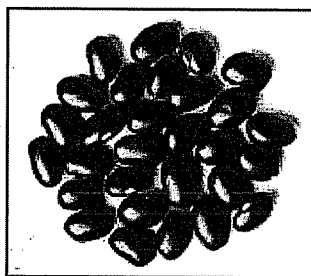
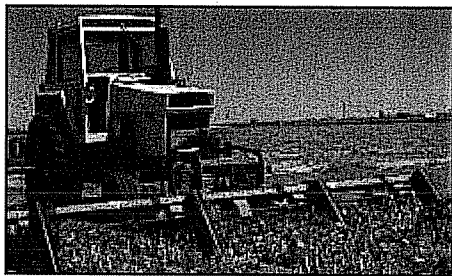


2004 and 2005 DRY BEAN Grower Survey

of Pest Problems and Pesticide Use

in Minnesota and North Dakota



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Introduction

These are the 16th (2004) and 17th (2005) annual surveys of varieties grown, 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 and 2002 have been published (1-14).

No surveys were conducted in 1993 and 2001. In 2003, the lack of responses made processing and analyses of results not justified, so no report was compiled.

The survey forms (Appendix I and II) were developed by research and Extension faculty at North Dakota State University and the directors of the Northharvest Bean Growers Association.

The survey was mailed to all Northharvest bean growers.

All participants in the survey were anonymous. In some years, such as 2003, the survey was completed by dry bean producers who attended the Northharvest Bean Day in Fargo during the winter.

Throughout this report, trade names of chemicals often are 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.

2004 Dry Bean Grower Survey

Table 1. Number of Northharvest dry bean growers responding, total acres and acres planted by respondents in 2004.

| Growers | No. of respondents | Respondents' acres | Total acres ^a | Acres surveyed (% of total) |
|--------------|--------------------|--------------------|--------------------------|--------------------------------|
| Minnesota | 79 | 27,634 | 115,000 | 24.0 |
| North Dakota | 217 | 122,527 | 560,000 | 21.8 |
| Northharvest | 296 | 150,161 | 675,000 | 22.2 |

^a Total of dry bean acres planted for area.

Table 2. Dry bean acres irrigated, harvested and damaged by hail, frost and water in 2004.

| | % of respondents' acres | | |
|---------------|-------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Irrigated | 23.3 | 1.7 | 5.6 |
| Harvested | 92.4 | 86.1 | 87.2 |
| Hail damaged | 7.8 | 11.2 | 10.6 |
| Frost damaged | 73.8 | 71.0 | 71.6 |
| Water damaged | 10.8 | 10.0 | 10.1 |

Table 3. Sources of dry edible bean seed used for planting by respondents in 2004.

| Seed source | % of respondents' acres | | |
|--------------|-------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Bin run | 1.9 | 11.9 | 1.1 |
| Canada | 5.6 | 0.6 | 1.6 |
| Northharvest | 4.1 | 30.8 | 25.9 |
| Western | 85.9 | 55.0 | 60.6 |

Table 4. Market classes of dry bean grown by respondents in 2004.

| | % of respondents' acres | | |
|--------|-------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Black | 3.6 | 6.8 | 6.2 |
| Kidney | 33.3 | 0.4 | 6.4 |
| Navy | 38.1 | 17.2 | 21.1 |
| Pink | 6.6 | 0.3 | 1.4 |
| Pinto | 16.8 | 74.3 | 63.7 |
| Other | 1.6 | 0.8 | 0.9 |

Table 5. Dry bean varieties grown in 2004 by respondents.

| Variety | Class ^b | Acres planted ^a | | | | | |
|--------------|--------------------|----------------------------|------|--------|------|--------------|------|
| | | MN | % | ND | % | Northharvest | % |
| Maverick | P | 1,905 | 6.9 | 63,757 | 52.0 | 65,662 | 43.7 |
| Buster | P | 1,197 | 4.3 | 11,221 | 9.1 | 12,418 | 8.3 |
| GTS 900 | P | 0 | 0 | 6,148 | 5.0 | 6,148 | 4.1 |
| Remington | P | 760 | 2.8 | 2,038 | 1.7 | 2,798 | 1.9 |
| Topaz | P | 230 | 0.8 | 1,584 | 1.3 | 1,814 | 1.2 |
| Pintoba | P | 250 | 0.9 | 1,299 | 1.1 | 1,549 | 1.0 |
| Winchester | P | 40 | 0.1 | 532 | 0.4 | 572 | 0.4 |
| Other pinto | P | 250 | 0.9 | 3,774 | 3.1 | 4,024 | 2.7 |
| Ensign | N | 1,564 | 5.7 | 2,843 | 2.3 | 4,407 | 2.9 |
| Navigator | N | 835 | 3.0 | 7,538 | 6.2 | 8,373 | 5.6 |
| Norstar | N | 3,016 | 10.9 | 5,080 | 4.1 | 8,096 | 5.4 |
| Vista | N | 2,559 | 9.2 | 355 | 0.3 | 2,914 | 1.9 |
| Rally | N | 0 | 0 | 712 | 0.6 | 712 | 0.5 |
| Arthur | N | 222 | 0.8 | 200 | 0.2 | 422 | 0.3 |
| Mayflower | N | 0 | 0 | 60 | <0.1 | 60 | <0.1 |
| Other navy | N | 2,330 | 8.4 | 5,058 | 4.1 | 7,388 | 4.9 |
| Montcalm | K | 4,124 | 14.9 | 401 | 0.3 | 4,525 | 3.0 |
| Red Hawk | K | 3,013 | 10.9 | 160 | 0.1 | 3,173 | 2.1 |
| Other kidney | K | 2,058 | 7.4 | 0 | 0 | 2,058 | 1.4 |
| T-39 | B | 344 | 1.2 | 3,301 | 2.7 | 3,645 | 2.4 |
| Jaguar | B | 130 | 0.5 | 455 | 0.4 | 585 | 0.3 |
| Onyx | B | 250 | 0.9 | 0 | 0 | 250 | 0.1 |
| Other black | B | 272 | 1.0 | 4,650 | 3.8 | 4,922 | 3.3 |
| Any pink | PK | 1,835 | 6.6 | 329 | 0.3 | 2,164 | 1.4 |
| Other class | | 450 | 1.6 | 987 | 0.8 | 1,437 | 1.0 |

^a Respondents' acres only.

^b P=pinto; N=navy; K=kidney; B=black; PK=pink

Table 6. Leading varieties of dry bean, by market class, grown in 2004.

| Class/variety ^a | % of respondents' acres ^b | | |
|----------------------------|--------------------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Pinto | | | |
| Maverick | 41.1 | 70.6 | 69.1 |
| Buster | 25.8 | 12.4 | 13.1 |
| Remington | 16.4 | 2.2 | 2.9 |
| Navy | | | |
| Navigator | 9.3 | 39.6 | 29.9 |
| Norstar | 33.6 | 26.7 | 28.9 |
| Vista | 28.5 | 1.9 | 10.4 |
| Kidney | | | |
| Montcalm | 38.3 | 11.8 | 31.9 |
| Ensign | 14.5 | 83.5 | 31.1 |
| Redhawk | 28.0 | 4.7 | 22.4 |
| Black | | | |
| T-39 | 34.5 | 39.2 | 38.7 |

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

^b % of respondents' acres planted to that class of bean.

