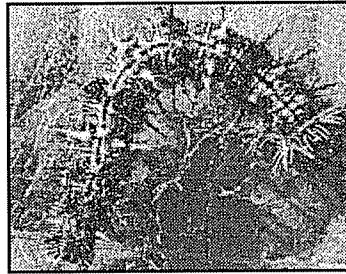
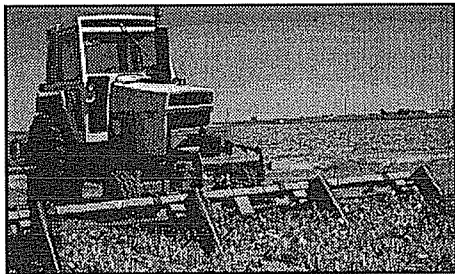


2002  
**DRY BEAN**  
**Grower Survey**

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*of Pest Problems  
and Pesticide Use*

*in Minnesota and North Dakota*



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# Index

Introduction .....	3
Table 1. Number of Northharvest dry bean growers responding, total acres and acres planted by respondents in 2002 .....	4
Table 2. Dry bean acres irrigated, harvested, and damaged by hail and by water in 2002 .....	4
Table 3. Sources of dry edible bean seed used by respondents for planting in 2002 .....	4
Table 4. Market classes of dry bean grown by respondents in 2002 .....	4
Table 5. Dry bean varieties grown in 2002 by respondents .....	4
Table 6. Leading varieties of dry bean, by market class, grown in 2002 .....	5
Table 7. Worst dry edible bean production problem in 2002 reported by respondents .....	5
Table 8. Worst weed problem in dry edible bean fields in 2002 .....	5
Table 9. Weeds ranked as one of the three worst in dry edible bean fields in 2002 .....	6
Table 10. Herbicides used on dry edible bean fields in 2002 .....	6
Table 11. Herbicide use by bean market class in 2002 .....	7
Table 12. Desiccants used on dry edible bean fields in 2002 .....	7
Table 13. Worst disease problem on dry edible bean in 2002 .....	7
Table 14. Diseases ranked as one of the three worst on dry edible bean in 2002 .....	7
Table 15. Fungicides applied to dry edible bean fields in 2002 .....	8
Table 16. Worst insect problem on dry edible bean in 2002 .....	8
Table 17. Insects ranked as one of the three worst in dry edible bean fields in 2002 .....	8
Table 18. Use of insecticides on dry edible bean fields in 2002 .....	9
Table 19. Use of insecticidal seed treatment on dry edible bean in 2002 .....	9
Table 20. Use of fertilizers on dry edible bean fields in 2002 .....	9
Table 21. Use of Rhizobium inoculants on dry edible bean in 2002 .....	9
Table 22. Crop grown the year prior to dry edible bean in 2002 .....	9
Table 23. Number of years in dry bean rotation in 2002 .....	9
References .....	10
Acknowledgements .....	10
Copy of 2002 Dry Bean Grower Survey Form .....	10

## **Introduction**

This is the fourteenth annual survey of pest problems, pesticide use, and grower practices of the Northharvest Bean Growers Association, and association of dry edible bean growers in Minnesota and North Dakota. Results of previous surveys dated 1987-2000 have been published (1-13). There were no surveys in 1993 and 2001.

The survey form (pages 11-12) was developed by research and extension faculty at North Dakota State University and the directors of the Northharvest Bean Growers Association. The survey was completed by dry bean producers that attended the Northharvest Bean Day in Fargo, January 24, 2003. This was the fifth time that a survey was conducted at Bean Day. Surveys in other years were mailed to all Northharvest bean growers. All participants in the survey were anonymous.

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

**Table 1. Number of Northharvest dry bean growers responding, total acres and acres planted by respondents in 2002.**

Growers	Respondents (no.)	Respondents' acres	Total acres <sup>a</sup>	Acres surveyed
				(% of total)
Minnesota	39	18,218	165,000	11.0
North Dakota	89	65,063	750,000	8.7
Northharvest total	128	83,281	915,000	9.1

<sup>a</sup> Total of dry bean acres planted for area.

