

# Nitrogen Type, Rate, and Method of Application in Dry Beans

University of Idaho Extension  
Idaho Bean Commission

# Study Design

- Two years: 2014, 2015
- Two sites: Parma R&E and Shewmaker Bros. farm in Kimberly
- 4x rep in 2014, 5x rep in 2015
- Harvested 2 data rows in 2014, 4 data rows in 2015
- Othello pinto-Parma, UI 527 Pink- Kimberly







# N Type

## 2014

- Urea
- Urea 20 top dress
- Urea 20 foliar
- 50 Urea/50 poly coated
- 25 Urea/75 poly coated
- Poly coated- ESN

## 2015

Fewer treatments with more harvested area

- Urea
- Urea 20 to dress
- 50 Urea/50 poly coated
- Poly coated- ESN

# N Rates

- 27lb/ac, 54lb/ac, 80lb/a total (33%, 66%, 100%)
- Top dress- 20 lbs/ac PPI and remainder applied @ V3
- Foliar- 20 lbs/ac Urea PPI and remainder applied by spray @ R1
  - Kugler KQ-XRN 28-0-0 (0.7, 1.3, 2.1 gal/ac) with Headline fungicide





# 2014 Results-Kimberly

Location	Treatment	N fertilizer rate (lb N/acre)		
		27	54	80
		Yield (lb/acre)		
Kimberly, Idaho  Pink bean-UI 537  Soil N = 40 lb N/acre (0-2 ft.)  p-value = 0.2362	Urea	3,657	<b>3,709</b>	3,643
	Urea/poly coated Urea 50/50 blend	3,909	<b>3,974</b>	3,792
	Urea/poly coated Urea 25/75 blend	3,732	3,508	<b>3,831</b>
	Poly coated Urea	3,587	3,341	<b>4,002</b>
	Top-dressed Urea	<b>3,829</b>	3,813	3,779
	Foliar N fertilizer	3,669	<b>3,758</b>	3,631
	Control (No N applied) --- 3,473			











# 2014 Results-Parma





# 2015 Results-Kimberly

Location	Treatment	N fertilizer rate (lb N/acre)		
		27	54	80
		Yield (lb/acre)		
Kimberly, Idaho  Pink bean-UI 537  Soil N = 120 lb N/acre (0-2 ft.)  p-value = 0.0802	Urea	3,949 bc	<b>4,132</b> abc	3,995 abc
	Urea/poly coated Urea 50/50 blend	4,013 abc	<b>4,276</b> a	3,837 c
	Poly coated Urea	4,043 abc	<b>4,244</b> ab	4,153 ab
	Top-dressed Urea	4,100 abc	<b>4,157</b> ab	4,080 abc
	Control (No N applied) --- 3,950 bc			





# 2015 Results-Parma

Location	Treatment	N fertilizer rate (lb N/acre)		
		27	54	80
		Yield (lb/acre)		
Parma, Idaho  Pinto-Othello  Soil N = 83 lb N/acre (0-2 ft.)  p-value = 0.8402	Urea	<b>3,418</b>	3,169	3,144
	Urea/poly coated Urea 50/50 blend	<b>3,507</b>	<b>3,504</b>	3,408
	Poly coated Urea	3,392	<b>3,565</b>	3,359
	Top-dressed Urea	3,206	3,275	<b>3,567</b>
	Control (No N applied) --- 3,350			

# Bottom-line Recommendations

- Don't change current UI guides
  - Not enough data either way
- Foliar N showed no significant response for our study
- Pinks in Kimberly responded to treatments with 120 lbs/ac soil test N. Why?
- Would not recommend petiole sampling for beans.
  - No significance for any nutrient (N, nitrate-N, P, K, micros)



# Future Study Opportunities

- Similar trial using garden beans
- Bean variety by N rate trial
- Look more closely at bean N response to fertilizer on differing soil test N rates
- Furrow vs Sprinkler study
  - Is there N left at the top of the hill?

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