Table 7. Worst dry edible bean production problem in 2004 reported by respondents.

| Worst production problem | Respon- | Respon- | Acres | Acres |
|--------------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^a | reported ^a |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Weather | 27 | 34.6 | 10,105 | 36.6 |
| Disease | 11 | 14.1 | 5,616 | 20.3 |
| Weeds | 11 | 14.1 | 2,730 | 9.9 |
| Delayed planting | 6 | 7.7 | 2,615 | 9.5 |
| Harvest | 6 | 7.7 | 2,192 | 7.9 |
| Emergence/stand | 5 | 6.4 | 1,324 | 4.8 |
| Insects | 3 | 3.8 | 1,007 | 3.6 |
| None | 6 | 7.7 | 837 | 3.0 |
| Drift injury | 1 | 1.3 | 800 | 2.9 |
| Herbicide injury | 1 | 1.3 | 300 | 1.1 |
| Other | 1 | 1.3 | 20 | 0.1 |
| North Dakota | | | | |
| Weather | 88 | 40.9 | 41,792 | 34.1 |
| Disease | 29 | 13.5 | 36,198 | 29.5 |
| Delayed planting | 28 | 13.0 | 12,671 | 10.3 |
| Weeds | 26 | 12.1 | 12,255 | 10.0 |
| Harvest | 10 | 4.6 | 6,118 | 4.9 |
| Emergence/stand | 16 | 7.4 | 5,589 | 4.6 |
| Herbicide injury | 6 | 2.8 | 2,507 | 2.0 |
| None | 10 | 4.7 | 2,067 | 1.7 |
| Micro. nut. defic. | 2 | 0.9 | 1,080 | 0.9 |
| Northharvest | | | | |
| Weather | 115 | 38.9 | 51,897 | 34.6 |
| Disease | 40 | 13.5 | 41,814 | 27.8 |
| Delayed planting | 34 | 11.5 | 15,286 | 10.2 |
| Weeds | 37 | 12.5 | 14,985 | 9.9 |
| None | 23 | 0.3 | 11,117 | 7.4 |
| Harvest | 16 | 7.8 | 8,310 | 5.5 |
| Emergence/stand | 21 | 2.4 | 6,913 | 4.6 |
| Herbicide injury | 7 | 5.4 | 2,807 | 1.9 |
| Micro. nut. defic. | 2 | 1.0 | 1,080 | 0.7 |
| Insects | 3 | 7.1 | 1,007 | 0.7 |
| Drift injury | 1 | 0.7 | 800 | 0.5 |
| Other | 1 | 0.3 | 20 | <0.1 |

^a Respondents' acres only.

Table 8. Worst weed problem in dry edible bean fields in 2004.

| Weed ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Lambsquarters | 15 | 19.2 | 6,044 | 21.9 |
| Kochia | 14 | 17.9 | 6,942 | 25.1 |
| Ragweed | 10 | 12.8 | 2,287 | 8.3 |
| Nightshade | 9 | 11.5 | 2,842 | 10.3 |
| Biennial wormwood | 8 | 10.3 | 4,022 | 14.5 |
| Other | 7 | 8.9 | 1,387 | 4.9 |
| Canada thistle | 5 | 6.4 | 2,080 | 7.5 |
| Redroot pigweed | 2 | 2.6 | 432 | 1.6 |
| Volunteer grain | 2 | 2.6 | 360 | 1.3 |
| Foxtail | 2 | 2.6 | 370 | 1.3 |
| Cocklebur | 2 | 2.6 | 227 | 0.8 |
| None | 1 | 1.3 | 450 | 1.6 |
| North Dakota | | | | |
| Nightshade | 39 | 18.1 | 19,092 | 15.6 |
| Canada thistle | 37 | 17.1 | 17,329 | 14.1 |
| Kochia | 29 | 13.4 | 25,831 | 21.1 |
| Biennial wormwood | 29 | 13.4 | 15,427 | 12.6 |
| Redroot pigweed | 16 | 7.4 | 15,258 | 12.4 |
| Cocklebur | 14 | 6.5 | 8,336 | 6.8 |
| Foxtail | 13 | 6.0 | 6,406 | 5.2 |
| Wild oat | 7 | 3.2 | 4,455 | 3.6 |
| Other | 7 | 3.2 | 2,039 | 1.7 |
| Ragweed | 6 | 2.8 | 1,607 | 1.3 |
| Wild mustard | 6 | 2.8 | 2,274 | 1.8 |
| Volunteer grain | 4 | 1.8 | 1,419 | 1.1 |
| Lambsquarters | 3 | 1.4 | 1,320 | 1.1 |
| None | 3 | 1.4 | 968 | 0.8 |
| Northharvest | | | | |
| Nightshade | 48 | 16.2 | 21,934 | 14.6 |
| Kochia | 43 | 14.5 | 32,773 | 21.8 |
| Canada thistle | 42 | 14.2 | 19,409 | 12.9 |
| Biennial wormwood | 37 | 12.5 | 19,449 | 12.9 |
| Lambsquarters | 18 | 6.1 | 7,364 | 4.9 |
| Redroot pigweed | 18 | 6.1 | 15,690 | 10.4 |
| Ragweed | 16 | 5.4 | 3,894 | 2.6 |
| Cocklebur | 16 | 5.4 | 8,563 | 5.7 |
| Foxtail | 15 | 5.1 | 6,776 | 4.5 |
| Other | 14 | 4.7 | 2,040 | 1.4 |
| Wild oat | 7 | 2.4 | 4,455 | 2.9 |
| Volunteer grain | 6 | 2.0 | 1,779 | 1.2 |
| Wild mustard | 6 | 2.0 | 2,274 | 1.5 |
| None | 4 | 1.3 | 1,418 | 0.9 |

^a Ranked as No. 1 weed problem on more than 0.5% of respondents' acres.

^b Respondents' acres only.

Table 9. Weeds ranked as one of the three worst in dry edible bean fields in 2004.

| Weed ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Kochia | 14 | 17.7 | 6,942 | 25.1 |
| Lambsquarters | 15 | 19.0 | 6,044 | 21.9 |
| Biennial wormwood | 8 | 10.1 | 4,022 | 14.5 |
| Nightshade | 9 | 11.4 | 2,842 | 10.3 |
| North Dakota | | | | |
| Kochia | 29 | 13.3 | 25,831 | 21.1 |
| Nightshade | 39 | 18.0 | 19,092 | 15.6 |
| Canada thistle | 37 | 17.1 | 17,329 | 14.1 |
| Biennial wormwood | 29 | 13.3 | 15,427 | 12.6 |
| Northharvest | | | | |
| Kochia | 43 | 14.5 | 32,773 | 21.8 |
| Nightshade | 48 | 16.2 | 21,934 | 14.6 |
| Biennial wormwood | 37 | 12.5 | 19,449 | 12.9 |
| Canada thistle | 42 | 14.2 | 19,409 | 12.9 |

^a Ranked as No. 1, 2 or 3 weed problem on more than 10% of respondents' acres.

^b Respondents' acres only.

Table 11. Weed control practices used, by bean market class, in 2004 (% acres treated^a).

| Herbicide or other practice [*] | Black | Kidney | Navy | Pinto |
|--|-------|--------|------|-------|
| Minnesota | | | | |
| Basagran | 0 | 34.3 | 26.8 | 14.9 |
| Eptam (spring) | 0 | 10.6 | 4.2 | 0 |
| Outlook | 0 | 13.3 | 7.9 | 0 |
| Prowl | 27.3 | 39.8 | 13.8 | 5.4 |
| Raptor | 72.5 | 77.9 | 57.8 | 40.4 |
| Reflex | 14.9 | 6.2 | 15.5 | 15.7 |
| Rezult | 56.3 | 41.9 | 55.9 | 34.9 |
| Sonalan (spring) | 14.9 | 49.5 | 40.9 | 30.6 |
| Treflan (spring) | 0 | 0 | 11.8 | 36.4 |
| Cultivation* | 37.0 | 31.0 | 52.6 | 66.7 |
| Rotary hoe* | 11.0 | 3.3 | 28.8 | 44.5 |
| North Dakota | | | | |
| Assure II | 0 | 19.6 | 4.1 | 3.0 |
| Basagran | 2.4 | 0 | 11.3 | 15.9 |
| Prowl | 0 | 0 | 29.8 | 21.6 |
| Pursuit | 6.2 | 19.6 | 6.4 | 8.8 |
| Raptor | 63.5 | 100 | 68.3 | 49.2 |
| Reflex | 13.4 | 0 | 11.3 | 11.7 |
| Rezult | 64.9 | 19.6 | 34.3 | 72.3 |
| Select | 0 | 0 | 38.6 | 16.7 |
| Sonalan (spring) | 2.3 | 0 | 48.1 | 48.4 |
| Treflan (spring) | 4.2 | 37.4 | 13.7 | 12.9 |
| Cultivation* | 3.7 | 37.4 | 38.5 | 51.9 |
| Other | 62.4 | 0 | 0.1 | 1.7 |

^a % of respondents' acres for that class; includes practices used on more than 10% of respondents' acres for one or more classes.

