How Bright is the Future of Dry Bean Production in ND and MN?

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EXTENDING KNOWLEDGE ›› CHANGING LIVES

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Topics

- NDSU dry bean breeding program
- Overview of recent NDSU Extension dry bean production publications; and educational events
- Economics

2025 Bean Day (Jan 17; Fargo)

The dry bean breeding program started at NDSU in 1980 with Ken Grafton as the first breeder. Osorno is the second breeder, having taken over the program in 2007.

"The NDSU program is the youngest in the U.S. and has grown to be the largest dry bean public breeding program in the nation," Osorno says. "Across those years, NDSU has developed and released more than 20 varieties across multiple market classes."

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Department of Plant Sciences
North Dakota State University
Fargo - ND

US and Canada: Dry bean breeding programs*

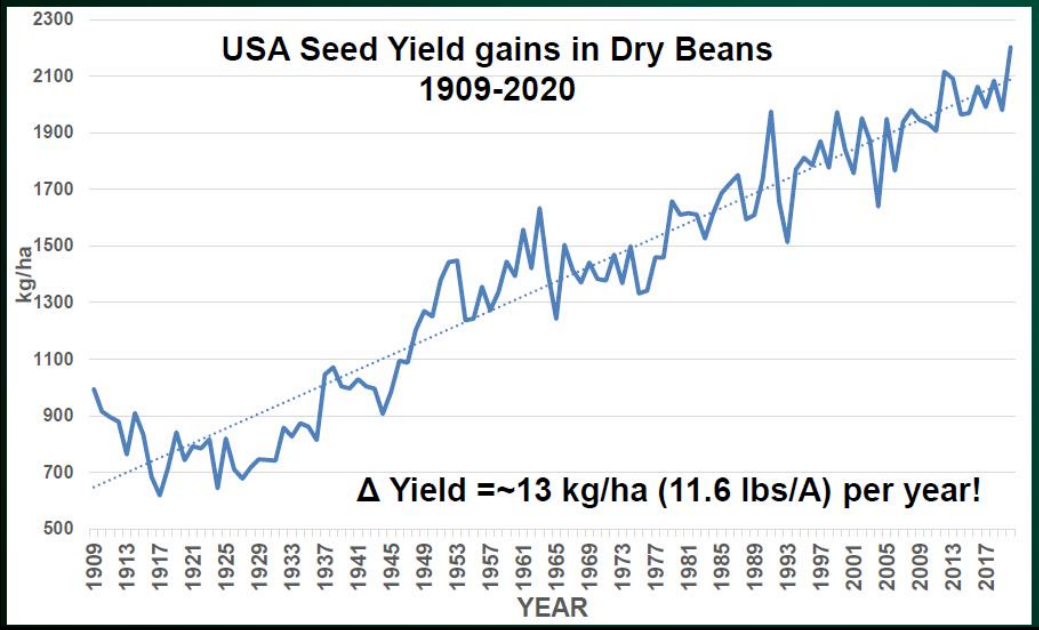
- US
  - ND, MI and NE
    - NY, OR, CA, WY and SC (horticultural)
    - USDA (4 sites; genetic trait development)
- Canada
  - Ontario, Saskatchewan and Quebec (?)
  - Ag Food Canada: Ontario and Alberta

*source: Juan Osorno

Remember: seed yield gains in dry beans happen in small increments!

Today, we produce more beans per acre!

(Vandemark et al., 2014 and USDA-NASS)



Seed yield gains within NDSU breeding program during the last ~35 years		
Market Class	Δ gain/loss	lbs/acre/year
Black	0.058	5.8
Kidney	0.138	13.8
Navy	0.011	1.1
Pinto	0.087	8.7

Additional Research Areas/Projects

- High Throughput Phenotyping (HTP)
- Soybean Cyst Nematode
- Symbiotic Nitrogen Fixation
- Predictive Breeding (AI tools)
- Popping beans!
- Many others!