**Table 2. Dry bean acres irrigated, harvested, and damaged by hail and by water in 2002.**

	% of respondents' acres		
	Minnesota	North Dakota	Northharvest
Irrigated	50.8	6.8	16.4
Harvested	94.5	91.5	92.2
Hail damaged	1.6	14.3	11.5
Water damaged	18.2	21.5	20.8

**Table 3. Sources of dry edible bean seed used by respondents for planting in 2002.**

Seed source	% of respondents' acres		
	Minnesota	North Dakota	Northharvest
Bin run	0	12.3	9.6
Canada	0	2.4	1.8
Michigan	20.8	1.6	5.8
Northharvest grown	0.9	22.2	17.5
Western	77	58.4	62.6

**Table 4. Market classes of dry bean grown by respondents in 2002.**

Market class	% of respondents' acres		
	Minnesota	North Dakota	Northharvest
Black	4.1	9.0	7.9
Kidney	63.3	2.7	15.9
Navy	25.7	21.6	22.5
Pink	1.1	1.4	1.4
Pinto	5.2	60.7	48.5
Other	0.5	4.6	3.7

**Table 5. Dry bean varieties grown in 2002 by respondents.**

Variety	Class <sup>b</sup>	Acres planted <sup>a</sup>					
		MN		ND		Northharvest	
		MN	%	ND	%	Northharvest	%
Buster	P	150	0.8	3,139	4.8	3,289	3.9
GTS 900	P	0	0	2,600	4.0	2,600	3.1
Maverick	P	273	1.5	26,063	40.1	26,336	31.6
Pintoba	P	50	0.3	1,119	1.7	1,169	1.4
Remington	P	75	0.4	500	0.8	575	0.7
Topaz	P	67	0.4	850	1.3	917	1.1
Winchester	P	176	1.0	2,100	3.2	2,276	2.7
Other pinto	P	159	0.9	3,105	4.8	3,264	3.9
Arthur	N	100	0.5	654	1.0	754	0.9
Mayflower	N	435	2.4	1,285	2.0	1,720	2.1
Navigator	N	530	2.9	1,090	1.7	1,620	1.9
Norstar	N	1,838	10.1	3,115	4.8	4,953	5.9
Schooner	N	0	0	590	0.9	590	0.7
Vista	N	555	3.0	2,800	4.3	3,355	4.0
Other navy	N	1,225	6.7	4,530	7.0	5,755	6.9
Montcalm	K	7,862	43.2	1,375	2.1	9,057	10.9
Other kidney	K	3,676	20.2	365	0.6	4,041	4.9
Onyx	B	0	0	160	0.2	160	0.2
T-39	B	677	3.7	4,022	6.2	4,699	5.6
Other black	B	70	0.4	1,660	2.6	1,730	2.1
Any pink	PK	200	1.1	940	1.4	1,140	1.4
Other class		100	0.5	1,601	2.5	1,701	2.0

<sup>a</sup> Respondents' acres only.

<sup>b</sup> P=pinto; N=navy; K=kidney; B=black; PK=pink

**Table 6. Leading varieties of dry bean, by market class, grown in 2002.**

Class/Variety <sup>a</sup>	% of respondents' acres <sup>b</sup>		
	Minnesota	North Dakota	Northarvest
<b>Pinto</b>			
Maverick	28.7	66.0	65.1
Buster	15.8	8.0	8.1
Winchester	18.5	5.3	5.6
<b>Navy</b>			
Navigator	11.3	7.8	8.6
Norstar	39.2	22.1	26.4
Vista	11.9	20.0	17.9
<b>Kidney</b>			
Montcalm	66.6	79.0	69.6
<b>Black</b>			
T-39	90.6	68.8	71.3

<sup>a</sup> Varieties grown on more than 10% of respondents' acres for that class, in at least one state.

<sup>b</sup> % of respondents' acres planted to that class of bean

**Table 7. Worst dry edible bean production problem in 2002 reported by respondents.**

Worst production problem	Respon-	Respon-	Acres	Acres
	dents	dents	reported <sup>a</sup>	reported <sup>a</sup>
	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>				
Weeds	8	23.5	4,672	25.6
Weather	9	26.5	3,892	21.4
Disease	6	17.7	3,725	20.4
Insects	1	2.9	280	1.5
Emergence/stand	1	2.9	156	0.9
Herbicide injury	1	2.9	900	4.9
Harvest	6	17.7	2,668	14.6
None	2	5.9	1,100	6.0
<b>North Dakota</b>				
Weeds	32	40.0	20,000	30.7
Weather	17	21.3	9,566	14.7
Disease	10	12.5	14,027	21.6
Insects	1	1.3	200	0.3
Emergence/stand	4	5.0	2,840	4.4
Herbicide injury	2	2.5	1,300	2.0
Harvest	12	15.0	9,815	15.1
None	2	2.5	825	1.3
<b>Northarvest</b>				
Weeds	40	35.1	24,672	29.6
Weather	26	22.8	13,458	16.2
Disease	16	14.0	17,752	21.3
Insects	2	1.8	480	0.6
Emergence/stand	5	4.4	2,996	3.6
Herbicide injury	3	2.6	2,200	2.6
Harvest	18	15.8	12,483	15.0
None	4	3.5	1,925	2.3

<sup>a</sup> Respondents' acres only.

