E1802

2015 DRY BEAN Grower Survey

of Production, Pest Problems and Pesticide Use

in Minnesota and North Dakota

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In cooperation with the Northarvest Bean Growers Association

NDSU EXTENSION SERVICE

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Introduction

The 2015 dry bean grower survey is the 26th annual survey of varieties grown, pest problems, pesticide use and grower practices of the Northarvest Bean Growers Association, an association of dry edible bean growers in Minnesota and North Dakota. Research and Extension faculty at North Dakota State University and the directors of the Northarvest Bean Growers Association developed the survey form (Appendix I). The survey was mailed to all Northarvest bean growers. All participants in the survey were anonymous.

Results of previous surveys dated 1987-1992, 1994-2000, 2002 and 2004-2014 have been published (see References). No surveys were conducted in 1993 and 2001. In 2003, the survey was completed by dry bean producers who attended the Northarvest Bean Day in Fargo during the winter. However, the lack of responses made processing and analyses of results unreliable, so no report was compiled.

Data reported in the figures represent totals for the entire Northarvest survey unless otherwise noted. Data reported in the tables are broken down by state and also are totaled for the entire Northarvest survey. Percent values in tables and figures are rounded to one decimal for clear presentation. Consequently, percent values in some tables and figures may not total exactly 100 (for example, 99.9 or 100.1 percent) when the presented values are added. Other instances where percent values do not total 100 percent are explained in footnotes to the tables.

Throughout this report, trade names of chemicals often are presented as an aid for clearer communication. Mention of trade names does not constitute endorsement or recommendation by North Dakota State University or the Northarvest Bean Growers Association.

Acknowledgments

A grant from the Northarvest Bean Growers Association funded the survey.

Cover photos by P.B. Beauzay, S.G. Markell and H.J. Kandel.

Production

Table 1. Number of Northarvest dry bean growers responding, acres planted by respondents and total state acres in 2015.

Growers	No. of respondents	Respondents' acres	Total acres[a]	Acres surveyed (% of total)
Minnesota	51	23,651	190,000	12.4
North Dakota	103	68,711	655,000	10.5
Northarvest	154	92,362	845,000	10.9

[a]Total of dry bean acres planted for Minnesota and North Dakota (source: USDA National Agricultural Statistics Service).

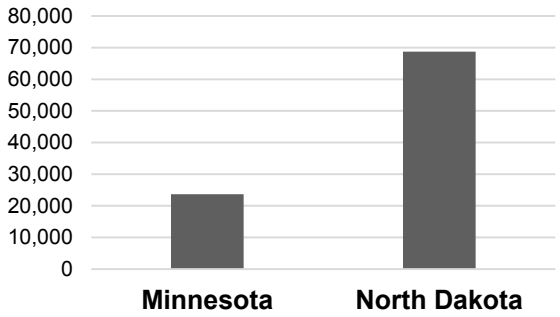

Figure 1. Northarvest dry bean acres planted by state in 2015 (respondents' acres only).

Table 2. Dry bean production by county in 2015.

Minnesota	No. of respon-dents[a]	Acres[b]	North Dakota	No. of respon-dents[a]	Acres[b]
Polk	9	5,098	Grand Forks	21	10,894
Otter Tail	6	3,770	Walsh	20	9,299
Mahnomen	5	2,283	Pembina	12	8,685
Marshall	5	2,203	Wells	6	5,501
Norman	1	2,200	McLean	5	4,691
Swift	2	1,286	Nelson	8	4,374
Kandiyohi	4	1,215	Traill	7	4,180
Wadena	3	1,118	Steele	9	3,962
McLeod	2	695	Benson	6	3,855
Renville	4	623	Ramsey	4	2,930
Crow Wing	1	410	LaMoure	2	2,600
Kittson	1	400	Dickey	4	1,398
Sherburne	1	300	Barnes	3	1,120
Wilkin	1	300	Towner	2	925
Grant	1	290	Cavalier	3	810
Clay	1	250	Ransom	2	730
Morrison	2	250	Griggs	2	640
Beltrami	1	230	Stutsman	1	522
Traverse	1	210	Burleigh	1	400
Lac qui Parle	1	150	Cass	1	400
Benton	1	140	Eddy	3	351
Stevens	1	130	Oliver	1	310
Todd	1	100	Pierce	1	100
			Richland	1	34
Total	**55**	**23,651**	**Total**	**125**	**68,711**

[a]Some respondents had dry bean acreage in more than one county.
[b]Respondents' acres only.

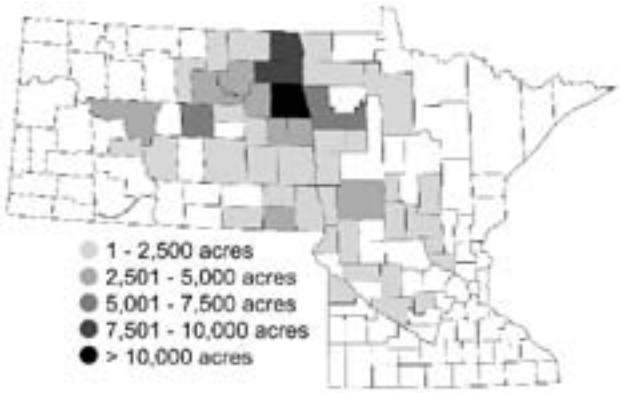

Figure 2. Northarvest dry bean production by county in 2015 (respondents' acres only).

Table 3. Dry bean acres harvested, irrigated, on tile-drained ground, and damaged by hail, frost and water in 2015.

	Acres reported (no.)[a]	Acres reported (%)[a]
Minnesota		
Harvested	23,045	97.4
Irrigated	7,103	30
Tile-drained	5,559	23.5
Water-damaged	6,297	26.6
Hail-damaged	2,429	10.3
Frost-damaged	0	0
North Dakota		
Harvested	65,182	94.9
Irrigated	2,374	3.5
Tile-drained	1,995	2.9
Water-damaged	21,550	31.4
Hail-damaged	9,134	13.3
Frost-damaged	1,100	1.6
Northarvest		
Harvested	88,227	95.5
Irrigated	9,477	10.3
Tile-drained	7,554	8.2
Water-damaged	27,847	30.1
Hail-damaged	11,563	12.5
Frost-damaged	1,100	1.2

[a]Respondents' acres only.

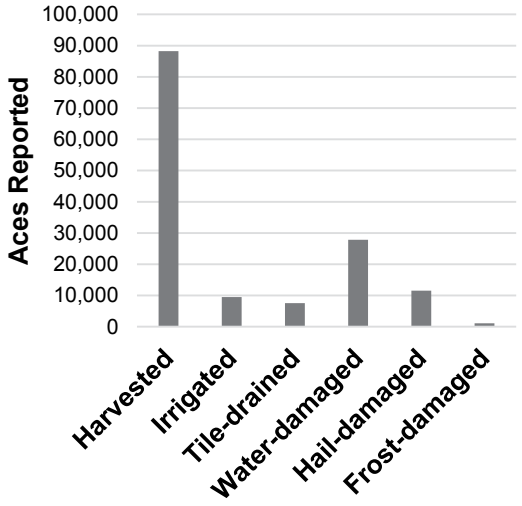

Figure 3. Northarvest respondents' reported acres from Table 3.

Table 4. Dry bean market classes grown in 2015.

Market class	Acres reported (no.)[a]	Acres reported (%)[a]
Minnesota		
Kidney	10,336	43.7
Navy	8,267	35
Black	4,196	17.7
Pinto	482	2
Pink	370	1.6
Cranberry	0	0
Great Northern	0	0
Small Red	0	0
Total	**23,651**	**100**
North Dakota		
Pinto	39,215	57.1
Black	15,854	23.1
Navy	9,640	14
Small Red	1,953	2.8
Pink	783	1.1
Kidney	555	0.8
Great Northern	400	0.6
Cranberry	311	0.5
Total	**68,711**	**100**
Northarvest		
Pinto	39,697	43
Black	20,050	21.7
Navy	17,907	19.4
Kidney	10,891	11.8
Small Red	1,953	2.1
Pink	1,153	1.2
Great Northern	400	0.4
Cranberry	311	0.3
Total	**92,362**	**100**

[a]Respondents' acres only.

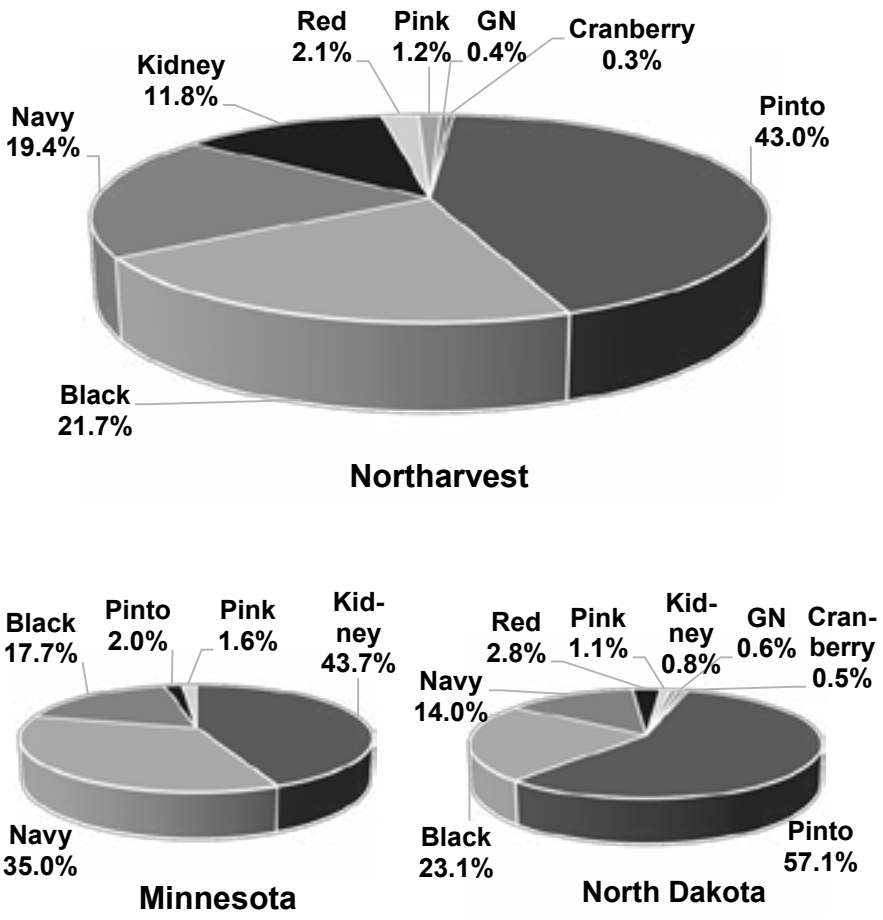

Figure 4. Northarvest dry bean market classes grown in 2015.

Table 5. Dry bean varieties grown in 2015.

		Acres planted[a]					
Variety	**Class**	**Minnesota**	**%[b]**	**North Dakota**	**%[b]**	**Northarvest**	**%[b]**
Eclipse	Black	2,278	9.6	13,904	20.2	16,182	17.5
Zorro	Black	1,488	6.3	1,490	2.2	2,978	3.2
Black Cat	Black	430	1.8	460	0.7	890	1
Total Black	**Black**	**4,196**	**17.7**	**15,854**	**23.1**	**20,050**	**21.7**
Etna	Cranberry	0	0	311	0.5	311	0.3
Total Cranberry	**Cranberry**	**0**	**0**	**311**	**0.5**	**311**	**0.3**
Orion	GN	0	0	150	0.2	150	0.2
Taurus	GN	0	0	150	0.2	150	0.2
Aries	GN	0	0	100	0.1	100	0.1
Total GN[c]	**GN[c]**	**0**	**0**	**400**	**0.6**	**400**	**0.4**
Montcalm	Kidney	4,123	17.4	215	0.3	4,338	4.7
Red Hawk	Kidney	2,449	10.4	230	0.3	2,679	2.9
Pink Panther	Kidney	1,050	4.4	0	0	1,050	1.1
Not specified	Kidney	858	3.6	0	0	858	0.9
Cabernet	Kidney	523	2.2	110	0.2	633	0.7
Clouseau	Kidney	430	1.8	0	0	430	0.5
Red Rover	Kidney	375	1.6	0	0	375	0.4
Majesty	Kidney	303	1.3	0	0	303	0.3
Beluga	Kidney	125	0.5	0	0	125	0.1
Big Red	Kidney	100	0.4	0	0	100	0.1
Total Kidney	**Kidney**	**10,336**	**43.7**	**555**	**0.8**	**10,891**	**11.8**
HMS Medalist	Navy	2,795	11.8	6,920	10.1	9,715	10.5
T9905	Navy	3,839	16.2	1,022	1.5	4,861	5.3
Vigilant	Navy	556	2.4	0	0	556	0.6
Teton	Navy	0	0	385	0.6	385	0.4
OB1723-06	Navy	0	0	375	0.5	375	0.4
Vista	Navy	365	1.5	0	0	365	0.4
Indi	Navy	0	0	313	0.5	313	0.3
Ensign	Navy	128	0.5	182	0.3	310	0.3
Not specified	Navy	290	1.2	0	0	290	0.3
T9903	Navy	0	0	287	0.4	287	0.3
Avalanche	Navy	200	0.8	0	0	200	0.2
Navigator	Navy	0	0	156	0.2	156	0.2
Norstar	Navy	50	0.2	0	0	50	0.1
Cascade	Navy	44	0.2	0	0	44	0
Total Navy	**Navy**	**8,267**	**35**	**9,640**	**14**	**17,907**	**19.4**
Floyd	Pink	0	0	748	1.1	748	0.8
ISB473	Pink	230	1	0	0	230	0.2
Sedona	Pink	140	0.6	0	0	140	0.2
Not specified	Pink	0	0	35	0.1	35	0
Total Pink	**Pink**	**370**	**1.6**	**783**	**1.1**	**1,153**	**1.2**
Windbreaker	Pinto	317	1.3	12,120	17.6	12,437	13.5
La Paz	Pinto	0	0	9,502	13.8	9,502	10.3
Monterrey	Pinto	0	0	4,595	6.7	4,595	5
Sinaloa	Pinto	0	0	3,282	4.8	3,282	3.6
Lariat	Pinto	0	0	2,852	4.2	2,852	3.1
Not specified	Pinto	0	0	1,220	1.8	1,220	1.3
ND307	Pinto	0	0	1,200	1.7	1,200	1.3
Stampede	Pinto	0	0	1,100	1.6	1,100	1.2
Vibrant	Pinto	0	0	882	1.3	882	1
Santa Cruz	Pinto	0	0	720	1	720	0.8
Maverick	Pinto	0	0	520	0.8	520	0.6
Othello	Pinto	0	0	500	0.7	500	0.5
Buster	Pinto	165	0.7	300	0.4	465	0.5
Torreon	Pinto	0	0	250	0.4	250	0.3
Medicine Hat	Pinto	0	0	100	0.1	100	0.1
AS8257	Pinto	0	0	72	0.1	72	0.1
Total Pinto	**Pinto**	**482**	**2**	**39,215**	**57.1**	**39,697**	**43**
Rio Rojo	Small Red	0	0	835	1.2	835	0.9
Ruby	Small Red	0	0	786	1.1	786	0.9
Merlot	Small Red	0	0	332	0.5	332	0.4
Total Red	**Red**	**0**	**0**	**1,953**	**2.8**	**1,953**	**2.1**
Grand Total	**All Classes**	**23,651**	**100**	**68,711**	**100**	**92,362**	**100**

[a]Respondents' acres only.
[b]Percent of respondents' total dry bean acreage.
[c]GN = Great Northern.