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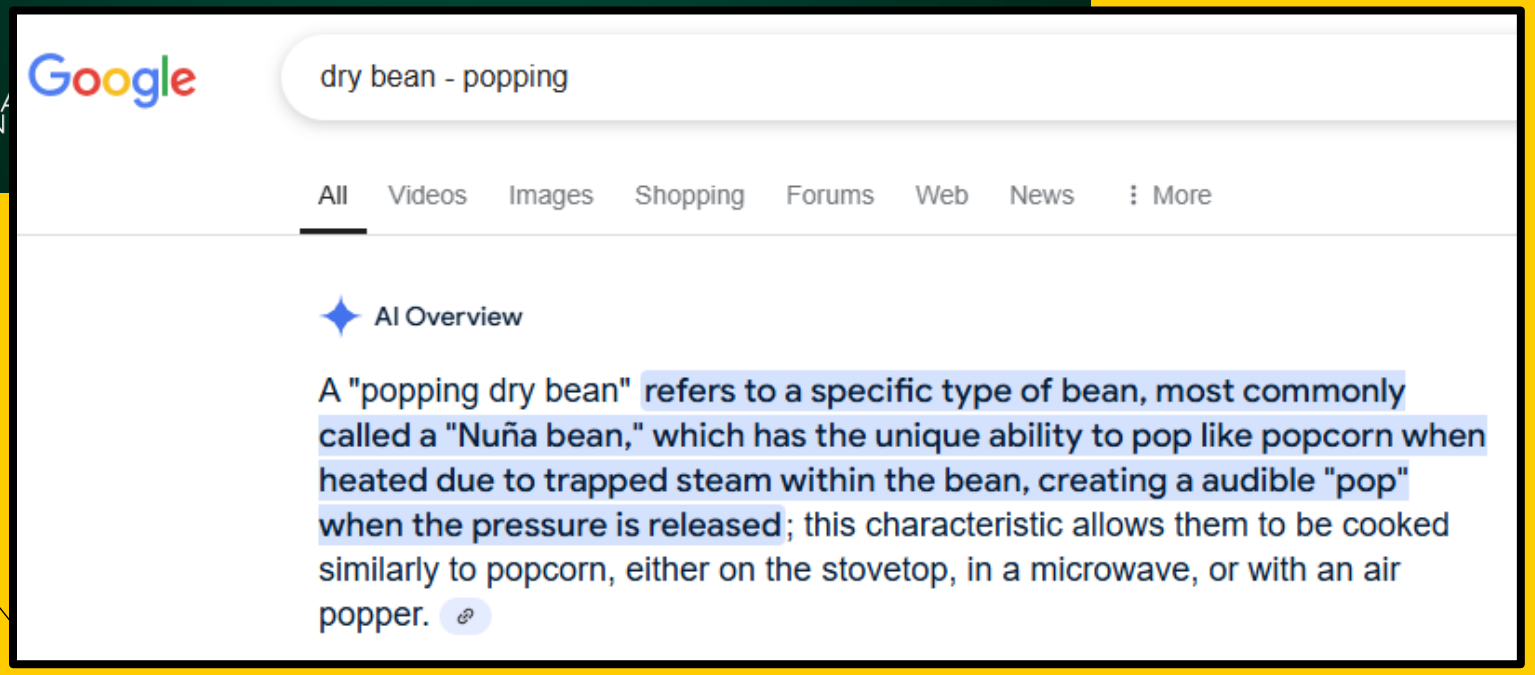

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A2125 (March 2024)

Seed Yield Effects Associated With Soybean and Dry Bean Plant Establishment Factors

Greg Endres, Extension Cropping Systems Specialist, Carrington Research Extension Center

The following tables are results from North Dakota State University Agricultural Experiment Station and Extension field research trials conducted across the state during the past 25 years. The research was partially supported by the North Dakota Soybean Council and Northarvest Bean Growers Association.

NDSU research summary of **dry bean** plant establishment factors: Seed yield increase with improved vs. traditional practices

Factor[1]	Improved Practice (IP)	Yield Increase IP vs. TP (%)	Traditional Practice (TP)	Number of Trials
Variety selection	above trial average	4	trial average	9
Tillage system	strip-till	similar[4]	conventional	5
Planting date	early (May 11–24)	similar[5]	normal (May 22–June 5)	6
• pinto, black and navy	late (June 5–18)			
Plant stand (plants per acre)	87,000	5	72,000	3
Row spacing	Intermediate (14–22 inches)		wide	
• pinto		20		11
• black		9		4
• navy		22		3
Seed inoculation with rhizobia bacteria	yes[2]	2	no	10
Phosphorus fertilizer application	in-furrow or band[3]	16	broadcast	3

[1]Pinto bean unless other market classes identified.
[2]Surveys indicate majority of growers do not inoculate seed.
[3]10-34-0 at 3-6 gpa (two-third of broadcast rate); band = 2 inches from seed.
[4]No yield advantage with strip-till but benefits include reduced soil erosion, weed suppression, long-term improvement of soil health, etc.
[5]Risks are associated with early planted dry bean into cold soils and with frost occurring after plant emergence.