Table 10. Weed control practices used on dry edible bean fields in 2004.

| Herbicide or other practice [*] | Acres | Acres | Herbicide or other practice [*] | Acres | Acres | Herbicide or other practice [*] | Acres | Acres |
|--|-----------------------|-----------------------|--|-----------------------|-----------------------|--|-----------------------|-----------------------|
| | reported ^a | reported ^a | | reported ^a | reported ^a | | reported ^a | reported ^a |
| | (no.) | (%) | | (no.) | (%) | | (no.) | (%) |
| Minnesota | | | North Dakota | | | Northharvest | | |
| Raptor | 16,605 | 60.1 | Rezult | 79,030 | 64.5 | Rezult | 91,745 | 61.1 |
| Cultivation* | 14,630 | 52.9 | Raptor | 65,559 | 53.5 | Raptor | 82,164 | 54.7 |
| Rezult | 12,715 | 46.0 | Cultivation* | 56,331 | 46.0 | Cultivation* | 70,961 | 47.3 |
| Sonalan (spring) | 11,942 | 43.2 | Sonalan (spring) | 54,685 | 44.6 | Sonalan (spring) | 66,627 | 44.4 |
| Rotary Hoe* | 7,280 | 26.3 | Prowl | 25,951 | 21.2 | Prowl | 32,346 | 21.5 |
| Basagran | 6,883 | 24.9 | Select | 23,385 | 19.1 | Basagran | 24,021 | 16.0 |
| Prowl | 6,395 | 23.1 | Basagran | 17,138 | 13.9 | Select | 24,005 | 16.0 |
| Treflan (spring) | 3,478 | 12.6 | Treflan (spring) | 15,341 | 12.5 | Treflan (spring) | 18,819 | 12.5 |
| Reflex | 3,227 | 11.7 | Reflex | 14,206 | 11.6 | Reflex | 17,433 | 11.6 |
| Outlook | 2,063 | 7.5 | Pursuit | 10,027 | 8.2 | Rotary Hoe* | 13,262 | 8.8 |
| Assure II | 1,518 | 5.5 | Other | 6,783 | 5.5 | Pursuit | 10,519 | 7.0 |
| Eptam (spring) | 1,425 | 5.1 | Rotary hoe* | 5,982 | 4.9 | Other | 7,666 | 5.1 |
| Spartan | 970 | 3.5 | Glyphosate | 4,390 | 3.6 | Assure II | 5,246 | 3.5 |
| Poast | 967 | 3.5 | Poast | 4,123 | 3.4 | Poast | 5,090 | 3.4 |
| Other | 883 | 3.2 | Spartan | 4,074 | 3.3 | Spartan | 5,044 | 3.4 |
| Treflan+Eptam | 800 | 2.9 | Assure II | 3,728 | 3.0 | Glyphosate | 4,660 | 3.1 |
| Select | 620 | 2.2 | Sonalan (fall) | 3,281 | 2.7 | Outlook | 4,586 | 3.1 |
| Dual | 600 | 2.2 | Dual | 2,282 | 1.9 | Sonalan (fall) | 3,281 | 2.2 |
| Lasso | 495 | 1.8 | Outlook | 2,523 | 2.0 | Dual | 2,882 | 1.9 |
| Pursuit | 492 | 1.8 | Eptam (fall) | 1,030 | 0.8 | Eptam (spring) | 2,260 | 1.5 |
| Glyphosate | 270 | 0.9 | Eptam (spring) | 835 | 0.7 | Eptam (fall) | 1,030 | 0.7 |
| Treflan (fall) | 157 | 0.6 | Treflan (fall) | 300 | 0.2 | Treflan+Eptam | 840 | 0.6 |
| | | | None | 198 | 0.1 | Lasso | 495 | 0.3 |
| | | | Treflan+Eptam | 40 | 0.1 | Treflan (fall) | 457 | 0.3 |
| | | | | | | None | 198 | 0.1 |

^a Respondents' acres only.

Table 15. Fungicides applied to dry edible bean fields in 2004.

| Fungicide | Acres treated ^a | Acres treated ^a | Acres treated by air ^a | Acres treated by air ^a | Acres treated by ground ^a | Acres treated by ground ^a |
|------------------------|----------------------------|----------------------------|-----------------------------------|-----------------------------------|--------------------------------------|--------------------------------------|
| | (no.) | (%) | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | | | |
| Topsin (broadcast) | 2,886 | 10.4 | 1214 | 42.1 | 1,672 | 57.9 |
| Endura | 620 | 2.2 | 240 | 38.7 | 380 | 61.3 |
| Topsin (banded) | 472 | 1.7 | 0 | 0 | 472 | 100 |
| Other | 415 | 1.5 | 175 | 42.2 | 100 | 24.1 |
| Tilt | 200 | 0.7 | 0 | 0 | 200 | 100 |
| Headline | 130 | 0.3 | 0 | 0 | 130 | 100 |
| Total fungicide | 4,723 | 20.0 | 1,629 | 34.5 | 2,954 | 62.5 |
| North Dakota | | | | | | |
| Topsin (broadcast) | 23,112 | 18.9 | 2,178 | 9.4 | 11,951 | 51.7 |
| Topsin (banded) | 13,090 | 10.7 | 0 | 0 | 8,090 | 61.8 |
| Headline | 4,970 | 4.1 | 2,960 | 59.5 | 1,830 | 36.8 |
| Tilt | 2,040 | 1.7 | 0 | 0 | 2,040 | 100 |
| Other | 1,390 | 1.1 | 0 | 0 | 1,240 | 89.2 |
| Total fungicide | 44,602 | 36.4 | 5,138 | 11.5 | 25,151 | 56.4 |
| Northarvest | | | | | | |
| Topsin (broadcast) | 25,998 | 17.3 | 3,392 | 13.1 | 13,623 | 52.4 |
| Topsin (banded) | 13,562 | 9.0 | 0 | 0 | 8,562 | 63.1 |
| Headline | 5,100 | 3.4 | 2,960 | 58.0 | 1,960 | 38.4 |
| Tilt | 2,240 | 1.5 | 0 | 0 | 2,240 | 100 |
| Other | 1,805 | 1.2 | 175 | 9.7 | 1,340 | 74.2 |
| Endura | 620 | 0.4 | 240 | 38.7 | 380 | 61.3 |
| Total fungicide | 49,325 | 32.8 | 6,767 | 13.7 | 28,105 | 56.9 |

^a Respondents' acres only. Some respondents did not indicate application method; therefore, ground-applied acres and air-applied acres may not always equal total acres treated.

Table 16. Use of fungicide seed treatment on dry edible bean in 2004.

| | Respondents | Respondents |
|---------------------|-------------|-------------|
| | (no.) | (%) |
| Minnesota | | |
| Treatment used | 33 | 49.3 |
| Treatment not used | 34 | 50.7 |
| North Dakota | | |
| Treatment used | 89 | 47.8 |
| Treatment not used | 97 | 52.2 |
| Northarvest | | |
| Treatment used | 122 | 48.2 |
| Treatment not used | 131 | 51.8 |

Table 17. Worst insect problem on dry edible bean in 2004.

| Insect ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^a | reported ^a |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Leafhopper | 37 | 62.7 | 11,501 | 41.6 |
| Grasshopper | 1 | 1.7 | 40 | 0.1 |
| Spider mite | 1 | 1.7 | 245 | 0.9 |
| Seed corn maggot | 1 | 1.7 | 538 | 1.9 |
| Other | 1 | 1.7 | 107 | 0.4 |
| None | 18 | 30.5 | 7,652 | 27.7 |
| North Dakota | | | | |
| Leafhopper | 33 | 17.5 | 13,044 | 10.6 |
| Grasshopper | 18 | 9.5 | 8,392 | 6.8 |
| Seed corn maggot | 3 | 1.6 | 3,524 | 2.9 |
| None | 135 | 71.4 | 63,156 | 51.5 |
| Northarvest | | | | |
| Leafhopper | 70 | 23.6 | 24,545 | 17 |
| Grasshopper | 19 | 6.4 | 8,432 | 5.6 |
| Seed corn maggot | 4 | 1.3 | 4,062 | 2.7 |
| Spider mite | 1 | <0.1 | 538 | <0.1 |
| Other | 1 | <0.1 | 107 | <0.1 |
| None | 153 | 51.7 | 70,808 | 47.1 |

^a Respondents' acres only.

Table 12. Desiccants used on dry edible bean fields in 2004.

| Desiccant | Respon- dents (no.) | Respon- dents (%) | Acres reported ^a (no.) | Acres reported ^a (%) |
|---------------------|---------------------------|-------------------------|---|---------------------------------------|
| Minnesota | | | | |
| Sodium chlorate | 14 | 17.7 | 2,720 | 9.8 |
| Gramoxone Extra | 12 | 15.2 | 1,326 | 4.8 |
| North Dakota | | | | |
| Sodium chlorate | 11 | 5.1 | 4,820 | 3.9 |
| Gramoxone Extra | 21 | 9.7 | 11,406 | 9.3 |
| Northharvest | | | | |
| Sodium chlorate | 25 | 8.4 | 7,540 | 5.0 |
| Gramoxone Extra | 33 | 11.1 | 12,732 | 8.5 |

^a Respondents' acres only.