Table 6. Dry bean production problems reported in 2015.

Worst production problem	Respondents (no.)	Respondents (%)	Acres reported (no.)[a]	Acres reported (%)[a]
Minnesota				
Excess water	23	45.1	6,297	26.6
Diseases	18	35.3	4,367	18.5
Drought	8	15.7	3,019	12.8
Hail	15	29.4	2,429	10.3
Weeds	18	35.3	2,327	9.8
None reported	4	7.8	1,048	4.4
Emergence/stand	10	19.6	1,018	4.3
Applied herbicide injury	8	15.7	906	3.8
Harvest	2	3.9	580	2.5
Insects	2	3.9	340	1.4
Delayed planting	2	3.9	181	0.8
Micronutrient deficiency	2	3.9	180	0.8
Soil salinity	2	3.9	115	0.5
Herbicide drift	3	5.9	19	0.1
North Dakota				
Excess water	70	68	21,550	31.4
Drought	29	28.2	11,852	17.2
Diseases	16	15.5	11,223	16.3
Weeds	25	24.3	9,384	13.7
Hail	33	32	9,134	13.3
Wind	12	11.7	7,400	10.8
Emergence/stand	20	19.4	7,220	10.5
None reported	12	11.7	4,706	6.8
Soil salinity	29	28.2	2,213	3.2
Harvest	6	5.8	2,170	3.2
Applied herbicide injury	3	2.9	1,740	2.5
Delayed planting	9	8.7	1,697	2.5
Frost	1	1	1,100	1.6
Insects	5	4.9	869	1.3
Micronutrient deficiency	3	2.9	360	0.5
Northarvest				
Excess water	93	60.4	27,847	30.1
Diseases	34	22.1	15,590	16.9
Drought	37	24	14,871	16.1
Weeds	43	27.9	11,711	12.7
Hail	48	31.2	11,563	12.5
Emergence/stand	30	19.5	8,238	8.9
Wind	12	7.8	7,400	8
None reported	16	10.4	5,754	6.2
Harvest	8	5.2	2,750	3
Applied herbicide injury	11	7.1	2,646	2.9
Soil salinity	31	20.1	2,328	2.5
Delayed planting	11	7.1	1,878	2
Insects	7	4.5	1,209	1.3
Frost	1	0.6	1,100	1.2
Micronutrient deficiency	5	3.2	540	0.6
Herbicide drift	5	3.2	44	0

[a]Respondents' acres only.

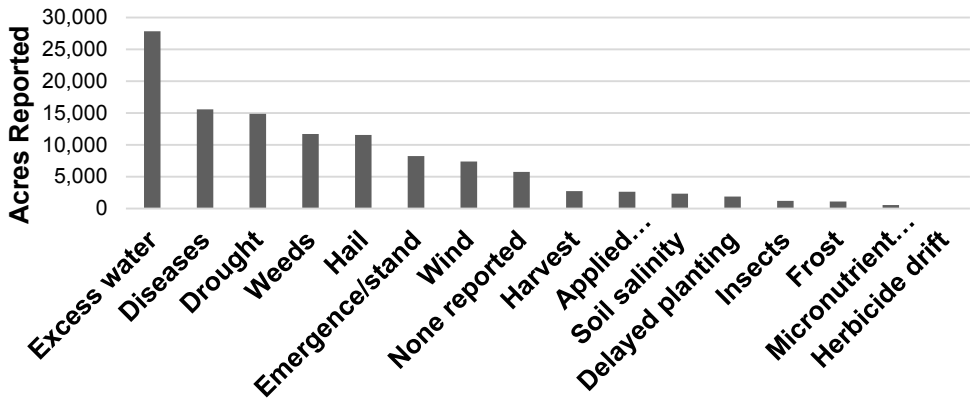

Figure 5. Northarvest respondents' reported acres for dry bean production problems in 2015.

Table 7. Purchased seed size problems that affected acreage planting intentions in 2015.

Variety	Class	Respondents (no.)	Acres reported[a]	Not enough seed			Too much seed		
				Respondents (no.)	Acres affected[a]	%	Respondents (no.)	Acres affected[a]	%
MN									
Eclipse	Black	7	1,802	1	50	2.8	1	15	0.8
Zorro	Black	6	1,453	1	30	2.1	0	0	0
Clouseau	Kidney	2	430	1	10	2.3	0	0	0
Montcalm	Kidney	14	4,123	1	75	1.8	0	0	0
Pink									
Panther	Kidney	3	1,050	1	40	3.8	0	0	0
Medalist	Navy	15	2,795	0	0	0	0	0	0
T9905	Navy	12	3,839	0	0	0	1	10	0.3
Windbreaker	Pinto	2	317	1	16	5	0	0	0
ND									
Eclipse	Black	18	12,829	3	1,880	14.7	1	40	0.3
Zorro	Black	3	1,490	1	150	10.1	0	0	0
Montcalm	Kidney	2	215	0	0	0	0	0	0
Medalist	Navy	22	6,920	2	30	0.4	1	20	0.3
T9905	Navy	9	1,022	2	60	5.9	0	0	0
Teton	Navy	1	385	0	0	0	1	80	20.8
La Paz	Pinto	26	9,502	2	70	0.7	0	0	0
Lariat	Pinto	8	2,852	1	45	1.6	0	0	0
Santa Cruz	Pinto	5	720	1	15	2.1	0	0	0
Windbreaker	Pinto	27	12,120	1	50	0.4	0	0	0
Northarvest									
Eclipse	Black	25	14,631	4	1,930	13.2	2	55	0.4
Zorro	Black	9	2,943	2	180	6.1	0	0	0
Clouseau	Kidney	2	430	1	10	2.3	0	0	0
Montcalm	Kidney	16	4,338	1	75	1.7	0	0	0
Pink									
Panther	Kidney	3	1,050	1	40	3.8	0	0	0
Medalist	Navy	37	9,715	2	30	0.3	1	20	0.2
T9905	Navy	21	4,861	2	60	1.2	1	10	0.2
Teton	Navy	1	385	0	0	0	1	80	20.8
La Paz	Pinto	26	9,502	2	70	0.7	0	0	0
Lariat	Pinto	8	2,852	1	45	1.6	0	0	0
Santa Cruz	Pinto	5	720	1	15	2.1	0	0	0
Windbreaker	Pinto	29	12,437	2	66	0.5	0	0	0

[a]Respondents' acres only.

Table 8. Row spacing by dry bean market class in 2015.

	Black[a]		Cranberry		GN[b]		Kidney		Navy[a]		Pink		Pinto[a]		Red	
Row spacing	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Minnesota																
< 11 inches	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 to 15 inches	3	23.1	0	0	0	0	0	0	2	7.4	0	0	0	0	0	0
16 to 20 inches	0	0	0	0	0	0	0	0	2	7.4	0	0	0	0	0	0
21 to 25 inches	8	61.5	0	0	0	0	6	37.5	21	77.8	1	50	1	50	0	0
26 to 30 inches	2	15.4	0	0	0	0	10	62.5	2	7.4	1	50	1	50	0	0
> 30 inches	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**13**	**100**	**0**	**0**	**0**	**0**	**16**	**100**	**27**	**100**	**2**	**100**	**2**	**100**	**0**	**0**
North Dakota																
< 11 inches	1	4.5	0	0	0	0	0	0	0	0	0	0	1	1.6	0	0
11 to 15 inches	4	18.2	0	0	0	0	0	0	1	3.8	0	0	3	4.7	0	0
16 to 20 inches	2	9.1	0	0	0	0	0	0	2	7.7	0	0	2	3.1	0	0
21 to 25 inches	9	40.9	1	100	1	100	2	50	16	61.5	2	66.7	19	29.7	2	33.3
26 to 30 inches	6	27.3	0	0	0	0	2	50	7	26.9	1	33.3	38	59.4	4	66.7
> 30 inches	0	0	0	0	0	0	0	0	0	0	0	0	1	1.6	0	0
Total	**22**	**100**	**1**	**100**	**1**	**100**	**4**	**100**	**26**	**100**	**3**	**100**	**64**	**100**	**6**	**100**
Northarvest																
< 11 inches	1	2.9	0	0	0	0	0	0	0	0	0	0	1	1.5	0	0
11 to 15 inches	7	20	0	0	0	0	0	0	3	5.7	0	0	3	4.5	0	0
16 to 20 inches	2	5.7	0	0	0	0	0	0	4	7.5	0	0	2	3	0	0
21 to 25 inches	17	48.6	1	100	1	100	8	40	37	69.8	3	60	20	30.3	2	33.3
26 to 30 inches	8	22.9	0	0	0	0	12	60	9	17	2	40	39	59.1	4	66.7
> 30 inches	0	0	0	0	0	0	0	0	0	0	0	0	1	1.5	0	0
Total	**35**	**100**	**1**	**100**	**1**	**100**	**20**	**100**	**53**	**100**	**5**	**100**	**66**	**100**	**6**	**100**

[a]Black, navy and pinto varieties are typically Type II (upright) varieties.
[b]GN = Great Northern.

Table 9. Seeding rate by dry bean market class in 2015.

	Black[b]		Cranberry		GN[c]		Kidney		Navy[b]		Pink		Pinto[b]		Red	
Seeding rate[a]	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Minnesota																
< 70,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70 to 79,000	0	0	0	0	0	0	5	33.3	0	0	0	0	1	50	0	0
80 to 89,000	0	0	0	0	0	0	8	53.3	0	0	1	50	1	50	0	0
90 to 99,000	1	9.1	0	0	0	0	2	13.3	1	4.2	1	50	0	0	0	0
100 to 109,000	3	27.3	0	0	0	0	0	0	6	25	0	0	0	0	0	0
110 to 119,000	4	36.4	0	0	0	0	0	0	9	37.5	0	0	0	0	0	0
120 to 129,000	3	27.3	0	0	0	0	0	0	3	12.5	0	0	0	0	0	0
> 129,000	0	0	0	0	0	0	0	0	5	20.8	0	0	0	0	0	0
Total	**11**	**100**	**0**	**0**	**0**	**0**	**15**	**100**	**24**	**100**	**2**	**100**	**2**	**100**	**0**	**0**
North Dakota																
< 70,000	0	0	0	0	0	0	0	0	0	0	0	0	5	8.5	0	0
70 to 79,000	1	5	0	0	0	0	1	25	1	4	2	66.7	33	55.9	0	0
80 to 89,000	0	0	0	0	1	100	2	50	2	8	1	33.3	16	27.1	4	66.7
90 to 99,000	9	45	1	100	0	0	0	0	6	24	0	0	2	3.4	0	0
100 to 109,000	4	20	0	0	0	0	0	0	4	16	0	0	2	3.4	0	0
110 to 119,000	3	15	0	0	0	0	1	25	10	40	0	0	1	1.7	2	33.3
120 to 129,000	1	5	0	0	0	0	0	0	2	8	0	0	0	0	0	0
> 129,000	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**20**	**100**	**1**	**100**	**1**	**100**	**4**	**100**	**25**	**100**	**3**	**100**	**59**	**100**	**6**	**100**
Northarvest																
< 70,000	0	0	0	0	0	0	0	0	0	0	0	0	5	8.2	0	0
70 to 79,000	1	3.2	0	0	0	0	6	31.6	1	2	2	40	34	55.7	0	0
80 to 89,000	0	0	0	0	1	100	10	52.6	2	4.1	2	40	17	27.9	4	66.7
90 to 99,000	10	32.3	1	100	0	0	2	10.5	7	14.3	1	20	2	3.3	0	0
100 to 109,000	7	22.6	0	0	0	0	0	0	10	20.4	0	0	2	3.3	0	0
110 to 119,000	7	22.6	0	0	0	0	1	5.3	19	38.8	0	0	1	1.6	2	33.3
120 to 129,000	4	12.9	0	0	0	0	0	0	5	10.2	0	0	0	0	0	0
> 129,000	2	6.5	0	0	0	0	0	0	5	10.2	0	0	0	0	0	0
Total	**31**	**100**	**1**	**100**	**1**	**100**	**19**	**100**	**49**	**100**	**5**	**100**	**61**	**100**	**6**	**100**

[a]Live seeds per acre.
[b]Black, navy and pinto varieties are typically Type II (upright) varieties.
[c]GN = Great Northern

Table 10. Difference between seeding rate and established plant stand for dry bean market classes grown in 2015.

	Black[b]		Cranberry		GN[c]		Kidney		Navy[b]		Pink		Pinto[b]		Red	
Difference[a]	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Minnesota																
< 10,000	2	18.2	0	0	0	0	3	21.4	6	30	0	0	1	50	0	0
10 to 19,000	5	45.5	0	0	0	0	11	78.6	8	40	0	0	1	50	0	0
20 to 29,000	3	27.3	0	0	0	0	0	0	6	30	1	100	0	0	0	0
30 to 39,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 to 49,000	1	9.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**11**	**100**	**0**	**0**	**0**	**0**	**14**	**100**	**20**	**100**	**1**	**100**	**2**	**100**	**0**	**0**
North Dakota																
< 10,000	5	41.7	0	0	0	0	2	50	3	18.8	2	100	19	44.2	3	60
10 to 19,000	4	33.3	0	0	1	100	2	50	10	62.5	0	0	24	55.8	0	0
20 to 29,000	2	16.7	0	0	0	0	0	0	1	6.3	0	0	0	0	2	40
30 to 39,000	1	8.3	0	0	0	0	0	0	1	6.3	0	0	0	0	0	0
40 to 49,000	0	0	0	0	0	0	0	0	1	6.3	0	0	0	0	0	0
Total	**12**	**100**	**0**	**0**	**1**	**100**	**4**	**100**	**16**	**100**	**2**	**100**	**43**	**100**	**5**	**100**
Northarvest																
< 10,000	7	30.4	0	0	0	0	5	27.8	9	25	2	66.7	20	44.4	3	60
10 to 19,000	9	39.1	0	0	1	100	13	72.2	18	50	0	0	25	55.6	0	0
20 to 29,000	5	21.7	0	0	0	0	0	0	7	19.4	1	33.3	0	0	2	40
30 to 39,000	1	4.3	0	0	0	0	0	0	1	2.8	0	0	0	0	0	0
40 to 49,000	1	4.3	0	0	0	0	0	0	1	2.8	0	0	0	0	0	0
Total	**23**	**100**	**0**	**0**	**1**	**100**	**18**	**100**	**36**	**100**	**3**	**100**	**45**	**100**	**5**	**100**

[a]Plants per acre.
[b]Black, navy and pinto varieties are typically Type II (upright) varieties.
[c]GN = Great Northern

Table 11. Percent of total dry bean acres harvested by direct combining in 2015.