NDSU Extension publications:
Dry bean production

- ND Dry Bean Variety Trial Results for 2024 and Selection Guide
- Dry Bean Production Guide
- Impact of Planting Dates on Dry Edible Bean
- Black and Navy Bean Response to Row Spacing and Plant Population in Eastern North Dakota
- Pinto Bean Response to Row Spacing and Plant Population in North Dakota
- Fertilizing Pinto, Navy and Other Dry Edible Bean
- Pinto Bean Response to Phosphorus Starter Fertilizer in East-central North Dakota
- Winter Rye as a Preceding Cover Crop for Pinto Bean Production in ND
- 2022 Dry Bean Grower Survey of Production, Pest Problems and Pesticide Use in Minnesota and North Dakota

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NORTHARVEST BEAN GROWERS ASSOCIATION

- Northarvest **Be**
  https://northarv
- NDSU Extensi
  webinars

Getting It Right

Getting It Right is an annual crop production conference featuring the latest research-based production information presented by NDSU specialists.

Click on the links below to register for this season's conferences.

Click here to register for ALL sessions.

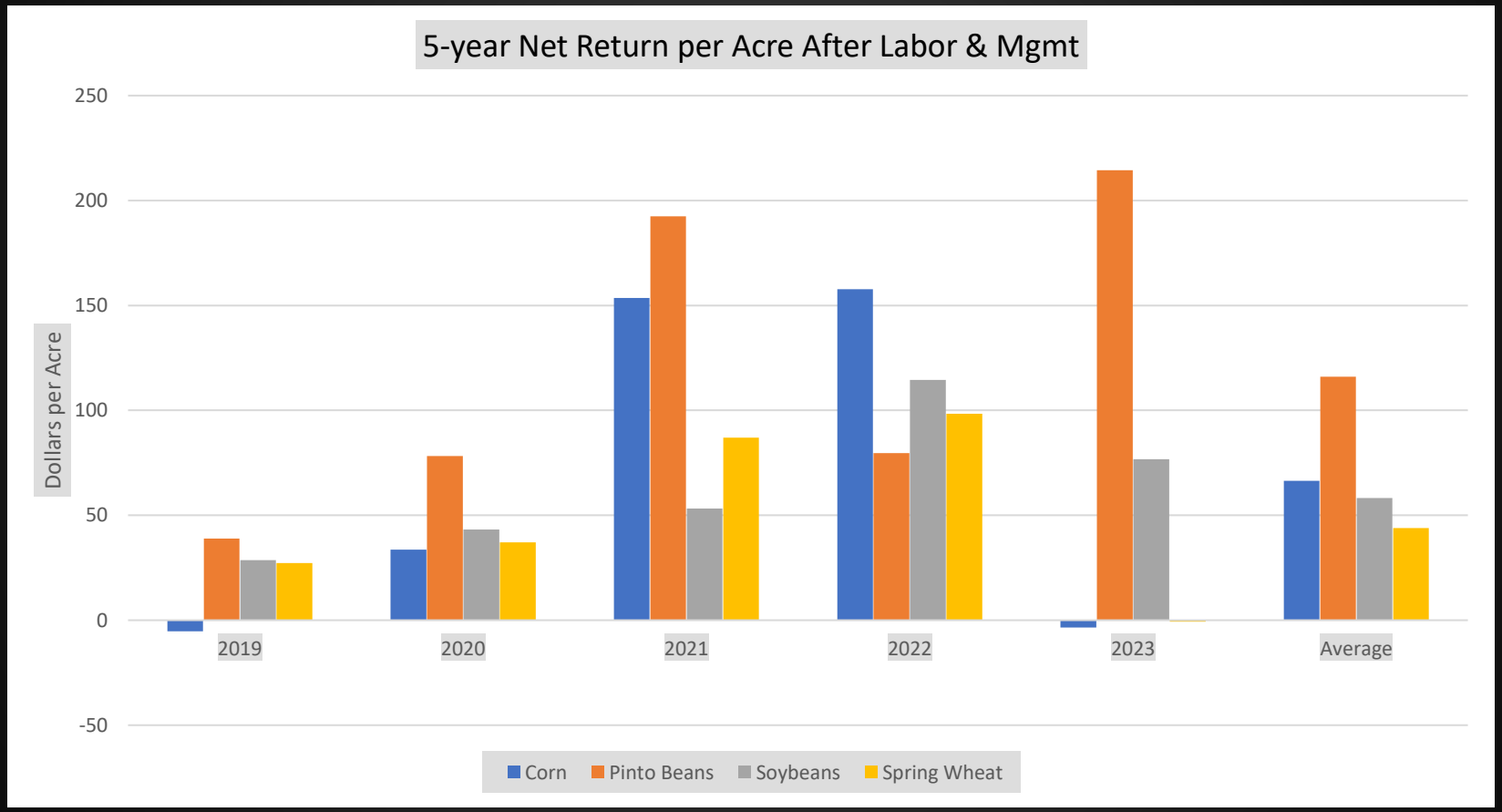
GIR Flax Tuesday, February 4, 2025

GIR Dry Bean Monday, February 10, 2025

GIR Canola Friday, March 14, 2025

Each conference will be recorded and archived. CCA credits will be available.

