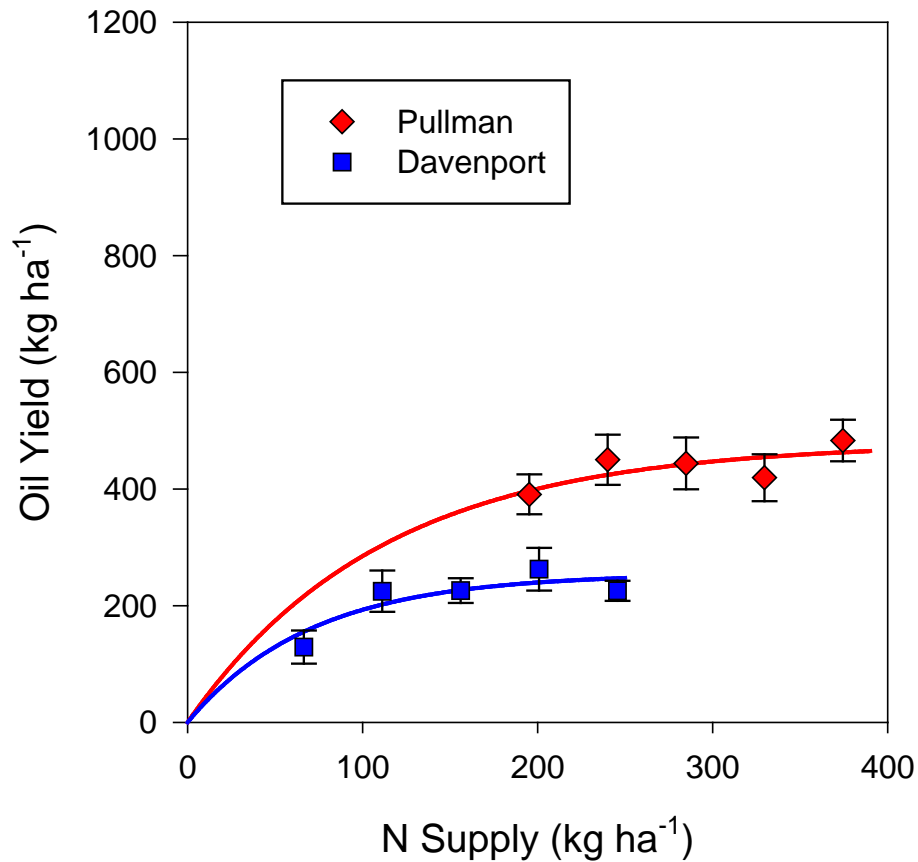
# Grain Yield Response to Nitrogen and Available Water



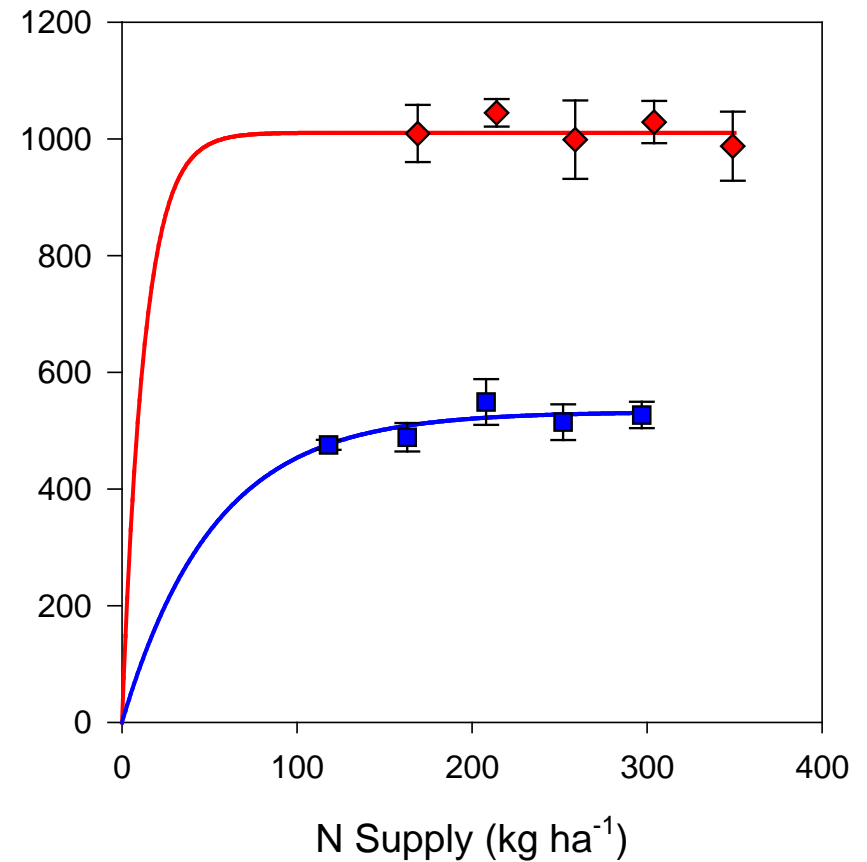


# Oil Response to Nitrogen

2008



2009



# Nitrogen Response

N supply (applied N) to reach 90 % max yield

Site/Year	Grain (lb ac <sup>-1</sup> )	Oil (lb ac <sup>-1</sup> )
Pullman/2008	232 (58)	214 (40)
Davenport/2008	156 (67)	138 (79)
Pullman/2009	67 (-84)	21 (-129)
Davenport/2009	107 (3)	107 (3)



# Conclusions

- High residual soil N dampened N response
- Higher yield potential wasn't correlated with higher N requirement
- Little or no N is needed when residual N is greater than 100 lb/ac
- There was an NxS interaction but no practical significance was apparent
- **Catch and release properties of canola may be valuable in crop rotation**