Percent direct combined	Respondents (no.)	Respondents (%)	Acres reported[a]	Acres reported[a] (%)
Minnesota				
1 to 25%	2	4.1	550	2.5
26 to 50%	1	2	523	2.4
51 to 75%	0	0	0	0
76 to 99%	5	10.2	2,097	9.5
100%	17	34.7	4,202	19
No direct harvest	24	49	14,723	66.6
Total	**49**	**100**	**22,095**	**100**
North Dakota				
1 to 25%	8	7.8	7,208	11.1
26 to 50%	3	2.9	5,857	9.1
51 to 75%	2	2	730	1.1
76 to 99%	19	18.6	9,356	14.5
100%	42	41.2	25,324	39.1
No direct harvest	28	27.5	16,227	25.1
Total	**102**	**100**	**64,702**	**100**
Northarvest				
1 to 25%	10	6.6	7,758	8.9
26 to 50%	4	2.6	6,380	7.4
51 to 75%	2	1.3	730	0.8
76 to 99%	24	15.9	11,453	13.2
100%	59	39.1	29,526	34
No direct harvest	52	34.4	30,950	35.7
Total	**151**	**100**	**86,797**	**100**

[a]Respondents' harvested acres only.

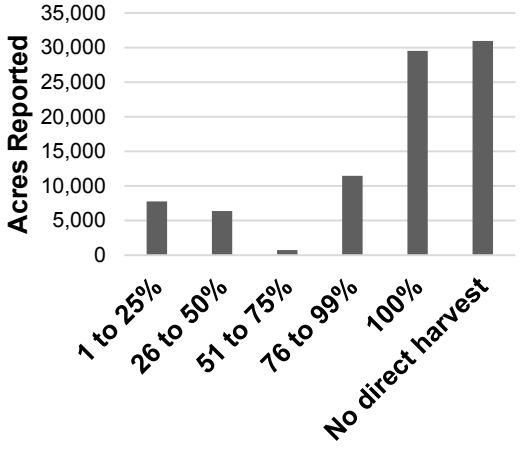

Figure 6. Northarvest percent of dry bean acres harvested by direct combining in 2015.

Table 12. Estimated yield loss in harvested dry beans in 2015.

Estimated yield loss	Direct Harvest Respondents (no.)	Direct Harvest Respondents (%)	Conventional Harvest Respondents (no.)	Conventional Harvest Respondents (%)
Minnesota				
0%	0	0	0	0
1-5%	9	36	7	24.1
6-10%	13	52	14	48.3
11-15%	2	8	8	27.6
16-20%	1	4	0	0
Total	**25**	**100**	**29**	**100**
North Dakota				
0%	2	2.7	2	3.4
1-5%	29	39.2	37	63.8
6-10%	25	33.8	14	24.1
11-15%	15	20.3	4	6.9
16-20%	3	4.1	1	1.7
Total	**74**	**100**	**58**	**100**
Northarvest				
0%	11	8.9	9	7.8
1-5%	42	33.9	51	44
6-10%	27	21.8	22	19
11-15%	16	12.9	4	3.4
16-20%	28	22.6	30	25.9
Total	**124**	**100**	**116**	**100**

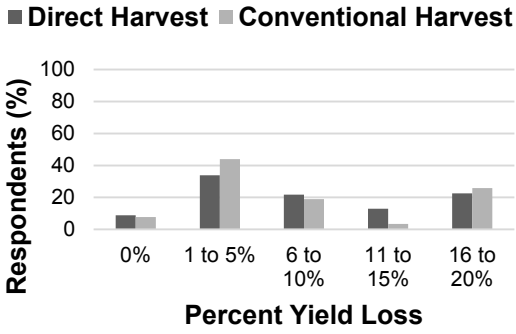

Figure 7. Northarvest estimated yield loss in harvested dry beans in 2015.

Table 13. Dry bean field tillage practices in 2015.

Tillage practice	Acres reported (no.)[a]	Acres reported (%)[a]
Minnesota		
Conventional	18,952	84.6
Minimum	3,249	14.5
Strip-tillage	200	0.9
No-till	0	0
Total	**22,401**	**100**
North Dakota		
Conventional	51,805	75.3
Minimum	13,469	19.6
No-till	2,047	3
Strip-tillage	1,450	2.1
Total	**68,771**	**100**
Northarvest		
Conventional	70,757	77.6
Minimum	16,718	18.3
Strip-tillage	2,247	2.5
No-till	1,450	1.6
Total	**91,172**	**100**

[a]Respondents' acres only.

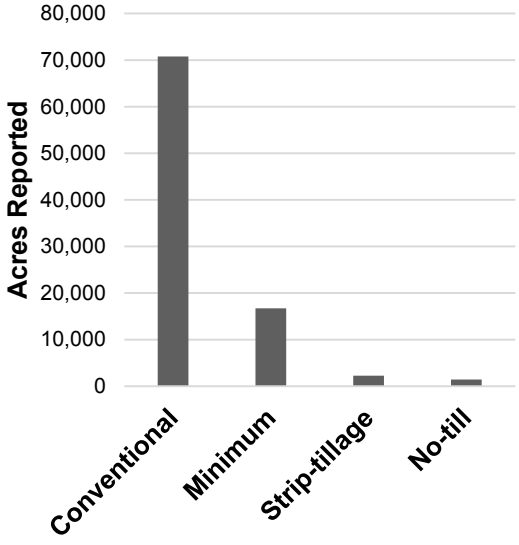

Figure 8. Northarvest dry bean field tillage practices in 2015.

Agronomy

Table 14. Ground rolling on dry bean fields in 2015.

Timing	Respondents (no.)	Respondents (%)[a]	Acres reported (no.)[b]	Acres reported (%)[b]
Minnesota				
Pre-plant	4	8	654	2.8
Pre-emerge	17	34	5,257	22.6
Post-emerge	0	0	0	0
Did not roll	33	66	17,386	74.6
Total			**23,297**	**100**
North Dakota				
Pre-plant	9	8.7	3,323	5.2
Pre-emerge	52	50.5	31,274	49.2
Post-emerge	7	6.8	3,188	5
Did not roll	50	48.5	25,786	40.6
Total			**63,571**	**100**
Northarvest				
Pre-plant	13	8.5	3,977	4.6
Pre-emerge	69	45.1	36,531	42.1
Post-emerge	7	4.6	3,188	3.7
Did not roll	83	54.2	43,172	49.7
Total			**86,868**	**100**

[a]Percentages do not total 100 because some respondents practiced more than one timing.
[b]Respondents' acres only.

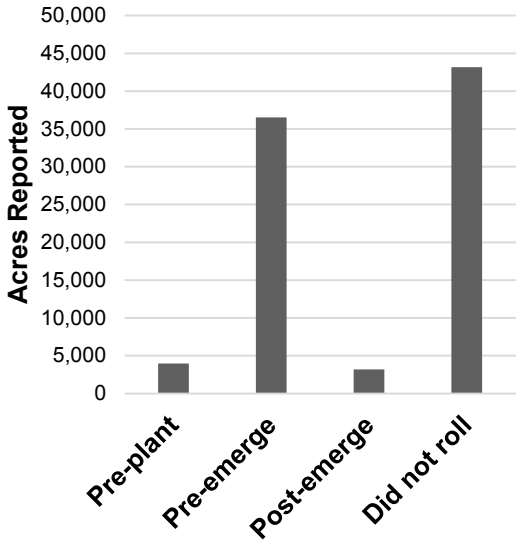

Figure 9. Northarvest ground rolling on dry bean fields in 2015.

Table 15. Use of fertilizers on dry bean fields in 2015.

Fertilizer	Respondents (no.)	Respondents (%)
Minnesota	**47**	
Nitrogen	47	100
Phosphorus	40	85.1
Potash	36	76.6
Zinc	34	72.3
Sulfur	23	48.9
North Dakota	**81**	
Nitrogen	70	86.4
Phosphorus	67	82.7
Potash	28	34.6
Zinc	54	66.7
Sulfur	24	29.6
Northarvest	**128**	
Nitrogen	117	91.4
Phosphorus	107	83.6
Potash	64	50
Zinc	88	68.8
Sulfur	47	36.7

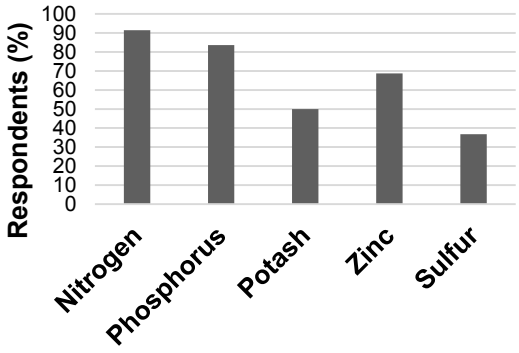

Figure 10. Northarvest use of fertilizers on dry bean fields in 2015.

Table 16. Use of soil test prior to fertilization of dry bean fields in 2015.

Soil test	Respondents (no.)	Respondents (%)
Minnesota		
Soil test used	40	81.6
Soil test not used	9	18.4
Total	**49**	**100**
North Dakota		
Soil test used	86	84.3
Soil test not used	16	15.7
Total	**102**	**100**
Northarvest		
Soil test used	126	83.4
Soil test not used	25	16.6
Total	**151**	**100**

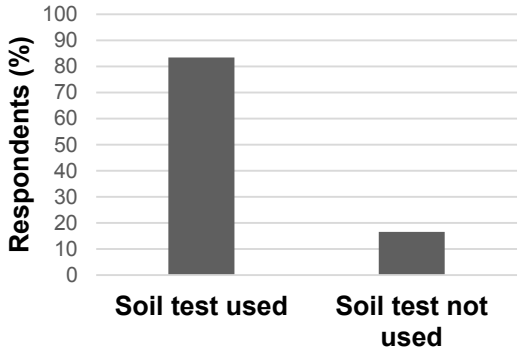

Figure 11. Northarvest use of soil test in 2015.

Table 17. Use of *Rhizobium* inoculants on dry bean fields in 2015.

Rhizobium use	Respondents (no.)	Respondents (%)
Minnesota		
Inoculant used	11	22.9
Inoculant not used	37	77.1
Total	**48**	**100**
North Dakota		
Inoculant used	19	19.6
Inoculant not used	78	80.4
Total	**97**	**100**
Northarvest		
Inoculant used	30	20.7
Inoculant not used	115	79.3
Total	**145**	**100**

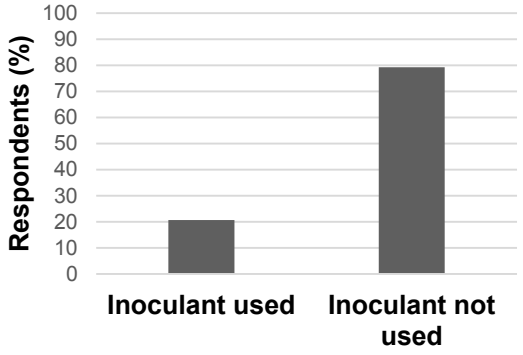

Figure 12. Northarvest use of inoculant in 2015.

Table 18. Use of site-specific nutrient management (SSNM) on dry bean fields in 2015.

Soil test	Respondents (no.)	Respondents (%)
Minnesota		
SSNM used	13	26
SSNM not used	37	74
Total	**50**	**100**
North Dakota		
SSNM used	33	32.7
SSNM not used	68	67.3
Total	101	100
Northarvest		
SSNM used	46	30.5
SSNM not used	105	69.5
Total	**151**	**100**

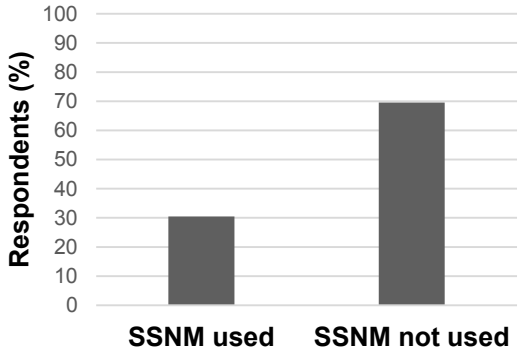

Figure 13. Northarvest use of site-specific nutrient management in 2015.

Table 19. Desiccants used on dry beans in 2015.

Desiccant	Respon-dents (no.)	Respon-dents (%)	Acres reported (no.)[a]	Acres reported (%)[a]
Minnesota				
Sharpen	21	41.2	8,032	34
No desiccant used	13	25.5	6,767	28.6
Valor	16	31.4	3,475	14.7
Sodium chlorate	7	13.7	2,330	9.9
Paraquat	8	15.7	2,273	9.6
Glyphosate	10	19.6	1,542	6.5
North Dakota				
Glyphosate	47	46.5	31,388	46.7
Sharpen	53	52.5	28,764	42.8
Valor	17	16.8	9,277	13.8
No desiccant used	19	18.8	8,097	12
Paraquat	9	8.9	2,176	3.2
Sodium chlorate	1	1	265	0.4
Northarvest				
Sharpen	74	48.7	36,796	40.5
Glyphosate	57	37.5	32,930	36.2
No desiccant used	32	21.1	14,864	16.4
Valor	33	21.7	12,752	14
Paraquat	17	11.2	4,449	4.9
Sodium chlorate	8	5.3	2,595	2.9

[a]Respondents' acres only.