ND Farm Business Management, 2019-23*



*Jason Fewell

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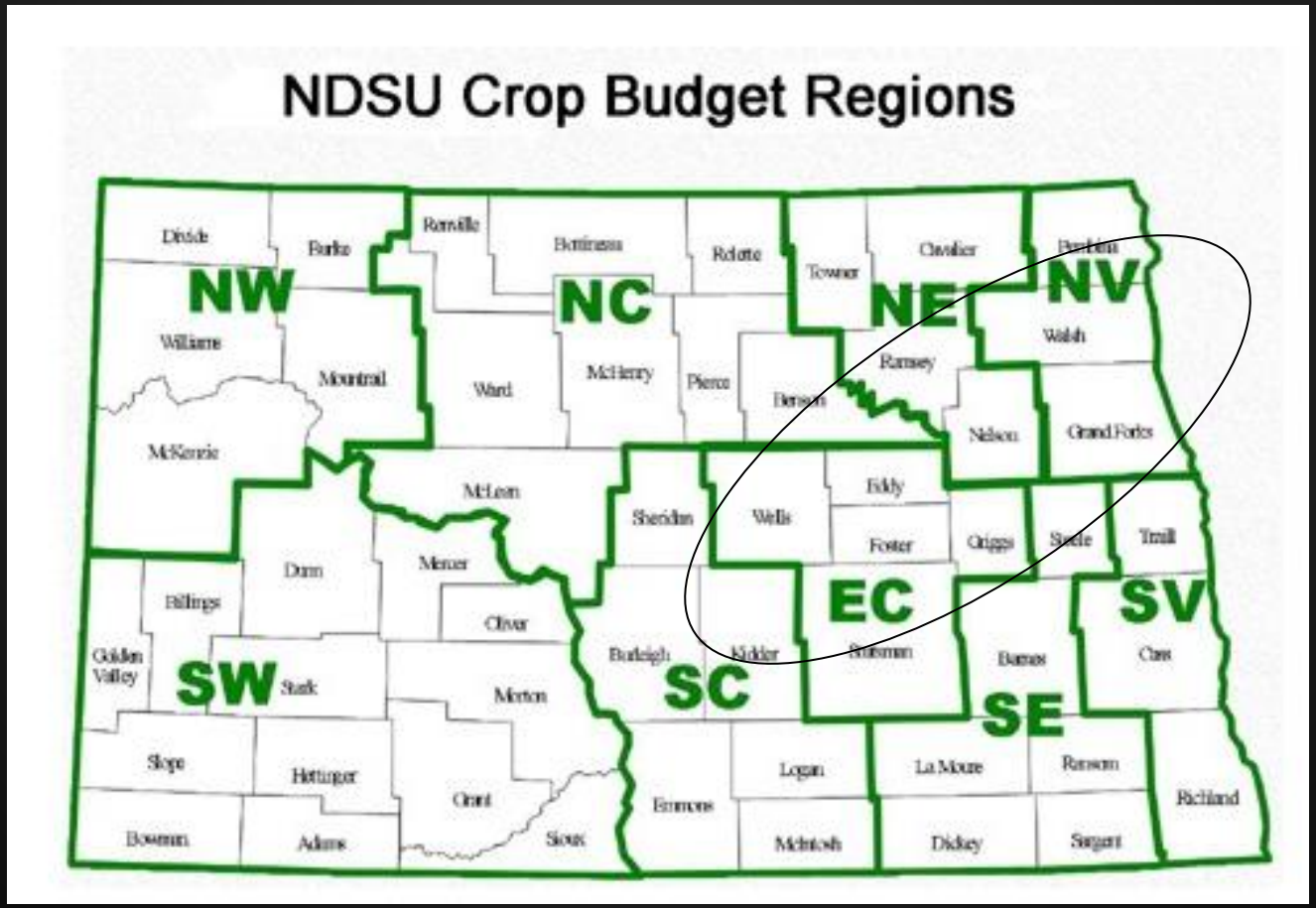
FARM MANAGEMENT PLANNING GUIDE

