

Soils and Crops
2017



Bourgault Phosphorus Trials



Curtis de Gooijer PAg, CCA
Bourgault Agronomist

Phosphorus Management

Challenges

1. Important for early season 'pop-up' effect
2. Low mobility in the soil
3. Approximately 80% of Saskatchewan soils are deficient
4. Producers are replacing approximately 75% of what they are removing

Phosphorus Placement

❖ Seed Placed

Crop	Actual P ₂ O ₅ (lb/ac.)
Cereals	50
Canola	25
Canaryseed, Pinto bean	30
Flax, pea, forages (alfalfa, bromegrass)	15
Faba bean	40
Lentil, mustard, chickpea	20

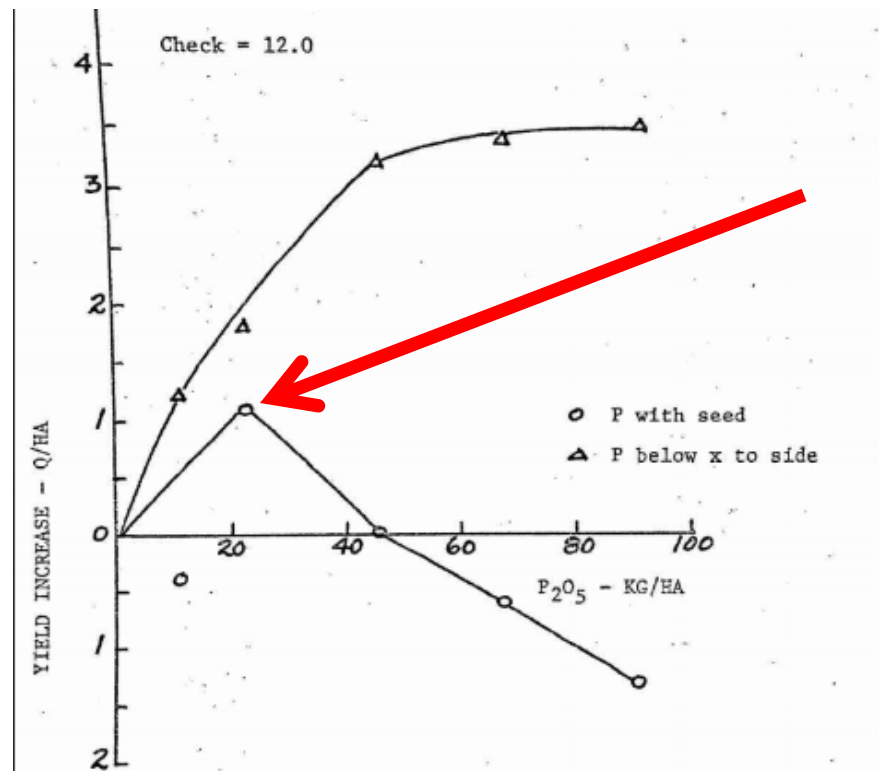
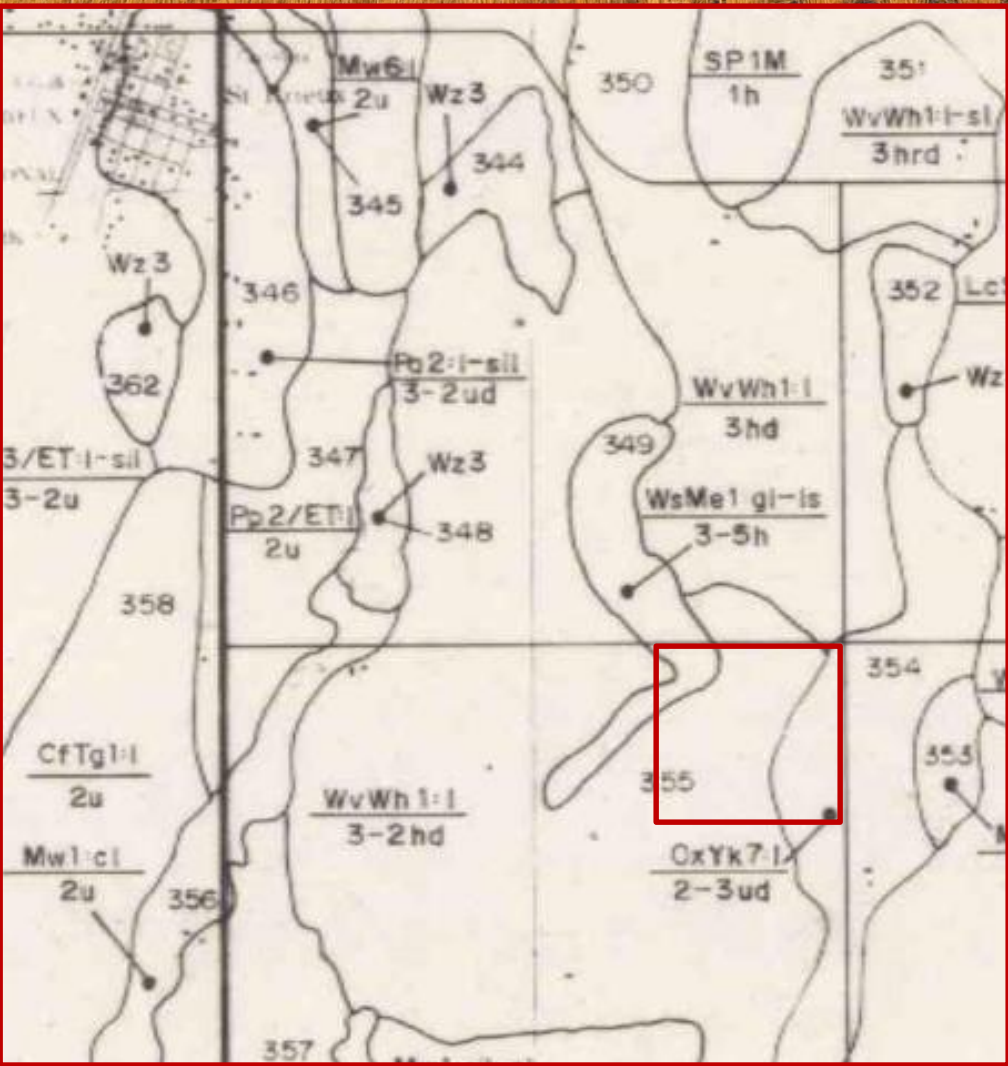
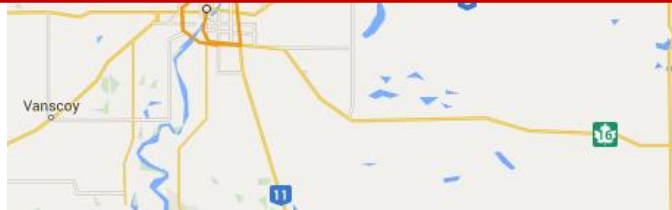