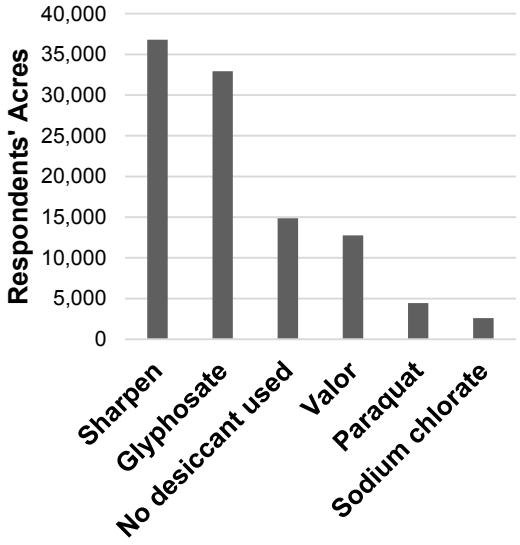

Figure 14. Northarvest desiccants used on dry beans in 2015.

Table 20. Frequency of crops in dry bean crop rotation program, 2011-2014.

Crop	2014 Respon-dents (%)	2013 Respon-dents (%)	2012 Respon-dents (%)	2011 Respon-dents (%)	4-year average Respon-dents (%)
Minnesota					
Alfalfa	2	4.2	4.3	2.5	3.2
Barley	2	0	0	2.5	1.1
Corn	50	37.5	42.6	42.5	43.1
Dry bean	14	20.8	34	42.5	27.8
Hay/grass	0	2.1	2.1	2.5	1.7
No crop	6	4.2	4.3	5	4.9
Oats	2	0	0	2.5	1.1
Potato	12	6.3	0	10	7.1
Soybean	10	45.8	29.8	20	26.4
Sugar beet	18	12.5	8.5	12.5	12.9
Wheat	34	22.9	27.7	20	26.1
North Dakota					
Barley	6.4	2.2	3.4	1.3	3.3
Canola	1.1	2.2	1.1	2.5	1.7
Corn	28.7	15.2	28.4	18.8	22.8
Dry bean	19.1	38	37.5	48.8	35.9
Field pea	1.1	0	0	0	0.3
No crop	3.2	1.1	0	2.5	1.7
Potato	2.1	4.3	2.3	3.8	3.1
Soybean	11.7	32.6	26.1	21.3	22.9
Sugar beet	14.9	8.7	8	5	9.1
Sunflower	0	1.1	2.3	0	0.8
Wheat	63.8	48.9	46.6	58.8	54.5
Northarvest					
Alfalfa	0.7	1.4	1.5	0.8	1.1
Barley	4.9	1.4	2.2	1.7	2.5
Canola	0.7	1.4	0.7	1.7	1.1
Corn	36.1	22.9	33.3	26.7	29.7
Dry bean	17.4	32.1	36.3	46.7	33.1
Field pea	0.7	0	0	0	0.2
Hay/grass	0	0.7	0.7	0.8	0.6
No crop	4.2	2.1	1.5	3.3	2.8
Oats	0.7	0	0	0.8	0.4
Potato	5.6	5	1.5	5.8	4.5
Soybean	11.1	37.1	27.4	20.8	24.1
Sugar beet	16	10	8.1	7.5	10.4
Sunflower	0	0.7	1.5	0	0.5
Wheat	53.5	40	40	45.8	44.8

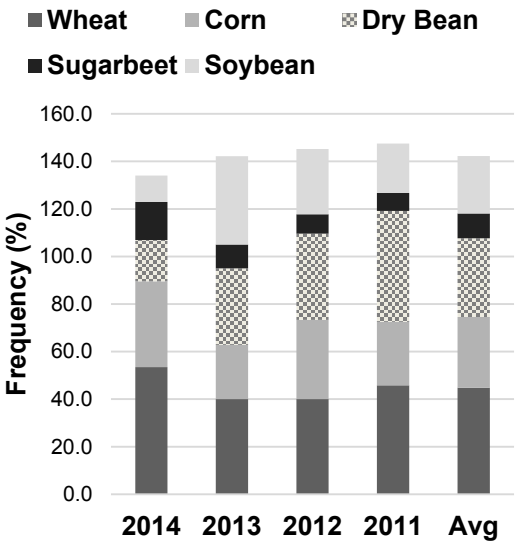

Figure 15. Northarvest frequency of major crops in dry bean crop rotation program, 2011-2014.

Table 21. Number of years dry beans are grown in dry bean crop rotation program.

Number of years	Respondents (no.)	Respondents (%)
Minnesota		
1 of past 5 years	19	38
2 of past 5 years	20	40
3 of past 5 years	6	12
4 of past 5 years	2	4
5 of past 5 years	3	6
Total	**50**	**100**
North Dakota		
1 of past 5 years	17	18.1
2 of past 5 years	36	38.3
3 of past 5 years	35	37.2
4 of past 5 years	5	5.3
5 of past 5 years	1	1.1
Total	**94**	**100**
Northarvest		
1 of past 5 years	36	25
2 of past 5 years	56	38.9
3 of past 5 years	41	28.5
4 of past 5 years	7	4.9
5 of past 5 years	4	2.8
Total	**144**	**100**

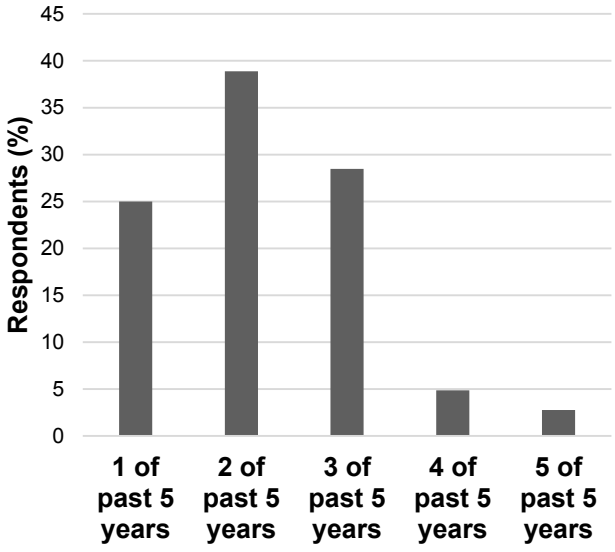

Figure 16. Northarvest number of years dry beans are grown in dry bean crop rotation program.

Insect Pests and Insecticide Use

Table 22. Worst insect problem in dry beans in 2015.

Insect[a]	Respondents (no.)	Respondents (%)	Acres reported (no.)[b,c]	Acres reported (%)[b,c]
Minnesota				
None	24	51.1	8,700	41.4
Leafhoppers	14	29.8	5,368	25.5
Foliage caterpillars	2	4.3	4,236	20.2
Aphids	4	8.5	1,643	7.8
Seed corn maggot	2	4.3	940	4.5
Spider mites	1	2.1	130	0.6
Total	**47**	**100**	**21,017**	**100**
North Dakota				
None	70	70.7	45,045	69.9
Leafhoppers	7	7.1	6,777	10.5
Aphids	6	6.1	3,373	5.2
Grasshoppers	7	7.1	3,143	4.9
Wireworms	4	4	3,016	4.7
Seed corn maggot	1	1	1,500	2.3
Cutworms	1	1	700	1.1
Spider mites	1	1	450	0.7
Bean leaf beetle	1	1	410	0.6
Armyworms	1	1	47	0.1
Total	**99**	**100**	**64,461**	**100**
Northarvest				
None	94	64.4	53,745	62.9
Leafhoppers	21	14.4	12,145	14.2
Aphids	10	6.8	5,016	5.9
Foliage caterpillars	2	1.4	4,236	5
Grasshoppers	7	4.8	3,143	3.7
Wireworms	4	2.7	3,016	3.5
Seed corn maggot	3	2.1	2,440	2.9
Cutworms	1	0.7	700	0.8
Spider mites	2	1.4	580	0.7
Bean leaf beetle	1	0.7	410	0.5
Armyworms	1	0.7	47	0.1
Total	**146**	**100**	**85,478**	**100**

[a]Ranked as No. 1 insect problem by respondents.
[b]Respondents' acres only.
[c]Insect problem may not have been present across all reported acres.

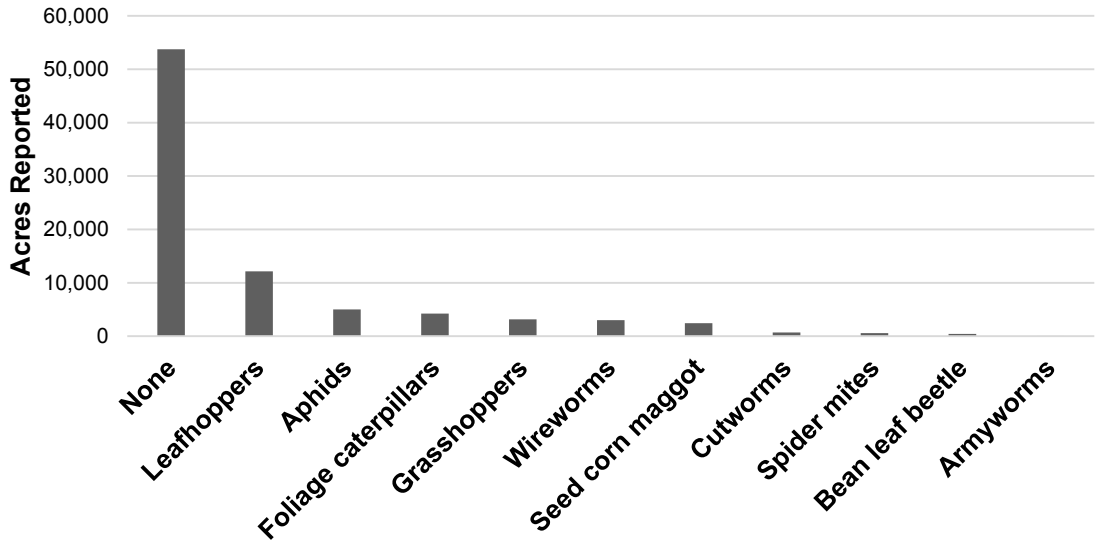

Figure 17. Northarvest worst insect problem in dry beans in 2015.

Table 23. Insects ranked as one of the three worst in dry beans in 2015.

Insect[a]	Respondents (no.)	Respondents (%)	Acres reported (no.)[b,c]	Acres reported (%)[b,c]
Minnesota				
Leafhoppers	17	36.2	9,099	43.3
None	24	51.1	8,700	41.4
Foliage caterpillars	5	10.6	5,244	25
Cutworms	3	6.4	3,750	17.8
Grasshoppers	9	19.1	3,738	17.8
Aphids	6	12.8	2,973	14.1
Bean leaf beetle	4	8.5	1,690	8
Spider mites	5	10.6	1,445	6.9
Seed corn maggot	2	4.3	940	4.5
Wireworms	1	2.1	140	0.7
North Dakota				
None	70	70.7	45,045	69.9
Leafhoppers	13	13.1	10,049	15.6
Wireworms	10	10.1	9,484	14.7
Cutworms	12	12.1	9,392	14.6
Grasshoppers	11	11.1	5,643	8.8
Seed corn maggot	4	4	4,337	6.7
Aphids	8	8.1	3,913	6.1
Spider mites	4	4	3,408	5.3
Armyworms	4	4	2,017	3.1
Bean leaf beetle	3	3	938	1.5
Northarvest				
None	94	64.4	53,745	62.9
Leafhoppers	30	20.5	19,148	22.4
Cutworms	15	10.3	13,142	15.4
Wireworms	11	7.5	9,624	11.3
Grasshoppers	20	13.7	9,381	11
Aphids	14	9.6	6,886	8.1
Seed corn maggot	6	4.1	5,277	6.2
Foliage caterpillars	5	3.4	5,244	6.1
Spider mites	9	6.2	4,853	5.7
Bean leaf beetle	7	4.8	2,628	3.1
Armyworms	4	2.7	2,017	2.4

[a]Ranked as No. 1, 2 or 3 insect problem by respondents.
[b]Respondents' acres only.
[c]Insect problem may not have been present across all reported acres.

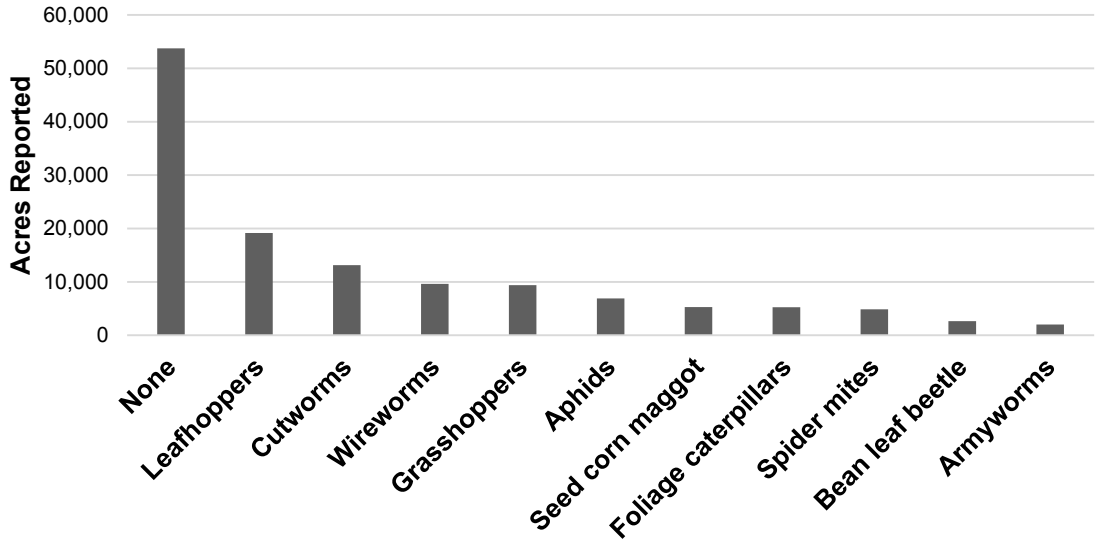

Figure 18. Northarvest insects ranked as one of the three worst in dry beans in 2015.

Table 24. Foliar insecticide use in dry beans in 2015.