February 2025

Projected 2025 Crop Budgets

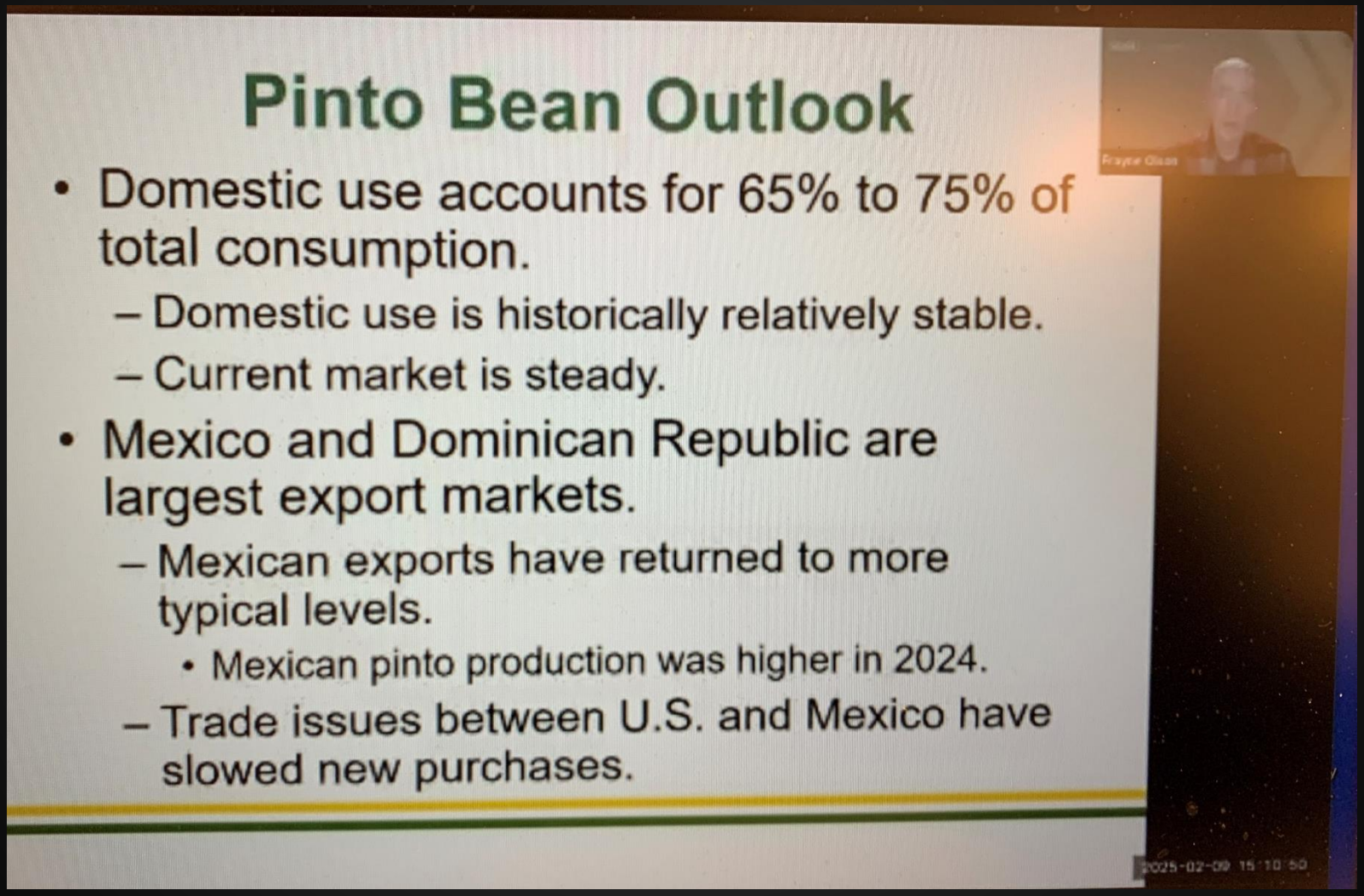


ND region 2025 crop budgets:
Major crop comparisons to dry bean

	Corn	Soybean	Spr wheat	**Dry bean**
East central				
Yield (bu/A)	145	35	54	1720 (lb/A)
Market ($/bu)	4.00	9.50	6.30	27 ($/cwt)
Return to labor and management ($/A)	27.70	32.10	(12.40)	**20.40**
North Valley				
Yield (bu/A)	140	34	63	1760 (lb/A)
Market ($/bu)	4.00	9.50	6.30	27 ($/cwt)
Return to labor and management ($/A)	13.60	8.70	(9.60)	**2.30**

Dry Bean GIR

(Frayne Olson, Extension crops marketing specialist; Feb 10, 2025)

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