Figure 4. Effect of phosphate fertilizer placement method on yields of Torch rapeseed on fallow. Mean of twenty-one trials on four soil types during 1972-76 (5 yr.)



St. Brieux



Phosphorus Placement

Areas of focus:

1. High amount of Seed Placed Phosphorus
2. Mid-row Band Phosphorus Uptake
3. Triple Shoot Configuration

Trial Design

- ❖ 400' x 30'
- ❖ Replicated 3 times in randomized blocks
- ❖ 16 PPM P_2O_5



Equipment

- ❖ Bourgault L7550
 - Capable of supplying 3 separate air ways
 - 5 tank metering



Equipment

- ❖ Bourgault 3320 – 30'
- ❖ Bourgault 3720 – 30'
- ❖ Dual knife – 30'

Bourgault 3320

10" Spacing

¾" opener

MRB Equip

Bourgault 3720

10" Spacing

Disc Wing Scraper

MRB Equip

Dual Knife

12" Spacing

½" dual knife

MRB Equip



Fertilizer

- ❖ Yield Targets
 - *Canola – 60bu/acre*
 - 55lbs P₂O₅ removal

- ❖ Fertilizer - Blend
 - *120-0-20-40*
 - *Urea, Potash, Tiger 50*

 - **MAP (11-52-0) Phosphorus**

Treatments

Canola

- ❖ 0 P₂O₅ Control
- ❖ 55lbs P₂O₅ Seed Row
- ❖ 55lbs P₂O₅ Band (MRB or SB)
- ❖ 25lbs P₂O₅ Seed Row
- ❖ 15lbs P₂O₅ Seed Row 40lbs P₂O₅ in Band (MRB or SB)