Insecticide	Respondents (no.)	Respondents (%)	Acres reported (no.)[a,b]	Acres reported (%)[a,b]
Minnesota				
None	35	70	17,463	75
Tombstone	2	4	3,150	13.5
Warrior	5	10	3,094	13.3
Asana	6	12	1,679	7.2
Mustang	1	2	200	0.9
Brigade	1	2	130	0.6
Insecticide Total			**8,253**	**35.4**
North Dakota				
None	89	87.3	55,596	81.5
Warrior	10	9.8	9,952	14.6
Asana	3	2.9	5,375	7.9
Mustang	1	1	1,000	1.5
Tombstone	1	1	554	0.8
Insecticide Total			**16,881**	**24.7**
Northarvest				
None	124	81.6	73,059	79.8
Warrior	15	9.9	13,046	14.3
Asana	9	5.9	7,054	7.7
Tombstone	3	2	3,704	4
Mustang	2	1.3	1,200	1.3
Brigade	1	0.7	130	0.1
Insecticide Total			**25,134**	**27.5**

[a]Respondents' acres only. Multiple applications count as multiple acres.
[b]Percentages do not total 100 because some respondents treated more than once with the same product and/or treated the same acreage with more than one product.

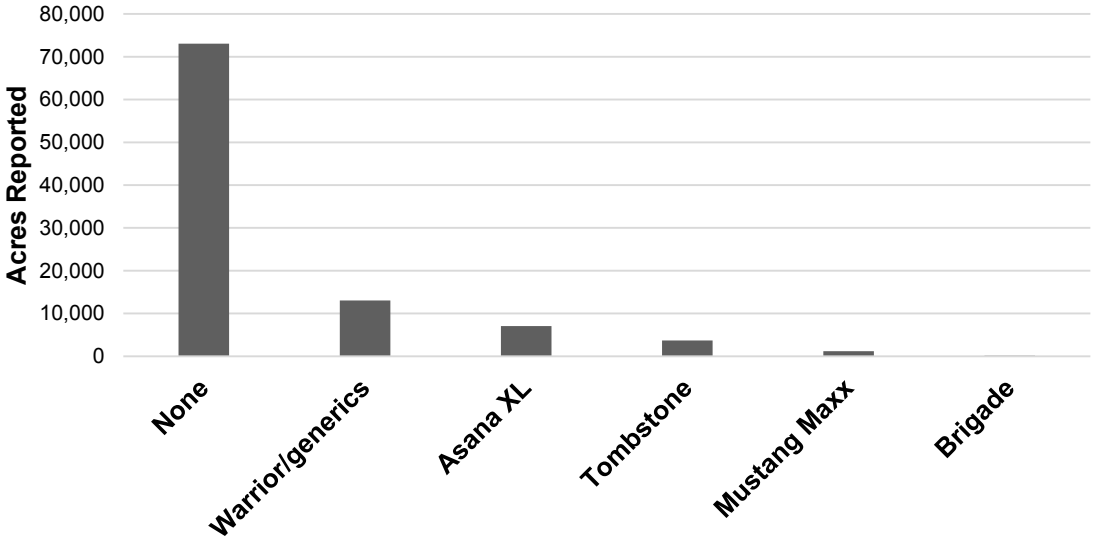

Figure 19. Northarvest foliar insecticide use in dry beans in 2015.

Table 25. Soil insecticide and seed treatment use in dry beans in 2015.

Seed Treatment	Respondents (no.)	Respondents (%)	Acres reported (no.)[a,b]	Acres reported (%)[a,b]
Minnesota				
Cruiser Maxx	23	51.1	10,397	48.4
None	11	24.4	5,351	24.9
Lorsban	9	20	5,195	24.2
Don't know	7	15.6	2,210	10.3
Dyna-Shield Imidacloprid	1	2.2	800	3.7
Capture LFR*	2	4.4	710	3.3
Cruiser 5FS	1	2.2	155	0.7
Insecticide Total			**19,467**	**90.7**
North Dakota				
Cruiser Maxx	23	23.5	18,531	29
None	32	32.7	18,407	28.8
Don't know	28	28.6	16,834	26.3
Lorsban	9	9.2	7,009	11
Capture LFR*	5	5.1	3,620	5.7
Gaucho	3	3.1	2,315	3.6
Dyna-Shield Imidacloprid	2	2	1,055	1.6
Cruiser 5FS	1	1	115	0.2
Insecticide Total			**49,479**	**77.4**
Northarvest				
Cruiser Maxx	46	32.2	28,928	33.9
None	43	30.1	23,758	27.8
Don't know	35	24.5	19,044	22.3
Lorsban	18	12.6	12,204	14.3
Capture LFR*	7	4.9	4,330	5.1
Gaucho	3	2.1	2,315	2.7
Dyna-Shield Imidacloprid	3	2.1	1,855	2.2
Cruiser 5FS	2	1.4	270	0.3
Insecticide Total			**68,946**	**80.7**

[a]Respondents' acres only.
[b]Percentages do not total 100 because some respondents treated more than once with the same product and/or treated the same acreage with more than one product.
*Soil-applied insecticide.

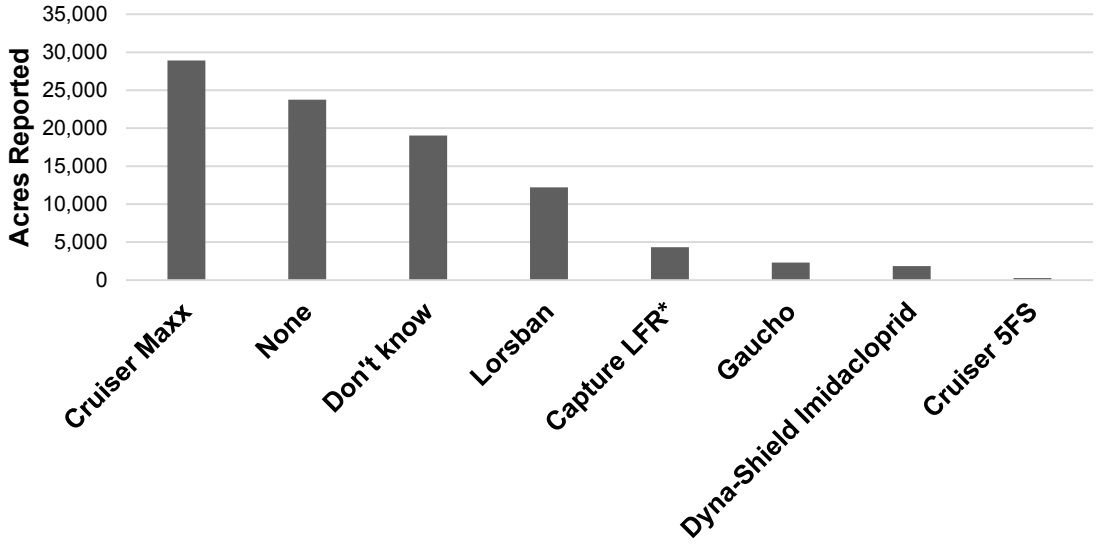

Figure 20. Northarvest insecticide seed treatment and soil insecticide use in dry beans in 2015.

Plant Diseases and Fungicide Use

Table 26. Worst disease problem in dry beans in 2015.

Disease[a]	Respondents (no.)	Respondents (%)	Acres reported (no.)[b,c]	Acres reported (%)[b,c]
Minnesota				
White mold	30	60	11,497	49.3
Common bacterial blight	9	18	7,795	33.5
None	5	10	1,920	8.2
Root rot	4	8	1,035	4.4
Bean common mosaic virus	1	2	680	2.9
Bacterial brown spot	1	2	370	1.6
Total	**50**	**100**	**23,297**	**100**
North Dakota				
White mold	51	51.5	35,638	53.1
Common bacterial blight	18	18.2	14,131	21
None	14	14.1	8,908	13.3
Root rot	8	8.1	3,075	4.6
Viruses (general)	1	1	2,500	3.7
Rust	4	4	1,879	2.8
Bacterial brown spot	2	2	921	1.4
Anthracnose	1	1	120	0.2
Total	**99**	**100**	**67,172**	**100**
Northarvest				
White mold	81	54.4	47,135	52.1
Common bacterial blight	27	18.1	21,926	24.2
None	19	12.8	10,828	12
Root rot	12	8.1	4,110	4.5
Viruses (general)	1	0.7	2,500	2.8
Rust	4	2.7	1,879	2.1
Bacterial brown spot	3	2	1,291	1.4
Bean common mosaic virus	1	0.7	680	0.8
Anthracnose	1	0.7	120	0.1
Total	**149**	**100**	**90,469**	**100**

[a]Ranked as No. 1 disease problem by respondents.
[b]Respondents' acres only.
[c]Disease problem may not have been present across all reported acres.

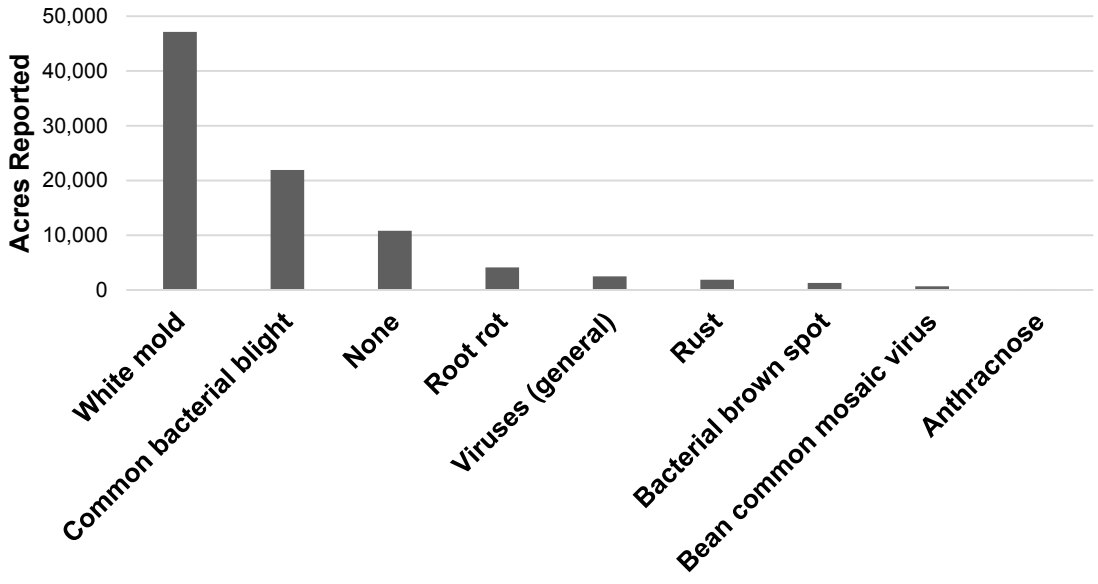

Figure 21. Northarvest worst disease problem in dry beans in 2015.

Table 27. Diseases ranked as one of the three worst in dry beans in 2015.

Disease[a]	Respondents (no.)	Respondents (%)	Acres reported (no.)[b,c]	Acres reported (%)[b,c]
Minnesota				
White mold	41	82	19,637	84.3
Common bacterial blight	23	46	13,717	58.9
Root rot	18	36	9,765	41.9
Rust	8	16	4,146	17.8
Bacterial brown spot	6	12	3,414	14.7
None	5	10	1,920	8.2
Halo blight	4	8	1,484	6.4
Bean common mosaic virus	1	2	680	2.9
Bacterial wilt	1	2	130	0.6
Anthracnose	3	6	55	0.2
North Dakota				
White mold	67	67.7	45,612	67.9
Common bacterial blight	36	36.4	29,613	44.1
Rust	29	29.3	18,274	27.2
Root rot	22	22.2	17,801	26.5
None	14	14.1	8,908	13.3
Anthracnose	8	8.1	8,742	13
Bacterial brown spot	13	13.1	7,585	11.3
Viruses (general)	6	6.1	5,752	8.6
Halo blight	8	8.1	5,085	7.6
Bacterial wilt	4	4	1,000	1.5
Bean common mosaic virus	2	2	570	0.8
Northarvest				
White mold	108	72.5	65,249	72.1
Common bacterial blight	59	39.6	43,330	47.9
Root rot	40	26.8	27,566	30.5
Rust	37	24.8	22,420	24.8
Bacterial brown spot	19	12.8	10,999	12.2
None	19	12.8	10,828	12
Anthracnose	11	7.4	8,797	9.7
Halo blight	12	8.1	6,569	7.3
Viruses (general)	6	4	5,752	6.4
Bean common mosaic virus	3	2	1,250	1.4
Bacterial wilt	5	3.4	1,130	1.2

[a]Ranked as No. 1, 2 or 3 disease problem by respondents.
[b]Respondents' acres only.
[c]Disease problem may not have been present across all reported acres.

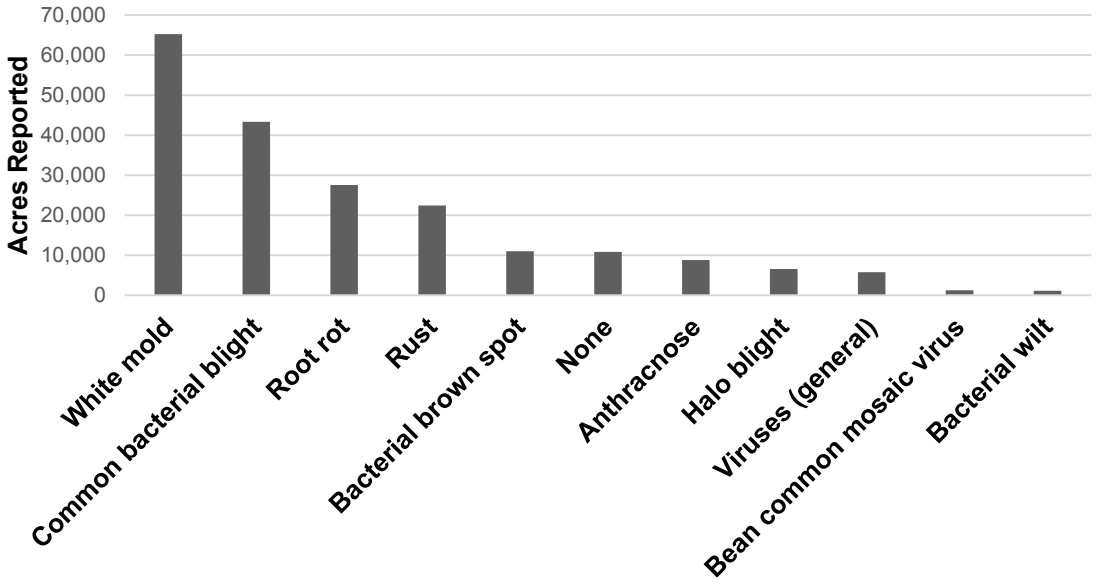

Figure 22. Northarvest diseases ranked as one of the three worst in dry beans in 2015.

Table 28. Foliar and banded fungicide use in dry beans in 2015.