Table 13. Worst disease problem on dry edible bean in 2004.

| Disease ^a | Respon- dents (no.) | Respon- dents (%) | Acres reported ^b (no.) | Acres reported ^b (%) |
|----------------------|---------------------------|-------------------------|---|---------------------------------------|
| Minnesota | | | | |
| White mold | 41 | 54.7 | 13,018 | 47.1 |
| Root rot | 19 | 25.3 | 7,059 | 25.5 |
| None | 12 | 16.0 | 5,587 | 20.2 |
| Bacterial blight | 3 | 4.0 | 975 | 3.5 |
| North Dakota | | | | |
| White mold | 133 | 63.0 | 82,887 | 67.6 |
| None | 51 | 24.2 | 23,092 | 18.8 |
| Bacterial blight | 17 | 8.0 | 11,122 | 9.1 |
| Root rot | 5 | 2.4 | 1,765 | 1.4 |
| Anthracnose | 3 | 1.4 | 1,215 | 0.9 |
| Alternaria | 1 | 0.5 | 320 | 0.3 |
| Rust | 1 | 0.5 | 50 | 0.1 |
| Northharvest | | | | |
| White mold | 174 | 58.8 | 95,905 | 63.9 |
| None | 63 | 21.3 | 28,679 | 19.1 |
| Bacterial blight | 20 | 6.8 | 12,097 | 8.1 |
| Root rot | 24 | 8.1 | 8,824 | 5.9 |
| Anthracnose | 3 | 1.0 | 1,215 | 0.8 |
| Alternaria | 1 | 0.3 | 320 | 0.2 |
| Rust | 1 | 0.3 | 50 | <0.1 |

^a Ranked as No. 1 disease problem by respondents.

^b Respondents' acres only.

Table 14. Diseases ranked as one of the three worst on dry edible bean in 2004.

| Disease ^a | Respon- dents (no.) | Respon- dents (%) | Acres reported ^b (no.) | Acres reported ^b (%) |
|----------------------|---------------------------|-------------------------|---|---------------------------------------|
| Minnesota | | | | |
| White mold | 56 | 10.3 | 18,833 | 68.1 |
| Root rot | 34 | 23.5 | 13,690 | 49.5 |
| Bacterial blight | 22 | 15.2 | 9,903 | 35.8 |
| None | 12 | 8.3 | 5,587 | 20.2 |
| Rust | 15 | 10.3 | 3,525 | 12.7 |
| Anthracnose | 3 | 2.1 | 2,100 | 7.6 |
| Alternaria | 3 | 2.1 | 980 | 3.5 |
| North Dakota | | | | |
| White mold | 152 | 40.9 | 92,089 | 75.1 |
| Rust | 47 | 12.7 | 44,825 | 36.6 |
| Bacterial blight | 67 | 18.1 | 40,832 | 33.3 |
| None | 51 | 13.7 | 23,092 | 18.8 |
| Root rot | 41 | 11.0 | 20,964 | 17.1 |
| Anthracnose | 12 | 3.2 | 3,157 | 2.6 |
| Alternaria | 1 | 0.3 | 320 | 0.3 |
| Northharvest | | | | |
| White mold | 208 | 70.3 | 110,922 | 73.9 |
| Bacterial blight | 89 | 30.1 | 50,735 | 33.8 |
| Rust | 62 | 20.9 | 48,350 | 32.2 |
| Root rot | 75 | 25.3 | 34,654 | 23.1 |
| None | 63 | 21.3 | 28,679 | 19.1 |
| Anthracnose | 15 | 5.1 | 5,257 | 3.5 |
| Alternaria | 4 | 1.4 | 1,300 | 0.9 |

^a Ranked as No. 1, 2 or 3 disease problem by respondents.

^b Respondents' acres only.

Table 24. Crop grown the year prior to dry edible bean in 2004.

| Previous crop | Respondents (%) |
|---------------------|-----------------|
| Minnesota | |
| Corn | 40.4 |
| Wheat | 33.8 |
| Sugar beet | 20.6 |
| Potato | 2.2 |
| Barley | 1.5 |
| Oats | 0.7 |
| Other | 0.7 |
| North Dakota | |
| Wheat | 66.8 |
| Corn | 11.2 |
| Barley | 8.2 |
| Sugar beet | 7.1 |
| Other | 3.7 |
| Potato | 1.9 |
| Fallow | 0.3 |
| Flax | 0.3 |

Table 25. Number of years in dry bean rotation in 2004.

| Number of years | Respondents (%) |
|---------------------|-----------------|
| Minnesota | |
| 1 | 0.7 |
| 2 | 11.7 |
| 3 | 22.6 |
| 4 | 25.5 |
| 5 | 36.5 |
| 9 | 2.9 |
| North Dakota | |
| 1 | 0.5 |
| 2 | 29.4 |
| 3 | 19.8 |
| 4 | 19.3 |
| 5 | 21.9 |
| 9 | 8.9 |

Other Responses

The following "other" responses were recorded and are below; the number of responses are in parentheses next to the response.

- Other dry bean class** small red (6); yellow enoba (1)
- Other navy cultivar** Regent (4); Premeire (4); Cirrus (7); Envoy (3); Schooner (1); Upland (1); Gran Mesa (1); TT9905 (1)
- Other pinto cultivar** Pintoba (2); Ameriseed 99236 (6); Othello (3); Fargo (2); Nodak (1); Bill Z (1); Arapahoe (1); Pintium (1)
- Other black cultivar** Shiny Crow (3); Harblack (2); Espresso (1); Rog312 (2)
- Other kidney cultivar** Cabernet (1); Foxfire (1); Beluga Wht (1); VC Nichols (1); Cal. Early (3); Chinook (1); Sacramento light red (1)
- Other worst weed** milkweed (1); smartweed (5); sage (1); marshelder (2); cheatgrass (1); tansy mustard (1); velvetleaf (1); waterhemp (5)
- Other fertilizer** Sulfur (12); calcium (4)

2005 Dry Bean Grower Survey

Table 26. Number of Northharvest dry bean growers responding, total acres and acres planted by respondents in 2005.

| Growers | Respondents | Respondents' acres | Total acres ^a | Acres surveyed |
|--------------------|-------------|--------------------|--------------------------|----------------|
| | (no.) | | | (% of total) |
| Minnesota | 101 | 36,005 | 145,000 | 24.8 |
| North Dakota | 190 | 87,031 | 620,000 | 14.0 |
| Northharvest total | 291 | 123,036 | 765,000 | 16.1 |

^a Total of dry bean acres planted for area.

Table 27. Dry bean acres irrigated, harvested and damaged by hail, frost and water in 2005.

| | % of respondents' acres | | |
|---------------|-------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Irrigated | 27.6 | 3.3 | 10.4 |
| Harvested | 97.6 | 91.8 | 93.5 |
| Hail damaged | 9.3 | 4.7 | 6.0 |
| Frost damaged | 0.4 | 0.4 | 0.4 |
| Water damaged | 12.2 | 23.1 | 20.0 |

Table 28. Sources of dry edible bean seed used by respondents in 2005.

| Seed source | % of respondents' acres | | |
|--------------------|-------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Western | 81.8 | 54.3 | 62.3 |
| Northharvest grown | 5.8 | 37.4 | 28.2 |
| Canada | 10.3 | 0.2 | 3.2 |
| Bin run | 1.6 | 0.8 | 6.0 |

Table 29. Market classes of dry bean grown by respondents in 2005.

| Market class | % of respondents' acres | | |
|--------------|-------------------------|--------------|--------------|
| | Minnesota | North Dakota | Northharvest |
| Black | 3.9 | 2.6 | 2.9 |
| Kidney | 38.0 | 0.9 | 11.7 |
| Navy | 30.8 | 17.4 | 21.3 |
| Pink | 7.1 | 1.0 | 2.8 |
| Pinto | 18.0 | 76.5 | 59.4 |
| Other | 2.3 | 1.7 | 1.9 |

Table 30. Dry bean varieties grown in 2005 by respondents.