**Table 8. Worst weed problem in dry edible bean fields in 2002.**

Weed <sup>a</sup>	Respon-	Respon-	Acres	Acres
	dents	dents	reported <sup>b</sup>	reported <sup>b</sup>
	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>				
Nightshade	6	16.2	3,918	21.5
Ragweed	8	21.6	3,490	19.2
Lambsquarters	5	13.5	2,782	15.3
Canada thistle	3	8.1	2,250	12.4
Redroot Pigweed	6	16.2	1,995	11.0
Kochia	3	8.1	1,200	6.6
Biennial wormwood	2	5.4	596	3.3
Foxtail	1	2.7	500	2.7
None	1	2.7	205	1.1
Cocklebur	1	2.7	147	0.8
Other	1	2.7	35	0.2
<b>North Dakota</b>				
Nightshade	28	31.8	23,660	36.4
Canada thistle	15	17.1	10,532	16.2
Kochia	9	10.2	6,221	9.6
Lambsquarters	5	5.7	5,940	9.1
Ragweed	8	9.1	4,965	7.6
Redroot pigweed	6	6.8	4,430	6.8
Cocklebur	5	5.7	2,180	3.4
Biennial wormwood	3	3.4	1,900	2.9
Wild oat	2	2.3	1,670	2.6
Other	3	3.4	1,360	2.1
Foxtail	3	3.4	1,015	1.6
<b>Northarvest</b>				
Nightshade	34	27.2	27,578	33.3
Canada thistle	18	14.4	12,782	15.3
Lambsquarters	10	8.0	8,722	10.5
Ragweed	16	12.8	8,455	10.2
Kochia	12	9.6	7,421	8.9
Redroot pigweed	12	9.6	6,425	7.7
Biennial wormwood	5	4.0	2,496	3.0
Cocklebur	6	4.8	2,327	2.8
Wild oat	2	1.6	1,670	2.0
Foxtail	4	3.2	1,515	1.8
Other	4	3.2	1,395	1.7

<sup>a</sup> Ranked as number 1 weed problem on more than 0.5% of respondents' acres.

<sup>b</sup> Respondents' acres only.

**Table 15. Fungicides applied to dry edible bean fields in 2002.**

Fungicide	Acres treated <sup>a</sup>	Acres treated <sup>a</sup>	Acres treated by air <sup>a</sup>	Acres treated by air <sup>a</sup>	Acres treated by ground <sup>a</sup>	Acres treated by ground <sup>a</sup>
	(no.)	(%)	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>						
Topsin (broadcast)	2,890	15.9	680	3.7	2,210	12.1
Other	1,973	10.8	0	0	1,973	10.8
Tilt	700	3.8	0	0	700	3.8
Topsin (banded)	675	3.7	0	0	675	3.7
Thiolux	80	0.4	0	0	80	0.4
Total fungicide	6,318	34.6	680	3.7	5,638	30.8
<b>North Dakota</b>						
Topsin (broadcast)	7,640	11.7	2,100	3.2	4,690	7.2
Topsin (banded)	7,510	11.5	0	0	7,510	11.5
Tilt	1,570	2.4	50	0.1	1,520	2.3
Other	550	0.8	0	0	550	0.8
Intercept	200	0.3	0	0	200	0.3
Total fungicide	17,470	26.9	2,150	3.3	14,470	22.2
<b>Northarvest</b>						
Topsin (broadcast)	10,530	12.6	2,780	3.3	6,900	8.3
Topsin banded)	8,185	9.8	0	0	8,185	9.8
Other	2,523	3.0	0	0	2,523	3.0
Tilt	2,270	2.7	50	<0.1	2,220	2.7
Intercept	200	0.2	0	0	200	0.2
Total fungicide	23,788	28.6	2,830	3.4	20,028	24.0

<sup>a</sup> Respondents' acres only.

**Table 16. Worst insect problem on dry edible bean in 2002.**

Insect	Respon- dents	Respon- dents	Acres reported <sup>a</sup>	Acres reported <sup>a</sup>
	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>				
Leafhopper	20	83.3	10,520	57.7
Grasshopper	2	8.3	1,156	6.3
<b>North Dakota</b>				
Leafhopper	17	37.0	17,802	27.4
Grasshopper	12	26.1	4,910	7.5
Seed corn maggot	3	6.5	2,955	4.5
<b>Northarvest</b>				
Leafhopper	37	68.5	28,322	34.0
Grasshopper	14	25.9	6,066	7.3
Seed corn maggot	3	5.6	2,955	3.5

<sup>a</sup> Respondents' acres only.