Fungicide	Resp. (no.)	Resp. (%)[b]	Total acres treated (no.)[a]	Total acres treated (%)[a,b]	Acres treated by ground (no.)[a]	Acres treated by ground (%)[a]	Acres treated by air (no.)[a]	Acres treated by air (%)[a]
Minnesota								
Topsin broadcast	27	54	11,174	48	6,998	18.8	4,176	11.2
Endura	18	36	9,263	39.8	7,448	20	1,815	4.9
Headline	4	8	4,650	20	4,650	12.5	0	0
Incognito	5	10	3,264	14	3,264	8.8	0	0
Proline broadcast	8	16	3,154	13.5	2,140	5.7	1,014	2.7
Priaxor	4	8	2,500	10.7	2,440	6.5	60	0.2
Topsin banded	1	2	1,100	4.7	1,100	3	0	0
Folicur	1	2	929	4	0	0	929	2.5
Omega	2	4	700	3	700	1.9	0	0
Quadris Amstar	1	2	370	1.6	370	1	0	0
Proline banded	1	2	130	0.6	130	0.3	0	0
Contans	1	2	25	0.1	0	0	25	0.1
None	6	12	2,038	8.7				
Fungicide Total			**37,259**		**29,240**	**78.5**	**8,019**	**21.5**
North Dakota								
Topsin broadcast	42	41.2	34,162	50.1	31,802	33.1	2,360	2.5
Endura	43	42.2	30,831	45.2	26,401	27.5	4,430	4.6
Headline	4	3.9	6,617	9.7	6,617	6.9	0	0
Priaxor	9	8.8	5,359	7.9	5,044	5.2	315	0.3
Quadris Amstar	1	1	4,455	6.5	4,455	4.6	0	0
Topsin banded	7	6.9	3,588	5.3	3,588	3.7	0	0
Incognito	8	7.8	3,284	4.8	3,284	3.4	0	0
Tebuconazole	6	5.9	2,720	4	2,570	2.7	150	0.2
Proline broadcast	2	2	2,175	3.2	2,110	2.2	65	0.1
Omega	1	1	1,250	1.8	1,250	1.3	0	0
Quadris Opti	2	2	606	0.9	606	0.6	0	0
ProPulse	2	2	510	0.7	510	0.5	0	0
Microthiol	1	1	320	0.5	320	0.3	0	0
Aproach	1	1	290	0.4	290	0.3	0	0
None	22	21.6	10,027	14.7				
Fungicide Total			**96,167**		**88,847**	**92.4**	**7,320**	**7.6**
Northarvest								
Topsin broadcast	69	45.4	45,336	49.5	38,800	29.1	6,536	4.9
Endura	61	40.1	40,094	43.8	33,849	25.4	6,245	4.7
Headline	8	5.3	11,267	12.3	11,267	8.4	0	0
Priaxor	13	8.6	7,859	8.6	7,484	5.6	375	0.3
Incognito	13	8.6	6,548	7.2	6,548	4.9	0	0
Proline broadcast	10	6.6	5,329	5.8	4,250	3.2	1,079	0.8
Quadris Amstar	2	1.3	4,825	5.3	4,825	3.6	0	0
Topsin banded	8	5.3	4,688	5.1	4,688	3.5	0	0
Tebuconazole	6	3.9	2,720	3	2,570	1.9	150	0.1
Omega	3	2	1,950	2.1	1,950	1.5	0	0
Folicur	1	0.7	929	1	0	0	929	0.7
Quadris Opti	2	1.3	606	0.7	606	0.5	0	0
ProPulse	2	1.3	510	0.6	510	0.4	0	0
Microthiol	1	0.7	320	0.3	320	0.2	0	0
Aproach	1	0.7	290	0.3	290	0.2	0	0
Proline banded	1	0.7	130	0.1	130	0.1	0	0
Contans	1	0.7	25	0	0	0	25	0
None	28	18.4	12,065	13.2				
Fungicide Total			**133,426**		**118,087**	**88.5**	**15,339**	**11.5**

[a]Respondents' acres only. Includes acreage treated more than once with the same product.
[b]Percentages do not total 100 because some respondents treated more than once with the same product and/or treated the same acreage with more than one product.

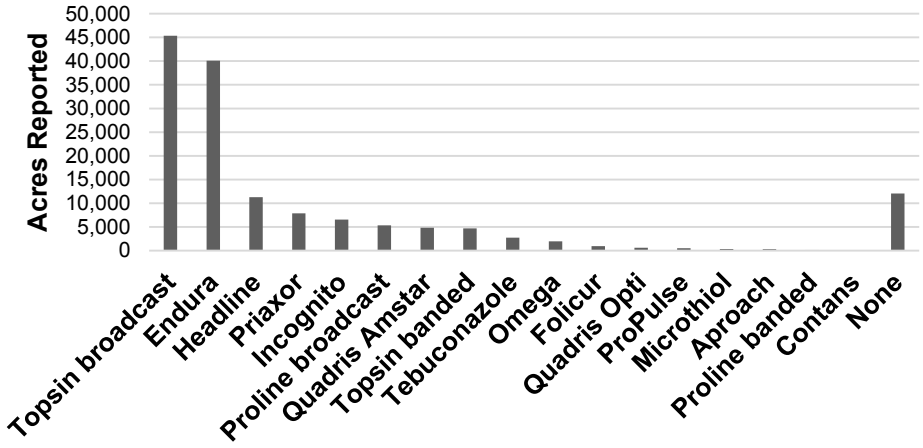

Figure 23. Northarvest foliar and banded fungicide use in dry beans in 2015.

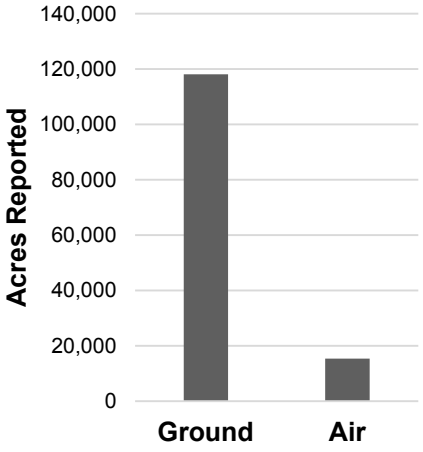

Figure 24. Northarvest fungicide application method in dry beans in 2015.

Table 29. In-furrow fungicide use in dry beans in 2015.

Seed treatment	Respondents (no.)	Respondents (%)	Total acres treated (no.)[a]	Total acres treated (%)[a,b]
Minnesota				
Headline	4	8.5	1,460	6.6
Priaxor	1	2.1	100	0.5
None	42	89.4	19,533	88.5
Fungicide Total			**1,560**	
North Dakota				
Endura	3	3.1	5,155	7.9
Serenade	1	1	80	0.1
None	94	95.9	57,071	88
Fungicide Total			**5,235**	
Northarvest				
Endura	3	2.1	5,155	5.9
Headline	4	2.8	1,460	1.7
Priaxor	1	0.7	100	0.1
Serenade	1	0.7	80	0.1
None	136	93.8	76,604	88.1
Fungicide Total			**6,795**	

[a]Respondents' acres only.

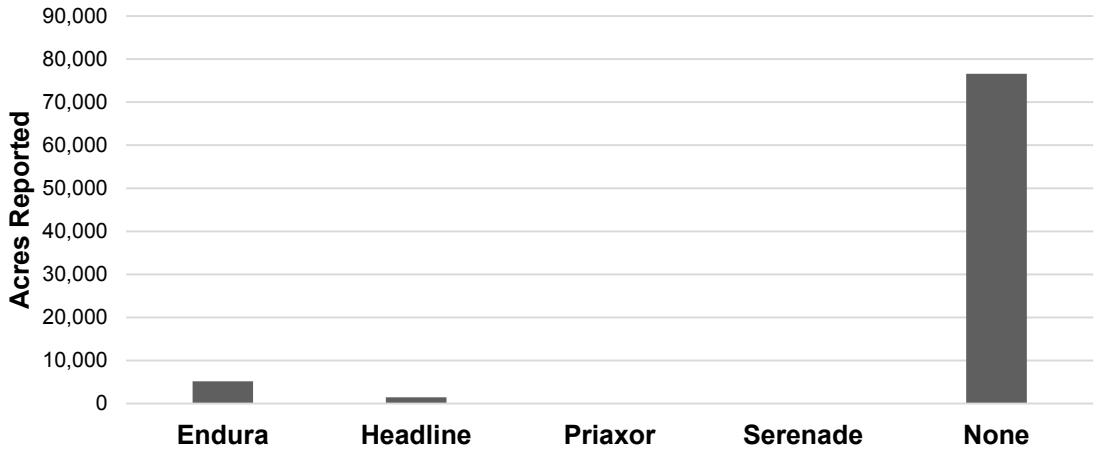

Figure 25. Northarvest in-furrow fungicide use in dry beans in 2015.

Table 30. Fungicide seed treatment use in dry beans in 2015.

Seed treatment	Respondents (no.)	Respondents (%)[b]	Total acres treated (no.)[a]	Total acres treated (%)[a,b]
Minnesota				
Apron Maxx	24	52.2	10,325	55.3
Dynasty	11	23.9	5,581	29.9
Rancona	7	15.2	3,831	20.5
Apron/Apron XL	9	19.6	3,453	18.5
Maxim	8	17.4	3,151	16.9
Vibrance	3	6.5	1,577	8.4
Don't know	4	8.7	1,029	5.5
Stamina	1	2.2	800	4.3
Captan	1	2.2	430	2.3
Headline	1	2.2	400	2.1
None	7	15.2	1,995	10.7
Seed Treatment Total			**30,577**	
North Dakota				
Apron Maxx	35	36.1	28,844	45.4
Dynasty	17	17.5	14,118	22.2
Apron/Apron XL	18	18.6	12,790	20.1
Maxim	14	14.4	12,619	19.8
Rancona	9	9.3	6,693	10.5
Don't know	9	9.3	6,230	9.8
Captan	7	7.2	4,715	7.4
Headline	1	1	4,455	7
Stamina	3	3.1	2,857	4.5
Metalaxyl	1	1	897	1.4
Thiram	1	1	897	1.4
Streptomycin	1	1	745	1.2
Rancona Summit	1	1	315	0.5
Vibrance	1	1	230	0.4
None	31	32	13,533	21.3
Seed Treatment Total			**96,405**	
Northarvest				
Apron Maxx	59	41.3	39,169	47.6
Dynasty	28	19.6	19,699	23.9
Apron/Apron XL	27	18.9	16,243	19.7
Maxim	22	15.4	15,770	19.2
Rancona	16	11.2	10,524	12.8
Don't know	13	9.1	7,259	8.8
Captan	8	5.6	5,145	6.3
Headline	2	1.4	4,855	5.9
Stamina	4	2.8	3,657	4.4
Vibrance	4	2.8	1,807	2.2
Metalaxyl	1	0.7	897	1.1
Thiram	1	0.7	897	1.1
Streptomycin	1	0.7	745	0.9
Rancona Summit	1	0.7	315	0.4
None	38	26.6	15,528	18.9
Seed Treatment Total			**126,982**	

[a]Respondents' acres only. Includes acreage treated with more than one product.
[b]Percentages do not total 100 because some respondents treated the same acreage with more than one product.

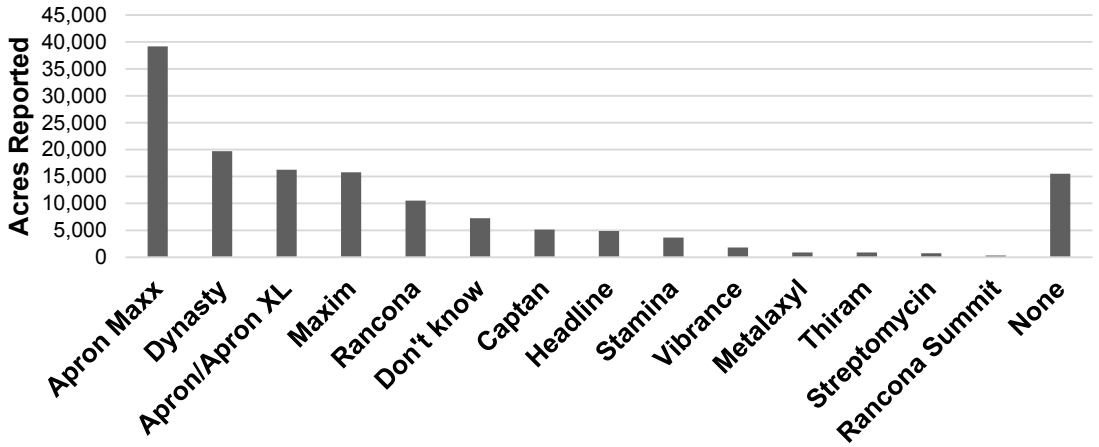

Figure 26. Northarvest fungicide seed treatment use in dry beans in 2015.

Weeds and Herbicide Use

Table 31. Worst weed problem in dry beans in 2015.

Weed[a]	Respon-dents (no.)	Respon-dents (%)	Acres reported (no.)[b,c]	Acres reported (%)[b,c]
Minnesota				
Lambsquarters	20	39.2	10,661	45.1
Waterhemp	10	19.6	3,766	15.9
Ragweed	7	13.7	2,777	11.7
Nightshade	4	7.8	2,369	10
Redroot pigweed	3	5.9	1,703	7.2
Wild mustard	2	3.9	900	3.8
Biennial wormwood	1	2	600	2.5
Kochia	2	3.9	515	2.2
None	1	2	230	1
Canada thistle	1	2	130	0.5
Total	**51**	**100**	**23,651**	**100**
North Dakota				
Kochia	24	23.8	12,974	19.1
Lambsquarters	16	15.8	11,861	17.4
Redroot pigweed	9	8.9	9,867	14.5
Ragweed	14	13.9	7,890	11.6
Wild mustard	9	8.9	5,818	8.5
Biennial wormwood	4	4	3,435	5
Foxtail	3	3	3,249	4.8
Nightshade	3	3	3,147	4.6
Canada thistle	4	4	2,916	4.3
Volunteer grain	7	6.9	2,738	4
Wild buckwheat	4	4	1,695	2.5
Cocklebur	1	1	1,200	1.8
Sunflower	1	1	1,033	1.5
Waterhemp	2	2	264	0.4
Total	**101**	**100**	**68,087**	**100**
Northharvest				
Lambsquarters	36	23.7	22,522	24.6
Kochia	26	17.1	13,489	14.7
Redroot pigweed	12	7.9	11,570	12.6
Ragweed	21	13.8	10,667	11.6
Wild mustard	11	7.2	6,718	7.3
Nightshade	7	4.6	5,516	6
Biennial wormwood	5	3.3	4,035	4.4
Waterhemp	12	7.9	4,030	4.4
Foxtail	3	2	3,249	3.5
Canada thistle	5	3.3	3,046	3.3
Volunteer grain	7	4.6	2,738	3
Wild buckwheat	4	2.6	1,695	1.8
Cocklebur	1	0.7	1,200	1.3
Sunflower	1	0.7	1,033	1.1
None	1	0.7	230	0.3
Total	**152**	**100**	**91,738**	**100**

[a]Ranked as No. 1 weed problem by respondents.
[b]Respondents' acres only.
[c]Weed problem may not have been present across all reported acres.