| Variety | Class ^b | Acres planted ^a | | | | | |
|--------------|--------------------|----------------------------|------|--------|------|--------------|------|
| | | MN | % | ND | % | Northharvest | % |
| Buster | P | 1,376 | 3.8 | 8,531 | 9.8 | 9,907 | 8.0 |
| GTS 900 | P | 0 | 0 | 1,961 | 2.3 | 1,961 | 1.6 |
| Maverick | P | 2,797 | 7.8 | 47,091 | 54.1 | 49,888 | 40.6 |
| AC Pintoba | P | 520 | 1.4 | 685 | 0.8 | 1,205 | 1.0 |
| Remington | P | 240 | 0.7 | 747 | 0.9 | 987 | 0.8 |
| Winchester | P | 258 | 0.7 | 652 | 0.8 | 910 | 0.7 |
| Topaz | P | 790 | 2.2 | 1,133 | 1.3 | 1,923 | 1.6 |
| Other pinto | P | 493 | 1.4 | 5,781 | 6.6 | 6,274 | 5.1 |
| Mayflower | N | 120 | 0.3 | 100 | 0.1 | 220 | 0.2 |
| Navigator | N | 1,140 | 3.2 | 2,518 | 2.9 | 3,685 | 3.0 |
| Norstar | N | 3,110 | 8.6 | 3,290 | 3.8 | 6,400 | 5.2 |
| Vista | N | 3,131 | 8.7 | 1,836 | 2.1 | 4,967 | 4.0 |
| Ensign | N | 1,042 | 2.9 | 5,238 | 6.0 | 6,280 | 5.1 |
| Other navy | N | 2,544 | 7.0 | 2,127 | 2.4 | 4,671 | 3.8 |
| Montcalm | K | 7,195 | 19.9 | 790 | 0.9 | 7,985 | 6.5 |
| Red Hawk | K | 3,362 | 9.3 | 0 | 0 | 3,362 | 2.7 |
| Other kidney | K | 3,163 | 8.8 | 0 | 0 | 3,163 | 2.6 |
| Jaguar | B | 80 | 0.2 | 170 | 0.2 | 250 | 0.2 |
| T-39 | B | 668 | 1.9 | 1,760 | 2.0 | 2,428 | 2.0 |
| Eclipse | B | 50 | 0.1 | 293 | 0.3 | 343 | 0.3 |
| Other black | B | 591 | 1.6 | 0 | 0 | 591 | 0.5 |
| Pink | PK | 2,553 | 7.1 | 845 | 1.0 | 3,398 | 2.8 |
| Other class | | 818 | 2.3 | 1,483 | 1.7 | 2,301 | 1.9 |

^a Respondents' acres only.

^b P = pinto; N = navy; K = kidney; B = black; PK = pink

Table 35. Worst weed problem in dry edible bean fields in 2005.

| Weed ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Lambsquarters | 29 | 29.9 | 9,247 | 25.7 |
| Ragweed | 16 | 16.5 | 6,509 | 18.1 |
| Kochia | 10 | 10.3 | 4,854 | 13.5 |
| Nightshade | 10 | 10.3 | 3,815 | 10.6 |
| Biennial wormwood | 7 | 7.2 | 3,970 | 11.0 |
| Other | 6 | 6.2 | 1,816 | 5.0 |
| Cocklebur | 5 | 5.2 | 2,348 | 6.5 |
| Foxtail | 5 | 5.2 | 588 | 1.6 |
| Redroot pigweed | 3 | 3.1 | 818 | 2.3 |
| Canada thistle | 3 | 3.1 | 480 | 1.3 |
| Volunteer grain | 2 | 2.1 | 650 | 1.8 |
| None | 1 | 1.0 | 105 | 0.3 |
| North Dakota | | | | |
| Nightshade | 54 | 28.6 | 23,389 | 26.9 |
| Kochia | 30 | 15.9 | 19,531 | 22.4 |
| Canada thistle | 22 | 11.6 | 11,894 | 13.7 |
| Biennial wormwood | 12 | 6.4 | 6,907 | 7.9 |
| Cocklebur | 11 | 5.8 | 4,461 | 5.1 |
| Redroot pigweed | 10 | 5.3 | 4,186 | 4.9 |
| Volunteer grain | 9 | 4.8 | 2,767 | 3.2 |
| Other | 8 | 4.2 | 2,761 | 3.2 |
| Ragweed | 8 | 4.2 | 2,715 | 3.1 |
| Lambsquarters | 6 | 3.2 | 2,400 | 2.8 |
| Wild buckwheat | 6 | 3.2 | 1,707 | 2.0 |
| Wild oat | 5 | 2.7 | 1,820 | 2.1 |
| Foxtail | 5 | 2.7 | 905 | 1.0 |
| Wild mustard | 3 | 1.6 | 1,138 | 1.3 |
| Northarvest | | | | |
| Nightshade | 64 | 22.4 | 27,204 | 22.1 |
| Kochia | 40 | 14.0 | 24,389 | 19.8 |
| Lambsquarters | 35 | 12.2 | 11,647 | 9.5 |
| Canada thistle | 25 | 8.7 | 12,374 | 10.1 |
| Ragweed | 24 | 8.4 | 9,224 | 7.5 |
| Biennial wormwood | 19 | 6.6 | 10,877 | 8.8 |
| Cocklebur | 16 | 5.6 | 6,809 | 5.5 |
| Other | 14 | 4.9 | 4,577 | 3.7 |
| Redroot pigweed | 13 | 4.6 | 5,004 | 4.1 |
| Volunteer grain | 11 | 3.9 | 3,417 | 2.8 |
| Foxtail | 10 | 3.5 | 1,493 | 1.2 |
| Wild buckwheat | 6 | 2.1 | 1,707 | 1.4 |
| Wild oat | 5 | 1.75 | 1,820 | 1.5 |
| Wild mustard | 3 | 1.05 | 1,138 | 0.9 |
| None | 1 | 0.35 | 105 | 0.1 |

^a Ranked as No. 1 weed problem on more than 0.5% of respondents' acres.

^b Respondents' acres only.

Table 36. Weeds ranked as one of the three worst in dry edible bean fields in 2005.

| Weed ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Lambsquarters | 52 | 51.5 | 16,102 | 44.7 |
| Redroot pigweed | 51 | 50.5 | 17,123 | 47.6 |
| Ragweed | 37 | 36.6 | 14,615 | 40.6 |
| Nightshade | 34 | 33.7 | 12,344 | 34.3 |
| Canada thistle | 20 | 19.8 | 10,182 | 28.3 |
| Kochia | 20 | 19.8 | 8,985 | 25.0 |
| Biennial wormwood | 18 | 17.8 | 8,563 | 23.8 |
| Foxtail | 12 | 11.9 | 2,468 | 6.9 |
| Cocklebur | 11 | 10.9 | 3,845 | 10.7 |
| Other | 11 | 10.9 | 2,663 | 7.4 |
| Volunteer grain | 7 | 6.9 | 1,588 | 4.4 |
| Wild mustard | 1 | 1.0 | 825 | 2.3 |
| Wild buckwheat | 1 | 1.0 | 195 | 0.5 |
| Wild oat | 1 | 1.0 | 167 | 0.5 |
| None | 1 | 1.0 | 105 | 0.3 |
| North Dakota | | | | |
| Nightshade | 87 | 45.8 | 15,206 | 48.7 |
| Kochia | 79 | 41.6 | 8,966 | 44.7 |
| Canada thistle | 71 | 37.4 | 22,982 | 36.8 |
| Redroot pigweed | 54 | 28.4 | 24,900 | 28.6 |
| Cocklebur | 42 | 22.1 | 32,060 | 20.6 |
| Biennial wormwood | 39 | 20.5 | 14,429 | 26.4 |
| Volunteer grain | 38 | 20.0 | 14,147 | 16.3 |
| Lambsquarters | 34 | 17.9 | 38,922 | 17.5 |
| Wild oat | 25 | 13.2 | 11,226 | 12.9 |
| Ragweed | 23 | 12.1 | 42,368 | 10.4 |
| Foxtail | 23 | 12.1 | 17,957 | 10.3 |
| Other | 15 | 7.9 | 5,377 | 6.2 |
| Wild buckwheat | 7 | 3.7 | 1,817 | 2.1 |
| Wild mustard | 4 | 2.1 | 1,701 | 2.0 |
| Northarvest | | | | |
| Nightshade | 121 | 41.6 | 54,712 | 44.5 |
| Redroot pigweed | 105 | 36.1 | 42,023 | 34.2 |
| Kochia | 99 | 34.0 | 47,907 | 38.9 |
| Canada thistle | 91 | 31.3 | 42,242 | 34.3 |
| Lambsquarters | 86 | 29.6 | 31,308 | 25.5 |
| Ragweed | 60 | 20.6 | 23,650 | 19.2 |
| Biennial wormwood | 57 | 19.6 | 31,545 | 25.6 |
| Cocklebur | 53 | 18.2 | 21,802 | 17.7 |
| Volunteer grain | 45 | 15.5 | 15,735 | 12.8 |
| Foxtail | 35 | 12.0 | 11,434 | 9.3 |
| Wild oat | 26 | 8.9 | 11,393 | 9.3 |
| Other | 26 | 8.9 | 8,040 | 6.5 |
| Wild buckwheat | 8 | 2.8 | 2,012 | 1.6 |
| Wild mustard | 5 | 1.7 | 2,526 | 2.1 |
| None | 1 | 0.3 | 105 | 0.1 |

^a Ranked as No. 1, 2 or 3 weed problem on more than 10% of respondents' acres.