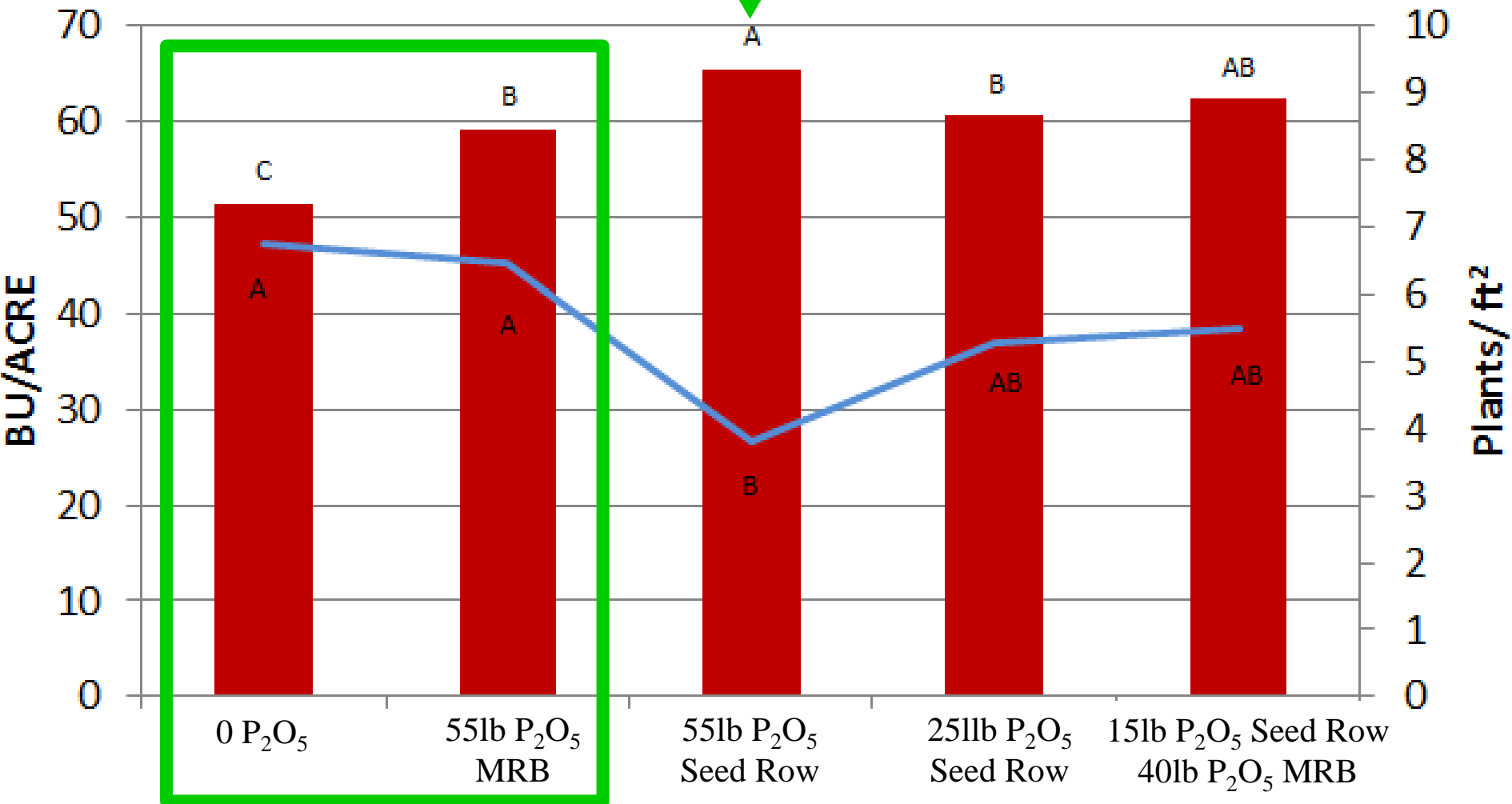
- ❖ Triple Shoot
 - *Seed placed by itself*
 - *55lbs P₂O₅ in Band*
 - *Fertilizer blend in the MRBs*