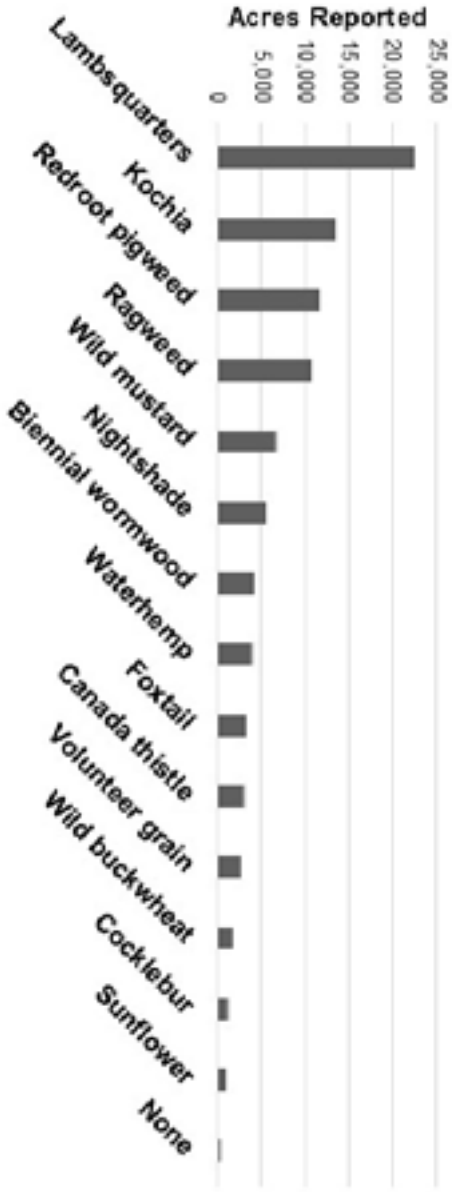

Figure 27. Northarvest worst weed problem in dry beans in 2015.

Table 32. Weeds ranked as one of the three worst in dry beans in 2015.

Weed[a]	Respondents (no.)	Respondents (%)	Acres reported (no.)[b]	Acres reported (%)[b]
Minnesota				
Lambsquarters	38	74.5	17,854	75.5
Ragweed	28	54.9	15,727	66.5
Redroot pigweed	17	33.3	8,822	37.3
Waterhemp	17	33.3	6,799	28.7
Nightshade	11	21.6	4,572	19.3
Biennial wormwood	5	9.8	2,307	9.8
Wild buckwheat	6	11.8	2,268	9.6
Cocklebur	4	7.8	1,611	6.8
Wild oat	3	5.9	1,320	5.6
Canada thistle	4	7.8	1,290	5.5
Volunteer grain	2	3.9	1,179	5
Kochia	3	5.9	1,115	4.7
Wild mustard	3	5.9	1,100	4.7
Foxtail	3	5.9	910	3.8
Black medic	1	2	339	1.4
Smartweed	1	2	180	0.8
North Dakota				
Kochia	49	48.5	34,520	50.7
Lambsquarters	37	36.6	28,665	42.1
Redroot pigweed	33	32.7	24,832	36.5
Ragweed	26	25.7	17,252	25.3
Volunteer grain	24	23.8	14,546	21.4
Nightshade	18	17.8	13,610	20
Biennial wormwood	17	16.8	12,436	18.3
Wild mustard	21	20.8	11,639	17.1
Canada thistle	16	15.8	9,453	13.9
Cocklebur	10	9.9	7,447	10.9
Wild buckwheat	13	12.9	5,908	8.7
Foxtail	10	9.9	5,775	8.5
Smartweed	4	4	2,713	4
Sunflower	3	3	1,785	2.6
Waterhemp	6	5.9	1,759	2.6
False chamomile	2	2	1,400	2.1
Wild oat	3	3	1,301	1.9
Volunteer canola	1	1	1,250	1.8
Venice mallow	2	2	951	1.4
Milkweed	1	1	620	0.9
Marestail	1	1	111	0.2
Northarvest				
Lambsquarters	75	49.3	46,519	50.7
Kochia	52	34.2	35,635	38.8
Redroot pigweed	50	32.9	33,654	36.7
Ragweed	54	35.5	32,979	35.9
Nightshade	29	19.1	18,182	19.8
Volunteer grain	26	17.1	15,725	17.1
Biennial wormwood	22	14.5	14,743	16.1
Wild mustard	24	15.8	12,739	13.9
Canada thistle	20	13.2	10,743	11.7
Cocklebur	14	9.2	9,058	9.9
Waterhemp	23	15.1	8,558	9.3
Wild buckwheat	19	12.5	8,176	8.9
Foxtail	13	8.6	6,685	7.3
Smartweed	5	3.3	2,893	3.2
Wild oat	6	3.9	2,621	2.9
Sunflower	3	2	1,785	1.9
False chamomile	2	1.3	1,400	1.5
Volunteer canola	1	0.7	1,250	1.4
Venice mallow	2	1.3	951	1
Milkweed	1	0.7	620	0.7
Black medic	1	0.7	339	0.4
Marestail	1	0.7	111	0.1

[a]Ranked as No. 1, 2 or 3 weed by respondents.
[b]Respondents' acres only.
[c]Weed problem may not have been present across all reported acres.

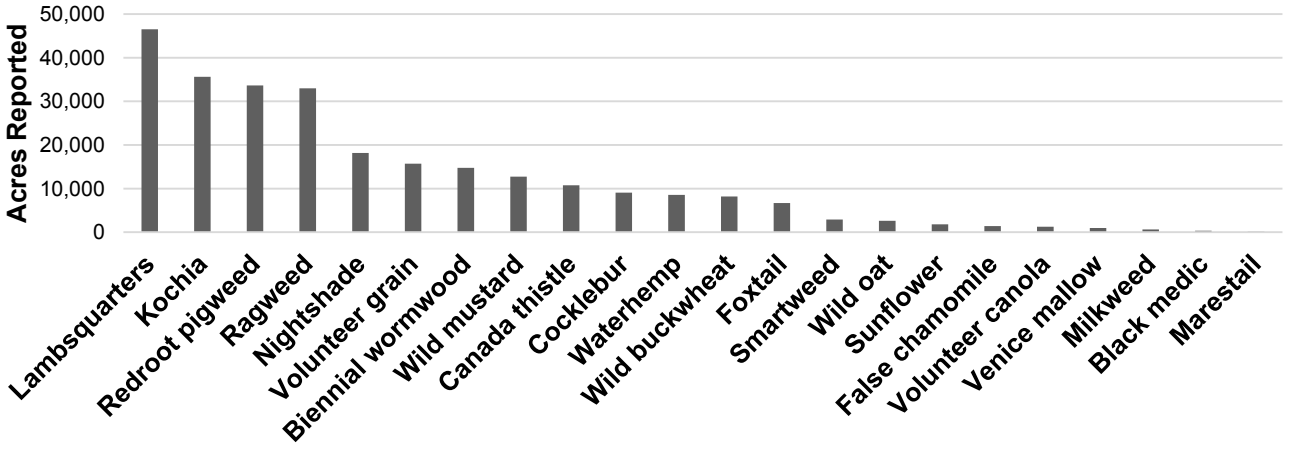

Figure 28. Northarvest weeds ranked as one of worst three in dry beans in 2015.

Table 33. Weed control practices used in dry beans in 2015.

Herbicide or other practice	Acres reported (no.)[a]	Acres reported (%)[b]
Minnesota		
Raptor	20,726	87.6
Reflex	15,476	65.4
Basagran	13,420	56.7
Select	9,837	41.6
Rezult	7,510	31.8
Prowl	6,938	29.3
Sonalan	6,093	25.8
Dual	5,288	22.4
Eptam	4,003	16.9
Permit	3,795	16.0
Outlook	2,357	10.0
Trifluralin	1,879	7.9
Assure	1,101	4.7
Glyphosate (preplant)	874	3.7
Poast	868	3.7
Pursuit	380	1.6
Spartan Charge	350	1.5
Fusilade	210	0.9
Cultivation	10,241	43.3
Rotary hoe	954	4.0
Manual labor	1,645	7.0
Herbicide Total	**101,105**	
North Dakota		
Raptor	60,680	88.3
Basagran	41,635	60.6
Reflex	33,153	48.2
Rezult	30,976	45.1
Select	23,926	34.8
Sonalan	20,086	29.2
Spartan Charge	13,504	19.7
Prowl	13,139	19.1
Glyphosate (preplant)	12,801	18.6
Pursuit	9,767	14.2
Assure	8,444	12.3
Trifluralin	6,938	10.1
BroadAxe	4,848	7.1
Permit	4,534	6.6
Glyphosate (postharvest)	2,110	3.1
Outlook	1,764	2.6
Spartan Elite	1,735	2.5
Eptam	917	1.3
Poast	420	0.6
Cultivation	28,939	42.1
Rotary hoe	2,961	4.3
Manual labor	7	0.0
Herbicide Total	**291,377**	
Northarvest		
Raptor	81,406	88.1
Basagran	55,055	59.6
Reflex	48,629	52.7
Rezult	38,486	41.7
Select	33,763	36.6
Sonalan	26,179	28.3
Prowl	20,077	21.7
Spartan Charge	13,854	15.0
Glyphosate (preplant)	13,675	14.8
Pursuit	10,147	11.0
Assure	9,545	10.3
Trifluralin	8,817	9.5
Permit	8,329	9.0
Dual	5,288	5.7
Eptam	4,920	5.3
BroadAxe	4,848	5.2
Outlook	4,121	4.5
Glyphosate (postharvest)	2,110	2.3
Spartan Elite	1,735	1.9
Poast	1,288	1.4
Fusilade	210	0.2
Cultivation	39,180	42.4
Rotary hoe	3,915	4.2
Manual labor	1,652	1.8
Herbicide Total	**392,482**	

[a]Respondents' acres only. Includes acreage treated more than once with the same product.
[b]Percentages do not total 100 because some respondents treated more than once with the same product and/or treated the same acreage with more than one product.
[c]Herbicide total does not include cultivation, rotary hoe or manual labor acres.

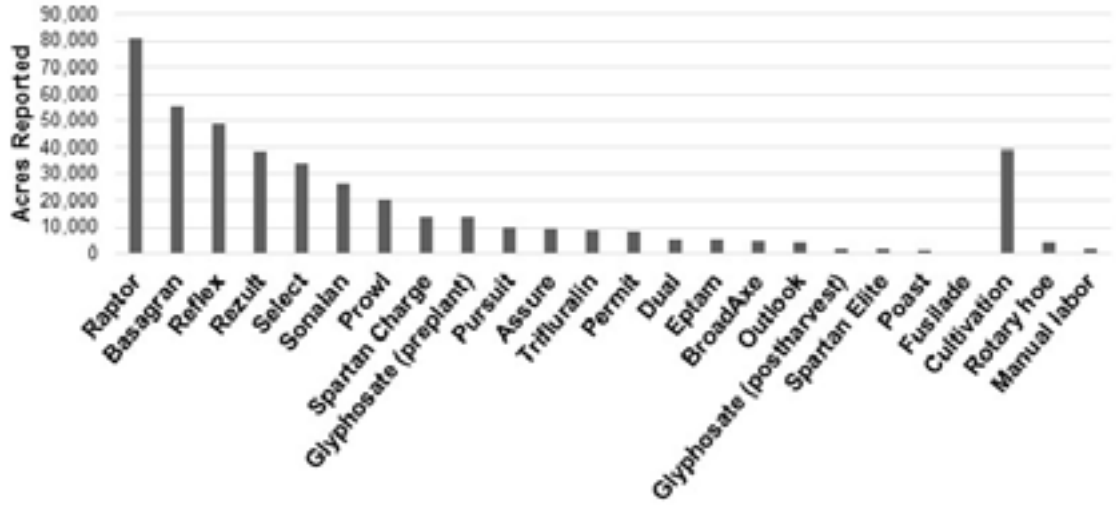

Figure 29. Northarvest weed control practices used in dry beans in 2015.

Table 34. Weed control practices used by dry bean market class in 2015.