^b Respondents' acres only.

Table 37. Weed control practice used on dry edible bean fields in 2005.

| Weed control or other practice* | Respondents | Respondents | Acres reported ^a | Acres reported ^a |
|---------------------------------|-------------|-------------|-----------------------------|-----------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Raptor | 81 | 20.3 | 25,806 | 71.7 |
| Rezult | 42 | 10.5 | 14,369 | 39.9 |
| Cultivation* | 40 | 10.0 | 16,575 | 46.0 |
| Basagran | 40 | 10.0 | 9,084 | 25.2 |
| Prowl | 35 | 8.8 | 8,772 | 24.4 |
| Reflex | 31 | 7.8 | 6,748 | 18.7 |
| Sonalan (spring) | 21 | 5.3 | 5,093 | 14.2 |
| Treflan (spring) | 19 | 4.8 | 5,026 | 14.0 |
| Outlook | 16 | 4.0 | 4,106 | 11.4 |
| Select | 12 | 3.0 | 2,862 | 8.0 |
| Rotary hoe* | 11 | 2.8 | 5,841 | 16.2 |
| Assure II | 11 | 2.8 | 1,555 | 4.3 |
| Dual | 7 | 1.8 | 1,675 | 4.7 |
| Eptam (spring) | 6 | 1.5 | 3,303 | 9.2 |
| Spartan | 6 | 1.5 | 1,905 | 5.3 |
| Pursuit | 5 | 1.3 | 418 | 1.2 |
| Treflan (fall) | 4 | 1.0 | 1,680 | 4.7 |
| Poast | 4 | 1.0 | 701 | 2.0 |
| Glyphosate (preharvest) | 3 | 0.8 | 260 | 0.7 |
| Roundup | 2 | 0.5 | 990 | 2.8 |
| Sonalan (fall) | 2 | 0.5 | 690 | 1.9 |
| Lasso | 1 | 0.3 | 130 | 0.4 |
| Other | 1 | 0.3 | 50 | 0.1 |
| North Dakota | | | | |
| Rezult | 146 | 20.1 | 65,688 | 75.5 |
| Raptor | 122 | 16.8 | 44,421 | 51.0 |
| Sonalan (spring) | 92 | 12.7 | 40,032 | 46.0 |
| Cultivation* | 88 | 12.1 | 45,655 | 52.5 |
| Prowl | 40 | 5.5 | 12,005 | 13.8 |
| Reflex | 36 | 5.0 | 20,521 | 23.6 |
| Treflan (spring) | 33 | 4.5 | 14,860 | 17.1 |
| Basagran | 33 | 4.5 | 12,467 | 14.3 |
| Select | 28 | 3.9 | 14,620 | 16.8 |
| Pursuit | 25 | 3.4 | 9,462 | 10.9 |
| Assure II | 14 | 1.9 | 6,059 | 7.0 |
| Rotary hoe* | 13 | 1.79 | 3,499 | 4.0 |
| Glyphosate (preharvest) | 11 | 1.5 | 5,181 | 6.0 |
| Spartan | 11 | 1.5 | 2,005 | 2.3 |
| Outlook | 4 | 0.6 | 979 | 1.1 |
| Eptam (spring) | 7 | 1.0 | 2,941 | 3.4 |
| Sonalan (fall) | 6 | 0.8 | 3,147 | 3.6 |
| Poast | 6 | 0.8 | 2,950 | 3.4 |
| Roundup | 6 | 0.8 | 1,495 | 1.7 |
| Dual | 3 | 0.4 | 1,200 | 1.4 |
| Other | 1 | 0.1 | 1,100 | 1.1 |
| Treflan + Eptam | 1 | 0.1 | 880 | 1.0 |
| Treflan (fall) | 1 | 0.1 | 270 | 0.3 |
| Northharvest | | | | |
| Raptor | 203 | 18.0 | 70,227 | 57.1 |
| Rezult | 188 | 16.7 | 80,057 | 65.1 |
| Cultivation* | 128 | 11.4 | 62,230 | 50.6 |
| Sonalan (spring) | 113 | 10.0 | 45,125 | 36.7 |
| Prowl | 75 | 6.7 | 20,777 | 16.9 |
| Basagran | 73 | 6.5 | 21,551 | 17.5 |
| Reflex | 67 | 5.5 | 27,269 | 22.2 |
| Treflan (spring) | 52 | 4.6 | 19,886 | 16.2 |
| Select | 40 | 3.6 | 17,482 | 14.2 |
| Pursuit | 30 | 2.7 | 9,880 | 8.0 |
| Assure II | 25 | 2.2 | 7,614 | 6.2 |
| Rotary hoe* | 24 | 2.1 | 9,340 | 7.6 |
| Outlook | 20 | 1.8 | 5,085 | 4.1 |
| Spartan | 17 | 1.5 | 3,910 | 3.2 |
| Glyphosate (preharvest) | 14 | 1.2 | 5,441 | 4.4 |
| Eptam (spring) | 13 | 1.2 | 6,244 | 5.1 |
| Poast | 10 | 0.9 | 3,651 | 3.0 |
| Dual | 10 | 0.9 | 2,875 | 2.3 |
| Sonalan (fall) | 8 | 0.7 | 3,837 | 3.1 |
| Roundup | 8 | 0.7 | 2,485 | 2.0 |
| Treflan (fall) | 5 | 0.4 | 1,950 | 1.6 |
| Other | 2 | 0.2 | 1,150 | 0.9 |
| Treflan + Eptam | 1 | 0.1 | 880 | 0.7 |
| Lasso | 1 | 0.1 | 130 | 0.1 |

* Respondents' acres only.

Table 38. Herbicide use by bean market class in 2005 (% acres treated^a).

| Herbicide | Black | Kidney | Navy | Pinto | Pink |
|---------------------|-------|--------|------|-------|------|
| Minnesota | | | | | |
| Select | 58.8 | 5.6 | 1.6 | 4.3 | 14.9 |
| Prowl | 43.9 | 27.2 | 20.5 | 15.2 | 3.2 |
| Raptor | 27.4 | 73.9 | 67.3 | 76.8 | 69.7 |
| Reflex | 26.1 | 8.2 | 26.4 | 7.4 | 29.9 |
| Spartan | 21.6 | 2.2 | 4.6 | 3.1 | 0 |
| Sonalan (spring) | 16.3 | 11.6 | 19.1 | 12.8 | 12.9 |
| Rezult | 12.0 | 27.9 | 45.7 | 60.2 | 55.6 |
| Basagran | 9.8 | 29.4 | 30.9 | 16.3 | 17.4 |
| Outlook | 1.1 | 24.1 | 5.5 | 0 | 7.3 |
| Eptam (spring) | 0 | 15.6 | 8.2 | 4.1 | 0 |
| Treflan (spring) | 0 | 2.3 | 23.7 | 28.1 | 10.4 |
| Treflan (fall) | 0 | 0 | 9.2 | 10.2 | 0 |
| Dual | 0 | 10.0 | 0.5 | 0 | 10.2 |
| Roundup | 0 | 0 | 0 | 3.7 | 29.4 |
| North Dakota | | | | | |
| Sonalan (spring) | 33.3 | 0 | 55.6 | 45.8 | 0 |
| Rezult | 33.1 | 65.8 | 51.5 | 82.6 | 55.6 |
| Raptor | 24.1 | 91.1 | 42.8 | 52.4 | 99.4 |
| Treflan (spring) | 20.2 | 50.6 | 12.8 | 18.1 | 0 |
| Select | 9.0 | 0 | 6.7 | 20.2 | 0 |
| Outlook | 13.5 | 0 | 1.8 | 0.6 | 0 |
| Basagran | 9.9 | 0 | 11.1 | 15.3 | 24.9 |
| Spartan | 2.9 | 25.3 | 2.7 | 2.0 | 0 |
| Prowl | 0 | 40.5 | 16.8 | 13.8 | 0 |
| Assure II | 0 | 25.3 | 2.9 | 8.2 | 0 |
| Reflex | 0 | 0 | 15.2 | 27.1 | 0 |
| Pursuit | 0 | 0 | 7.3 | 12.7 | 0 |
| Sonalan (fall) | 0 | 0 | 0.5 | 4.2 | 17.8 |

^a % of respondents' acres for that class; includes herbicides used on more than 10% of respondents' acres for one or more classes.