Canola - 3320- 2016

Yield LSD 4.1
 Plants LSD 1.8
 Confidence 90%

Values

■ Average of ADJ Yield — Average of Plant/ft²



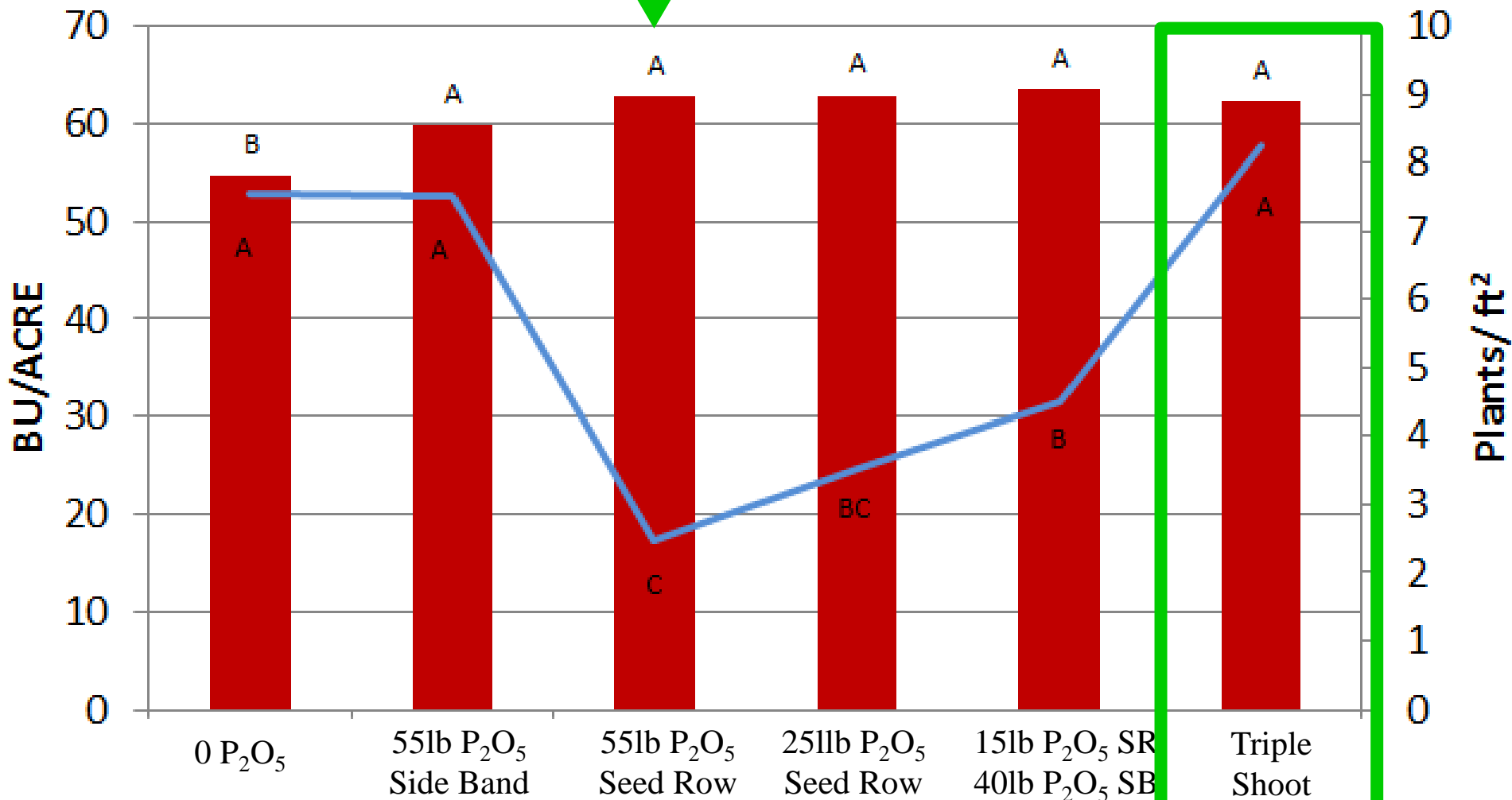
Canola - Dual Knife - 2016

Values

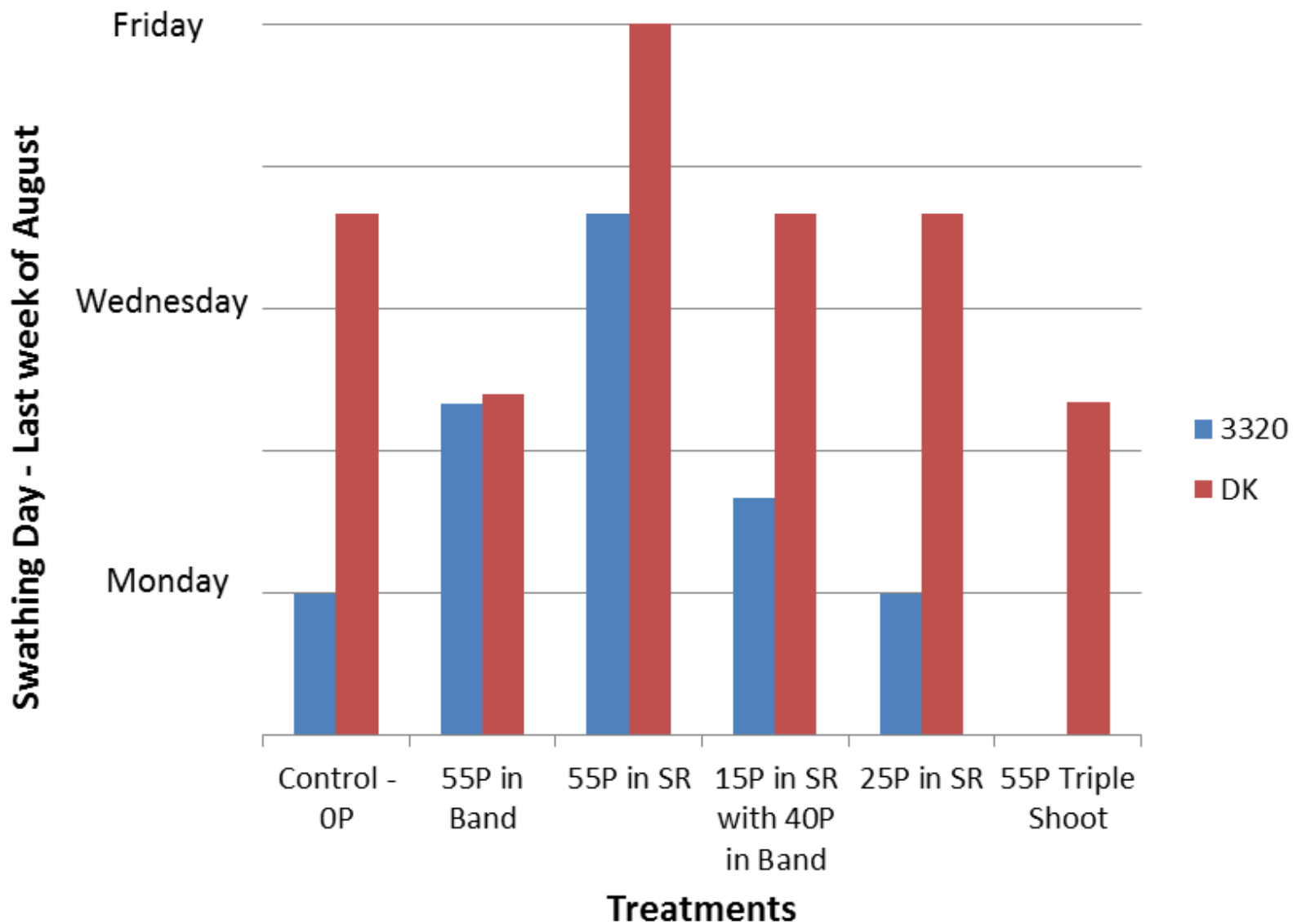
█ Average of ADJ Yield

— Average of Plant/ft²

Yield LSD 4.1
Plants LSD 1.8
Confidence 90%



Swath Timing 2016





Phosphorus Placement

Areas of focus:

- 1. High amount of Seed Placed Phosphorus**
 - ❖ Achieved highest yield with 55lb P_2O_5 in seed row but increased time until maturity
- 2. Mid-row Band Phosphorus Uptake**
 - ❖ Yield response to Mid-row banded phosphorus
- 3. Triple Shoot Configuration**
 - ❖ No yield gain but increase in plant counts



Thank you!

References

- Ukraintez H. 1977. *Effect of Phosphate Placement on Yields of Different Crops in West-Central Saskatchewan.* Presented at Soils and Crops 1977.