Herbicide or other practice	Black	Cranberry	Great Northern	Kidney	Navy	Pink	Pinto	Red
				% Acres Treated[a,b]				
Minnesota								
Assure	3.6	0	0	0	11.5	0	0	0
Basagran	67.5	0	0	60.4	47.9	62.2	33.2	0
Dual	41.2	0	0	20	18	0	0	0
Eptam	10.7	0	0	12.1	26.1	37.8	0	0
Fusilade	0	0	0	0	2.5	0	0	0
Glyphosate (preplant)	7.1	0	0	0	6.9	0	0	0
Outlook	3.1	0	0	16.4	6.4	0	0	0
Permit	7.1	0	0	26.2	9.6	0	0	0
Poast	20.7	0	0	0	0	0	0	0
Prowl	37.6	0	0	39.1	13.2	62.2	0	0
Pursuit	0	0	0	0	1.8	62.2	0	0
Raptor	81.6	0	0	86.3	91	100	100.2	0
Reflex	77.2	0	0	69.9	55	37.8	67	0
Rezult	19	0	0	28.6	43	37.8	12.4	0
Select	46.7	0	0	45.7	32.3	0	100.2	0
Sonalan	8.4	0	0	11.2	49.6	0	100.2	0
Spartan Charge	3.3	0	0	0	2.5	0	0	0
Trifluralin	0	0	0	6.6	12.8	37.8	0	0
Cultivation	10.7	0	0	57.2	38.3	62.2	100.2	0
Rotary hoe	4.8	0	0	0	3.3	0	100.2	0
Manual labor	6	0	0	12	1.8	0	0	0
North Dakota								
Assure	18.2	0	100	0	2.3	0	11.7	19.2
Basagran	33.3	0	12.5	78.4	87.3	0	66.2	76.2
BroadAxe	0	0	0	0	3.9	0	10.4	19.5
Eptam	0	0	0	0	1.7	0	1.9	0
Glyphosate (preplant)	14.6	0	0	0	7.3	0	23	38.7
Glyphosate (postharvest)	9.5	0	0	36	0	0	0	20.5
Outlook	0	0	0	0	0	0	4.5	0
Permit	7.9	0	100	38.7	3.6	0	4	37.9
Poast	0	0	0	0	1.9	0	0.6	0
Prowl	36.1	100	0	60.4	6	0	13.9	39.2
Pursuit	18.2	0	0	36	10.6	0	13.4	20.5
Raptor	96.8	100	25	114.4	89.4	157.2	83	96.7
Reflex	61.7	0	75	114.4	51.3	114.4	36.5	115.9
Rezult	67.9	100	0	25.2	41.8	42.8	39.3	0
Select	11.4	0	0	78.4	48.5	0	40.7	53.5
Sonalan	11.4	0	0	0	43.9	100	33.1	14.5
Spartan Elite	9.1	0	0	0	0	0	0.8	0
Spartan Charge	19.8	0	100	14.4	6.5	0	22.3	26.9
Trifluralin	5.7	0	0	25.2	26.8	0	8.4	0
Cultivation	9	100	50	64.9	59.6	191.1	48.7	14.5
Rotary hoe	7.9	100	0	0	5.9	0	2.1	0
Northarvest								
Assure	15.1	0	100	0	6.5	0	11.5	19.2
Basagran	40.5	0	12.5	61.3	69.1	19.9	65.8	76.2
BroadAxe	0	0	0	0	2.1	0	10.3	19.5
Dual	8.6	0	0	19	8.3	0	0	0
Eptam	2.2	0	0	11.5	13	12.1	1.9	0
Fusilade	0	0	0	0	1.2	0	0	0
Glyphosate (preplant)	13	0	0	0	7.1	0	22.7	38.7
Glyphosate (postharvest)	7.5	0	0	1.8	0	0	0	20.5
Outlook	0.6	0	0	15.6	3	0	4.4	0
Permit	7.8	0	100	26.8	6.4	0	4	37.9
Poast	4.3	0	0	0	1	0	0.6	0
Prowl	36.4	100	0	40.2	9.3	19.9	13.7	39.2
Pursuit	14.4	0	0	1.8	6.6	19.9	13.2	20.5
Raptor	93.7	100	25	87.7	90.2	138.9	83.2	96.7
Reflex	65	0	75	72.2	53	89.9	36.9	115.9
Rezult	57.6	100	0	28.4	42.3	41.2	39	0
Select	18.8	0	0	47.4	41	0	41.5	53.5
Sonalan	10.7	0	0	10.6	46.6	67.9	33.9	14.5
Spartan Elite	7.2	0	0	0	0	0	0.8	0
Spartan Charge	16.3	0	100	0.7	4.7	0	22	26.9
Trifluralin	4.5	0	0	7.5	20.3	12.1	8.3	0
Cultivation	9.4	100	50	57.6	49.8	149.7	49.4	14.5
Rotary hoe	7.3	100	0	0	4.7	0	3.3	0
Manual labor	1.3	0	0	11.4	0.8	0	0	0

[a]Respondents' acres only. Includes acreage treated more than once with the same product.

[b]Percentages do not total 100 because some respondents treated more than once with the same product and/or treated the same acreage with more than one product.

Scouting and Threshold Practices

Table 35. Scouting practices in dry beans in 2015.

	Insects		Diseases		Weeds	
Minnesota	**Respon-dents (no.)**	**Respon-dents (%)**	**Respon-dents (no.)**	**Respon-dents (%)**	**Respon-dents (no.)**	**Respon-dents (%)**
Grower	18	35.3	17	33.3	18	35.3
Crop consultant	25	49	25	49	24	47.1
Both	8	15.7	8	15.7	9	17.6
Don't scout	0	0	1	2	0	0
Total	**51**	**100**	**51**	**100**	**51**	**100**
North Dakota						
Grower	44	42.7	44	43.1	49	48
Crop consultant	41	39.8	45	44.1	42	41.2
Both	9	8.7	11	10.8	11	10.8
Don't scout	9	8.7	2	2	0	0
Total	**103**	**100**	**102**	**100**	**102**	**100**
Northarvest						
Grower	62	40.3	61	39.9	67	43.8
Crop consultant	66	42.9	70	45.8	66	43.1
Both	17	11	19	12.4	20	13.1
Don't scout	9	5.8	3	2	0	0
Total	**154**	**100**	**153**	**100**	**153**	**100**

Table 36. Use of economic thresholds for insects in dry beans in 2015.

	Respondents (no.)	Respondents (%)
Minnesota		
Economic thresholds used	49	98
Economic thresholds not used	1	2
Total	**50**	**100**
North Dakota		
Economic thresholds used	92	90.2
Economic thresholds not used	10	9.8
Total	**102**	**100**
Northarvest		
Economic thresholds used	141	92.8
Economic thresholds not used	11	7.2
Total	**152**	**100**

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APPENDIX I.

Please complete all requested information on practices, pest problems and pesticide use for your 2015 dry bean crop.

State	County	Acres
Minnesota	1.	
	2.	
	3.	
North Dakota	1.	
	2.	
	3.	
South Dakota	1.	
	2.	

Dry Bean Production in 2015	Acres
Total dry bean acres planted	
Total dry bean acres harvested	
Total irrigated acres	
Total dry bean acres on tile-drained ground	
Dry bean acres with hail damage	
Dry bean acres with frost damage	
Dry bean acres with excess water damage	

Dry Bean Production Problems in 2015 (please complete the table)		
Problem	**Acres Affected**	**Bean Class**
1. Applied herbicide injury		
*List herbicide in No. 1		
2. Herbicide drift injury		
*List herbicide if known		
3. Delayed planting		
4. Emergence/stand		
5. Harvest		
6. Disease		
7. Insects		
8. Weeds		
9. Micronutrient deficiency		
10. Excess water		
11. Hail damage		
12. Frost damage		
13. Drought		
14. Soil salinity		
15. Other (specify)		

Dry Beans Grown in 2015		
Bean Class	**Variety**	**Acres**
Black	Black Cat	
	Eclipse	
	GTS-1103	
	Loreto	
	T-39	
	Zorro	
	Other (specify)	
Great Northern	Aries	
	Matterhorn	
	Orion	
	Powderhorn	
	Taurus	
	Other (specify)	
Kidney	Beluga	
	Cabernet	
	Cal Early LRK	
	Clouseau	
	Foxfire	
	Montcalm	
	Pink Panther	
	Red Hawk	
	Red Rover	
	Other (specify)	
Navy	Avalanche	
	Ensign	
	Indi	
	Medalist	
	Merlin	
	Norstar	
	T9905	
	Vigilant	
	Vista	
	Other (specify)	
Pink	Sedona	
	Floyd	
	Rosetta	
	Viva	
	Other (specify)	
Pinto	Buster	
	GTS 907	
	La Paz	
	Lariat	
	Maverick	
	Medicine Hat	
	Monterrey	
	ND 307	
	Santa Cruz	
	Sequoia	
	Sinaloa	
	Sonora	
	Stampede	
	Windbreaker	
	Other (specify)	
Small Red	Merlot	
	Rio Rojo	
	Ruby	
	Other (specify)	
Other Class	Other variety (specify)	

Agronomy

Please list row spacing and plants per acre for each bean class that you planted in 2015.			
Class	**Row Spacing (inches)**	**Live Seeds Planted Per Acre OR Pounds Per Acre**	**Established Stand (Plants Per Acre)**

Did the size of your purchased seed affect your ability to plant your intended acreage in 2015?		
Problem	**Variety(ies)**	**Number of Acres (short or long)**
Not enough seed		
Too much seed		
No problem		

Please list the crops in your dry bean crop rotation program for up to three fields planted to dry bean in 2015.			
Year	**Field 1**	**Field 2**	**Field 3**
2013			
2012			
2011			
2010			

Please list acreage for each tillage type listed below for your dry bean fields in 2015.	
Tillage Type	**Acreage**
Conventional	
Minimum	
Strip-till	
No-till	

Did you use a ground roller on your dry bean ground in 2015?		
Timing	**Bean class**	**Acres rolled**
Preplant		
Pre-emerge		
Post-emerge		
Didn't roll		

Fertilizer Program for Dry Beans in 2015. Please indicate pounds per acre for fertilizer components and answer the questions.				
Nitrogen	Phosphate	Potash	Zinc	Sulfur

Did you inoculate with Rhizobium?	**Yes**	**No**
Did you soil test prior to fertilizer application?	**Yes**	**No**
Did you use site-specific nutrient management for any fertilizers?	**Yes**	**No**

Harvest. Please circle one answer for each question.

What percentage of your dry bean crop was harvested using direct combining in 2015?

0% 1-25% 26-50% 51-75% 76-100%

Your estimated yield loss using direct combining?

0% 1-5% 6-10% 11-15% 16-20% N/A

Your estimated yield loss using conventional combining?

0% 1-5% 6-10% 11-15% 16-20% N/A

Insecticides and Insect Pests

Foliar Insecticides Used on Dry Beans in 2015. If you did not use a foliar insecticide, please write "0" for acres treated.				
Foliar Insecticide (write in name or number from the list below)	**Acres Treated**	**No. of Applications**	**Application Method (circle one for each application)**	
			air	ground
			air	ground
			air	ground

Foliar Insecticide Products

1. Asana XL	6. Mustang Maxx
2. Baythroid XL	7. Tombstone
3. Brigade/generics	8. Warrior / generics
4. Dimethoate	9. None used
5. Hero	10. Other (specify)

Seed Treatment Insecticides Used on Dry Beans in 2015. If you did not use a seed treatment insecticide, please write "0" for acres treated.	
Seed Treatment Insecticide (write in name or number from the list below)	**Acres Treated**

Seed Treatment Insecticide Products

1. Attendant 600 FS / 600
2. Capture LFR
3. Cruiser 5FS
4. Cruiser Maxx
5. Dyna-Shield Imidacloprid 5
6. Enhance AW
7. Gaucho 600
8. Lorsban
9. None used
10. Other (please specify)
11. Don't know

Worst Insect/Mite Problem in 2015. Please rank 1-3, with 1 = worst. Please mark ONLY three.	
Insect/Mite Pest	**Rank**
Armyworms	
Aphids	
Cutworms	
Bean leaf beetle	
Foliage caterpillars	
Grasshoppers	
Leafhoppers	
Seed corn maggots	
Spider mites	
Wireworms	
None	

Fungicides and Disease Problems

Foliar Fungicides Used on Dry Beans in 2015. If you did not use a fungicide, please write "0" for acres treated.				
Foliar Fungicide (write in name or number from the list below)	**Acres Treated**	**No. of Applications**	**Application Method (circle one)**	
			air	ground
			air	ground
			air	ground

Foliar Fungicide Products

1. Aproach
2. Cannonball
3. Champion
4. Copper
5. Contans
6. Endura
7. Headline
8. Incognito
9. Microthiol
10. Omega
11. Priaxor
12. Proline
13. Proline (band)
14. Proline (broad)
15. ProPulse
16. Quadris / Amstar
17. Quadris Opti
18. Quilt
19. Rorval
20. Serenade
21. Switch
22. Tebuconazole / generics
23. Topsin (banded)
24. Topsin (broadcast)
25. Vertisan
26. Other (please specify)
27. None used

Seed Treatment Fungicides Used on Dry Beans in 2015. If you did not use a seed treatment fungicide, please write "0" for acres treated.	
Seed Treatment Fungicide (write in name or number from the list below)	**Acres Treated**

Seed Treatment Fungicide Products

1. Apron
2. ApronMaxx
3. Captan
4. Dynasty
5. EverGol Energy
6. Headline
7. Maxim
8. Metalaxyl
9. Prevail
10. Rancona
11. Rancona Summit
12. Stamina
13. Spirato
14. Thiram
15. Trilex 2000
16. Trilex Summit
17. Vibrance
18. None used
19. Other (please specify)

In-furrow Fungicide Applications Made on Dry Beans in 2015. If you did not make an in-furrow fungicide application, please write "0" for acres treated.	
In-furrow Fungicide (write in name or number from Foliar Fungicide Products List)	**Acres Treated**

Worst Disease Problem in 2015. Please rank 1-3, with 1 = worst. Please mark ONLY three.	
Disease	**Rank**
Anthracnose	
Bacterial brown spot	
Bacterial wilt	
Common bacterial blight	
Halo blight	
Bean common mosaic virus	
Other viruses (general)	
Root rot	
Rust	
White mold	
None	

Herbicides and Weed Problems

Weed Control Practices Used on Dry Beans in 2015. Count double herbicide applications, double cultivation, etc., as double acres.

Weed Control Used (write in name or number from the list below)	Bean Class	Acres Treated

Weed Control Products and Practices

1. Assure	11. Permit	21. Spartan Elite
2. Basagran/generics	12. Poast	22. Trifluralin
3. BroadAxe	13. Prowl	23. Cultivation
4. Dual/generics	14. Pursuit	24. Rotary hoe
5. Eptam	15. Raptor	25. Manual labor
6. Fusilade DX	16. Reflex	26. Other
7. Glyphosate (preplant)	17. Rezult	27. None used
8. Glyphosate (preharvest)	18. Select/generics	
9. Glyphosate (postharvest)	19. Sonalan	
10. Outlook	20. Spartan/Charge	

Worst Weed Problem. Please rank 1-3, with 1 = worst. Please mark ONLY three.

Weed	Rank	Weed	Rank
Biennial wormwood		Smartweed	
Black medic		Sunflower	
Canada thistle		Venice mallow	
Cocklebur		Volunteer canola	
Foxtail		Volunteer grain	
Kochia		Waterhemp	
Lambsquarters		Wild buckwheat	
Lanceleaf sage		Wild mustard	
Nightshade		Wild oat	
Ragweed		Other	
Redroot pigweed		None	

Desiccants Used on Dry Beans in 2015. Count double applications as double acres.

Desiccant Used (write in name or number from the list below)	Bean Class	Acres Treated

Desiccant Products

1. Glyphosate
2. Paraquat
3. Sharpen
4. Sodium chlorate (Leafex, Defol)
5. Valor

Field Scouting

Field Scouting in Dry Beans in 2015. For each question, please circle the best answer that applies to your operation.

How do you scout your dry bean fields for insects?

I do it Crop consultant Don't scout

How do you scout your dry bean fields for diseases?

I do it Crop consultant Don't scout

How do you scout your dry bean fields for weeds?

I do it Crop consultant Don't scout

Do you follow recommended economic thresholds when making insect control decisions?

Yes No

Thank you for completing the 2015 Dry Bean Grower Survey!

1M-2-08; 600-12-08; 600-6-09; 400-4-10; 400-2-11; 300-2-12; 400-2-13; 300-3-14; 400-3-15; 400-3-16