Table 39. Desiccants used on dry edible bean fields in 2005.

| Desiccant | Respondents | Respondents | Acres reported ^a | Acres reported ^a |
|---------------------|-------------|-------------|-----------------------------|-----------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Gramoxone Extra | 20 | 19.8 | 3,865 | 10.7 |
| Sodium chlorate | 20 | 19.8 | 4,894 | 13.6 |
| North Dakota | | | | |
| Gramoxone Extra | 34 | 17.9 | 9,686 | 11.1 |
| Sodium chlorate | 5 | 2.6 | 1,428 | 1.6 |
| AIM | 1 | 0.5 | 80 | 0.1 |
| Northharvest | | | | |
| Gramoxone Extra | 54 | 18.6 | 13,551 | 11.0 |
| Sodium chlorate | 25 | 8.6 | 6,322 | 5.1 |
| AIM | 1 | 0.3 | 80 | 0.1 |

^a Respondents' acres only.

Table 40. Worst disease problem on dry edible bean in 2005.

| Disease ^a | Respon- | Respon- | Acres | Acres |
|----------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| White mold | 43 | 45.3 | 14,242 | 39.6 |
| Root rot | 23 | 24.2 | 9,674 | 26.9 |
| None | 16 | 16.8 | 4,711 | 13.1 |
| Bacterial blight | 9 | 9.5 | 4,238 | 11.8 |
| Anthracnose | 3 | 3.16 | 770 | 2.1 |
| Rust | 1 | 1.05 | 1,050 | 2.92 |
| North Dakota | | | | |
| White mold | 79 | 46.8 | 39,609 | 45.5 |
| None | 41 | 24.3 | 12,778 | 14.7 |
| Bacterial blight | 27 | 16.0 | 14,826 | 17.0 |
| Root rot | 8 | 4.7 | 5,080 | 5.8 |
| Rust | 8 | 4.7 | 3,256 | 3.7 |
| Anthracnose | 3 | 1.8 | 1,550 | 1.8 |
| Alternaria | 3 | 1.8 | 2,690 | 3.1 |
| Northharvest | | | | |
| White mold | 122 | 46.2 | 53,851 | 43.8 |
| None | 57 | 21.6 | 17,489 | 14.2 |
| Bacterial blight | 36 | 13.6 | 19,064 | 15.5 |
| Root rot | 31 | 11.7 | 14,754 | 12.0 |
| Rust | 9 | 3.4 | 4,306 | 3.5 |
| Anthracnose | 6 | 2.3 | 2,320 | 1.9 |
| Alternaria | 3 | 1.1 | 2,690 | 2.2 |

^a Ranked as No. 1 disease problem by respondents.

^b Respondents' acres only.

Table 41. Diseases ranked as one of the three worst on dry edible bean in 2005.

| Disease ^a | Respon- | Respon- | Acres | Acres |
|----------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| White mold | 65 | 64.4 | 25,723 | 71.4 |
| Root rot | 47 | 46.5 | 20,896 | 58.0 |
| Bacterial blight | 42 | 41.6 | 16,371 | 45.5 |
| Rust | 18 | 17.8 | 6,090 | 16.9 |
| None | 16 | 15.8 | 4,711 | 13.1 |
| Anthracnose | 10 | 9.9 | 2,583 | 7.2 |
| North Dakota | | | | |
| White mold | 112 | 58.9 | 57,844 | 66.5 |
| Bacterial blight | 74 | 39.0 | 42,519 | 48.9 |
| Root rot | 43 | 22.6 | 25,826 | 29.7 |
| None | 41 | 21.6 | 12,778 | 14.7 |
| Rust | 38 | 20.0 | 19,394 | 22.3 |
| Anthracnose | 16 | 8.4 | 5,616 | 6.5 |
| Alternaria | 4 | 2.1 | 2,822 | 3.2 |
| Northharvest | | | | |
| White mold | 177 | 60.8 | 83,567 | 67.9 |
| Bacterial blight | 116 | 39.9 | 58,890 | 47.9 |
| Root rot | 90 | 30.9 | 46,722 | 38.0 |
| None | 57 | 19.6 | 17,489 | 14.2 |
| Rust | 56 | 19.3 | 25,484 | 20.7 |
| Anthracnose | 26 | 8.9 | 8,199 | 6.7 |
| Alternaria | 4 | 1.4 | 2,822 | 2.3 |

^a Ranked as No. 1, 2 or 3 disease problem by respondents.

^b Respondents' acres only.

Table 42. Fungicide applied to dry edible bean fields in 2005.

| Fungicide | Acres treated ^a | Acres treated ^a | Acres treated by air ^a | Acres treated by air ^a | Acres treated by ground ^a | Acres treated by ground ^a |
|------------------------|----------------------------|----------------------------|-----------------------------------|-----------------------------------|--------------------------------------|--------------------------------------|
| | (no.) | (%) | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | | | |
| Topsin (broadcast) | 8,247 | 22.9 | 878 | 2.4 | 7,369 | 20.5 |
| Headline | 5,622 | 15.6 | 1,547 | 4.3 | 4,065 | 11.3 |
| Other | 2,962 | 8.2 | 140 | 0.4 | 2,822 | 7.8 |
| Endura | 670 | 1.9 | 0 | 0 | 670 | 1.9 |
| Topsin (banded) | 409 | 1.1 | 0 | 0 | 345 | 1.0 |
| Tilt | 272 | 0.8 | 272 | 0.8 | 0 | 0 |
| Total fungicide | 18,182 | 50.5 | 2,837 | 7.9 | 15,271 | 42.5 |
| North Dakota | | | | | | |
| Topsin (broadcast) | 12,646 | 14.5 | 866 | 1.0 | 11,780 | 13.5 |
| Topsin (banded) | 6,477 | 7.4 | 0 | 0 | 6,477 | 7.4 |
| Headline | 4,565 | 5.3 | 100 | 0.1 | 4,465 | 5.1 |
| Endura | 480 | 0.6 | 0 | 0 | 480 | 0.6 |
| Maneb | 400 | 0.5 | 0 | 0 | 400 | 0.5 |
| Other | 350 | 0.4 | 0 | 0 | 350 | 0.4 |
| Champion/Champ | 263 | 0.3 | 0 | 0 | 263 | 0.3 |
| Tilt | 85 | 0.1 | 0 | 0 | 85 | 0.1 |
| Total fungicide | 25,266 | 29.1 | 966 | 1.1 | 24,300 | 27.9 |
| Northarvest | | | | | | |
| Topsin (broadcast) | 20,893 | 17.0 | 1,744 | 1.4 | 19,149 | 15.6 |
| Headline | 10,187 | 8.3 | 1,647 | 1.3 | 8,530 | 6.9 |
| Topsin (banded) | 6,886 | 5.6 | 0 | 0 | 6,822 | 5.5 |
| Other | 3,312 | 2.7 | 140 | 0.1 | 3,172 | 2.6 |
| Endura | 1,150 | 0.9 | 0 | 0 | 1,150 | 0.9 |
| Maneb | 400 | 0.3 | 0 | 0 | 400 | 0.3 |
| Tilt | 357 | 0.3 | 272 | 0.2 | 85 | 0.1 |
| Champion/Champ | 263 | 0.2 | 0 | 0 | 263 | 0.2 |
| Total fungicide | 43,448 | 35.3 | 3,803 | 3 | 39,571 | 32.1 |

^a Respondents' acres only.