**Table 17. Insects ranked as one of the three worst in dry edible bean fields in 2002.**

Insect <sup>a</sup>	Respon- dents	Respon- dents	Acres reported <sup>b</sup>	Acres reported <sup>b</sup>
	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>				
Leafhopper	21	53.8	11,520	63.2
Grasshopper	11	28.2	5,656	31.0
Spider mite	7	17.9	4,165	22.9
Seed corn maggot	4	10.3	2,255	12.4
<b>North Dakota</b>				
Leafhopper	21	23.6	19,182	29.5
Grasshopper	21	23.6	14,825	22.8
Spider mite	8	9.0	10,660	16.4
Seed corn maggot	4	4.5	5,955	9.2
<b>Northarvest</b>				
Leafhopper	42	32.8	30,702	36.9
Grasshopper	32	25.0	20,481	24.6
Spider mite	15	11.7	14,825	17.8
Seed corn maggot	8	6.3	8,210	9.9

<sup>a</sup> Ranked as no. 1, 2, or 3 insect problem by respondents.

<sup>b</sup> Respondents' acres only.

**Table 18. Use of insecticides on dry edible bean fields in 2002.**

Insecticide	Respon-	Respon-	Acres	Acres
	dents	dents	reported <sup>a</sup>	reported <sup>a</sup>
	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>				
Asana	2	5.1	275	1.5
<b>North Dakota</b>				
Asana	1	1.1	160	0.2
Warrior	1	1.1	150	0.2
<b>Northarvest</b>				
Asana	3	2.3	435	0.5
Warrior	1	0.8	150	0.2

<sup>a</sup> Respondents' acres only.

**Table 19. Use of insecticidal seed treatment on dry edible bean in 2002.**

Treatment	Respon-	Respon-	Acres	Acres
	dents	dents	reported <sup>a</sup>	reported <sup>a</sup>
	(no.)	(%)	(no.)	(%)
<b>Minnesota</b>				
Lorsban	11	28.2	6,370	35.0
Lindane	4	10.3	2,260	12.4
<b>North Dakota</b>				
Lindane	11	12.4	12,260	18.8
Lorsban	13	14.6	9,105	14.0
<b>Northarvest</b>				
Lorsban	24	18.8	15,475	18.6
Lindane	15	11.7	14,520	17.4

<sup>a</sup> Respondents' acres only.

**Table 20. Use of fertilizers on dry edible bean fields in 2002.**

Fertilizer	Respondents	Average amount
	(%)	applied (lb/A)
<b>Minnesota</b>		
Nitrogen	87.2	83.2
Phosphate	61.5	34.1
Potash	59.0	83.2
Zinc	33.3	3.9
Other	15.4	12.0
<b>North Dakota</b>		
Nitrogen	71.9	55.2
Phosphate	59.6	39.5
Potash	19.1	21.9
Zinc	50.6	5.5
Other	3.4	8.3

**Table 21. Use of Rhizobium inoculants on dry edible bean in 2002.**

Rhizobium use	Respondents	Respondents
	(no.)	(%)
<b>Minnesota</b>		
Inoculant used	4	15.4
Inoculant not used	22	84.6
<b>North Dakota</b>		
Inoculant used	12	20.7
Inoculant not used	46	79.3
<b>Northarvest</b>		
Inoculant used	16	19.0
Inoculant not used	68	81.0

**Table 22. Crop grown the year prior to dry edible bean in 2002.**

Previous crop	Respondents (%)
<b>Minnesota</b>	
Wheat	16.7
Fallow	1.5
Corn	43.9
Soybean	6.1
Sugarbeet	24.2
Potato	7.6
<b>North Dakota</b>	
Wheat	69.4
Barley	9.7
Fallow	1.4
Corn	14.6
Flax	0.7
Soybean	1.4
Sugarbeet	2.8

**Table 23. Number of years in dry bean rotation in 2002.**

Number of years	Respondents (%)
<b>Minnesota</b>	
1	0
2	18.2
3	36.4
4	21.2
5	24.2
<b>North Dakota</b>	
1	1.4
2	23.3
3	31.5
4	19.2
5	22.6
6	0
7	0
8	0
9	2.1

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Please circle or fill in the requested information on pest problems and pesticide use on your 2002 dry bean crop.

Total dry bean acres planted in 2002	
Irrigated acres	Dry land acres
Total dry bean acres harvested	
Dry bean acres with hail damage	
Dry bean acres with water damage	

State	County	Acres
Minnesota		
North Dakota		
South Dakota		

Dry Beans Grown		
Class	Variety	Acres
Pinto	1 Buster	
	2 Elizabeth	
	3 GTS 900	
	4 Maverick	
	5 Pintoba	
	6 Remington	
	7 Topaz	
	8 Winchester	
	9 Other Pinto (specify)	
Navy	21 Arthur	
	22 Mayflower	
	23 Navigator	
	24 Norstar	
	25 Schooner	
	26 Vista	
	27 Other Navy (specify)	
Kidney	41 Montcalm (DRK)	
	42 Other Kidney (specify)	
Black	61 Onyx	
	62 Shadow	
	63 T-39	
	64 Other Black (specify)	
Pink	81 (specify)	
Other	91 (specify class & variety)	

Seed source	Acres Planted
Western Grown	
Northwest Grown (ND/MN)	
Canadian Grown (MB/ON)/country grown	
Bin run	

Crop Rotation (field with dry beans in 2002) ( write in crops grown in previous years)		
	Field #1 dry beans '02	Field #2 dry beans '02
2001		
2000		
1999		
1998		

Biggest Production Problem in Dry Beans (circle one & complete table)		
	Acres Affected	Bean Class
1 Applied herbicide injury*		
3 Herbicide drift injury		
4 Delayed planting		
5 Emergence/stand		
6 Harvest		
7 Disease		
8 Insects		
9 Micronutrient deficiency		
10 Weeds		
11 Other (specify)		
12 None		

Insecticides used on Dry Beans			
Insecticide	No. Acres Treated		No. of Sprays
Lindane Seed Treatment	Yes	No	Acres
Lorsban Seed Treatment	Yes	No	Acres

Worst Insect/Mite Problem (Rank 1-3; 1 = worst)	
Grasshoppers	
Leafhoppers	
Spider Mites	
Seed Corn Maggot	

General Fertilizer Program for Dry Beans lb/A				
Nitrogen	Phosphate	Potash	Zinc	Other
Inoculate with rhizobium bacteria?			Yes	No

Worst Weed Problems in Dry Beans (Rank 1-3; 1 = worst)			
Biennial Wormwood		Nightshade	
Canada Thistle		Ragweed	
Cocklebur		Redroot Pigweed	
Foxtail		Volunteer Grain	
Kochia		Wild oat	
Lambsquarters		Other	

Non-Chemical Weed Management (double-pass counts as double acres)		
Practice	Acres treated	No. of passes
Cultivation		
Rotary hoe/harrow		
No herbicide		

**Weed Control Practices Used on Dry Beans**

Mark weed control used and indicate areas treated for each item. Count double application, double cultivation; etc. as double acres

Weed control used (Write in name or #)	Class of bean	Acres treated	Class of bean (if additional)	Acres treated	Class of bean (if additional)	Acres treated
<b>Dry Bean herbicide</b>	1 Assure II 2 Basagran/generics 3 Dual 4 Eptam (fall) 5 Eptam (spring) 6 Frontier 7 Lasso/generics		8 Poast 9 Prowl 10 Pursuit 11 Raptor 12 Reflex 13 Roundup Ultra (preplant)		14 Rezult 15 Sonalan (fall) 16 Sonalan (spring) 17 Trifluralin (fall) 18 Trifluralin (spring) 19 Trifluralin + Eptam (spring) 20 Other	
<b>Desiccants</b>	<b>Class of bean</b>	<b>Acres treated</b>	<b>Class of bean (if additional)</b>	<b>Acres treated</b>	<b>Class of bean (if additional)</b>	<b>Acres treated</b>
20 Sodium Chlorate (Leafex, Defol)						
21 Gramoxone Extra						

Worst Disease Problems (Rank 1-3; 1 = worst)	Alternaria	Anthracnose	Bacterial Blight	Root Rot	Rust	White Mold	None

**Fungicides Used On Dry Beans**

Fungicide used (write in name or #)	No. acres treated	No. of sprays	Application Method (circle one)	
			air	ground
			air	ground
			air	ground
			air	ground
			air	ground
			air	ground
			air	ground
			air	ground
<b>Dry Bean Fungicides</b>	1 Bravo/ Generics 2 Champion/Champ 3 Intercept 4 Kocide 5 Maneb	6 Thiolux 7 Tilt 8 Topsin (broadcast) 9 Topsin (banded) 10 Other 11 Any tank mixes? List combination		

For more information on this and other topics, see: [www.ag.ndsu.nodak.edu](http://www.ag.ndsu.nodak.edu)