Table 43. Use of fungicide-treated seed in dry edible bean in 2005.

| Treated seed | Respondents | Respondents |
|---------------------|-------------|-------------|
| | (no.) | (%) |
| Minnesota | | |
| Seed not treated | 54 | 70.1 |
| Seed treated | 23 | 29.9 |
| North Dakota | | |
| Seed not treated | 82 | 57.8 |
| Seed treated | 60 | 42.3 |
| Northarvest | | |
| Seed not treated | 219 | 62.1 |
| Seed treated | 83 | 37.9 |

Table 44. Worst insect problem on dry edible bean in 2005.

| Insect | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^a | reported ^a |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Leafhopper | 51 | 69.9 | 14,528 | 40.4 |
| None | 8 | 11.0 | 3,764 | 10.5 |
| Aphids | 6 | 8.2 | 1,984 | 5.5 |
| Seed corn maggot | 3 | 4.1 | 838 | 2.3 |
| Cutworms | 2 | 2.7 | 1,060 | 2.9 |
| Spider mite | 2 | 2.7 | 640 | 1.8 |
| Bean leaf beetle | 1 | 1.4 | 680 | 1.9 |
| North Dakota | | | | |
| None | 40 | 37.0 | 15,497 | 17.8 |
| Leafhopper | 25 | 23.2 | 11,438 | 13.1 |
| Cutworms | 17 | 15.7 | 9,475 | 10.9 |
| Aphids | 8 | 7.4 | 2,227 | 2.6 |
| Grasshopper | 7 | 6.5 | 3,220 | 3.7 |
| Seed corn maggot | 6 | 5.6 | 3,903 | 4.5 |
| Spider mite | 2 | 1.9 | 700 | 0.8 |
| Bean leaf beetle | 2 | 1.9 | 378 | 0.4 |
| Other | 1 | 0.9 | 2,000 | 2.3 |
| Northarvest | | | | |
| Leafhopper | 76 | 42.0 | 25,966 | 21.0 |
| None | 48 | 26.5 | 19,261 | 15.6 |
| Cutworms | 19 | 10.5 | 10,535 | 8.6 |
| Aphids | 14 | 7.7 | 4,211 | 3.4 |
| Seed corn maggot | 9 | 5.0 | 4,741 | 3.9 |
| Grasshopper | 7 | 3.9 | 3,220 | 2.6 |
| Spider mite | 4 | 2.2 | 1,340 | 1.1 |
| Bean leaf beetle | 3 | 1.7 | 1,058 | 0.9 |
| Other | 1 | 0.6 | 2,000 | 1.6 |

^a Respondents' acres only.

Table 45. Insects ranked as one of the three worst in dry edible bean fields in 2005.

| Insect ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Leafhopper | 54 | 53.5 | 15,649 | 41.5 |
| Aphids | 17 | 16.8 | 6,623 | 18.4 |
| Grasshopper | 17 | 16.8 | 4,376 | 12.2 |
| Bean leaf beetle | 15 | 14.9 | 4,780 | 13.3 |
| Cutworms | 11 | 10.9 | 6,153 | 17.1 |
| None | 8 | 7.9 | 3,764 | 10.5 |
| Seed corn maggot | 7 | 6.9 | 3,858 | 10.7 |
| Spider mite | 5 | 5.0 | 1,033 | 2.9 |
| Caterpillar | 1 | 1.0 | 300 | 0.8 |
| North Dakota | | | | |
| Leafhopper | 41 | 21.6 | 19,837 | 22.8 |
| None | 40 | 21.1 | 15,497 | 17.8 |
| Cutworms | 32 | 16.8 | 15,475 | 17.8 |
| Grasshopper | 29 | 15.3 | 11,031 | 12.7 |
| Aphids | 19 | 10.0 | 6,004 | 6.9 |
| Bean leaf beetle | 15 | 7.9 | 6,108 | 7.0 |
| Seed corn maggot | 12 | 6.3 | 7,433 | 8.5 |
| Spider mite | 2 | 1.1 | 700 | 0.8 |
| Other | 1 | 0.5 | 2,000 | 2.3 |
| Northarvest | | | | |
| Leafhopper | 95 | 32.5 | 35,486 | 28.8 |
| None | 48 | 16.4 | 19,261 | 15.7 |
| Grasshopper | 46 | 15.8 | 15,407 | 12.5 |
| Cutworms | 43 | 14.7 | 21,628 | 17.6 |
| Aphids | 36 | 12.3 | 12,627 | 10.3 |
| Bean leaf beetle | 30 | 10.3 | 10,888 | 8.9 |
| Seed corn maggot | 19 | 6.5 | 11,291 | 9.2 |
| Spider mite | 7 | 2.4 | 1,733 | 1.4 |
| Other | 1 | 0.3 | 2,000 | 1.6 |
| Caterpillar | 1 | 0.3 | 300 | 0.2 |

^a Ranked as No. 1, 2 or 3 insect problem by respondents.

^b Respondents' acres only.

Table 46. Use of insecticides on dry edible bean fields in 2005.

| Insecticide | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^a | reported ^a |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Asana XL | 31 | 30.7 | 8,986 | 25.0 |
| Dimethoate | 8 | 7.9 | 4,519 | 12.6 |
| Penncap-M | 2 | 2.0 | 685 | 1.9 |
| Other | 2 | 2.0 | 230 | 0.6 |
| Mustang | 1 | 1.0 | 50 | 0.1 |
| North Dakota | | | | |
| Asana XL | 14 | 7.4 | 2,887 | 3.3 |
| Northarvest | | | | |
| Asana XL | 45 | 15.5 | 11,873 | 9.7 |
| Dimethoate | 8 | 2.8 | 4,519 | 3.7 |
| Penncap-M | 2 | 0.7 | 685 | 0.6 |
| Other | 2 | 0.7 | 230 | 0.2 |
| Mustang | 1 | 0.3 | 50 | 0.1 |

^a Respondents' acres only.

Table 47. Use of insecticidal seed treatment on dry edible bean in 2005.

| Treatment | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^a | reported ^a |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Lorsban | 32 | 31.7 | 12,212 | 33.9 |
| Lindane | 9 | 8.9 | 5,348 | 14.9 |
| Gaicho | 2 | 2.0 | 510 | 1.4 |
| North Dakota | | | | |
| Lorsban | 45 | 23.7 | 23,190 | 26.7 |
| Lindane | 44 | 23.2 | 20,494 | 23.6 |
| Gaicho | 3 | 1.6 | 1,350 | 1.6 |
| Northarvest | | | | |
| Lorsban | 77 | 26.5 | 35,402 | 28.8 |
| Lindane | 53 | 18.2 | 25,842 | 21.0 |
| Gaicho | 5 | 1.7 | 1,860 | 1.5 |

^a Respondents' acres only.

Table 48. Use of fertilizers on dry edible bean fields in 2005.

| Fertilizer | Respondents | Average amount applied |
|---------------------|-------------|------------------------|
| | (%) | (lb/A) |
| Minnesota | | |
| Nitrogen | 92 | 68.0 |
| Phosphate | 75 | 35.2 |
| Potash | 61 | 43.8 |
| Zinc | 60 | 3.5 |
| Other | 6 | 7.8 |
| North Dakota | | |
| Nitrogen | 155 | 49.3 |
| Phosphate | 132 | 38.8 |
| Potash | 42 | 19.7 |
| Zinc | 96 | 5.0 |
| Other | 3 | 13.7 |

Table 49. Use of Rhizobium inoculants on dry edible bean in 2005.

| Rhizobium use | Respondents | Respondents |
|---------------------|-------------|-------------|
| | (no.) | (%) |
| Minnesota | | |
| Inoculant not used | 70 | 76.9 |
| Inoculant used | 21 | 23.1 |
| North Dakota | | |
| Inoculant not used | 136 | 84.5 |
| Inoculant used | 25 | 15.5 |
| Northarvest | | |
| Inoculant not used | 206 | 81.8 |
| Inoculant used | 46 | 18.3 |

Table 50. Soil test prior to fertilization of dry edible bean in 2005.

| Soil test | Respondents | Respondents |
|---------------------|-------------|-------------|
| | (no.) | (%) |
| Minnesota | | |
| Soil tested | 79 | 79.8 |
| Soil not tested | 20 | 20.2 |
| North Dakota | | |
| Soil tested | 134 | 76.6 |
| Soil not tested | 41 | 23.4 |
| Northarvest | | |
| Soil tested | 213 | 77.7 |
| Soil not tested | 61 | 22.3 |

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Please circle or fill in the requested information on pest problems and pesticide use on your 2004 dry bean crop.

| | |
|--------------------------------------|----------------|
| Total dry bean acres planted in 2004 | |
| Irrigated acres | Dry land acres |
| Total dry bean acres harvested | |
| Dry bean acres with hail damage | |
| Dry bean acres with frost 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 AC Pintoba | |
| | 6 Remington | |
| | 7 Winchester | |
| | 8 Other Pinto (specify) | |
| Navy | 21 Arthur | |
| | 22 Mayflower | |
| | 23 Navigator | |
| | 24 Norstar | |
| | 25 Vista | |
| | 26 Other Navy (specify) | |
| Kidney | 41 Montcalm (DRK) | |
| | 42 Red Hawk | |
| | 43 Other Kidney (specify) | |
| Black | 61 Onyx | |
| | 62 Jaguar | |
| | 63 T-39 | |
| | 64 Other Black (specify) | |
| Pink | 81 (specify) | |
| Other | 91 (specify class & variety) | |

| Seed source | Acres Planted |
|----------------------------|---------------|
| Western Grown | |
| Northharvest Grown (ND/MN) | |
| Canadian Grown | |
| Bin run | |

| Crop Rotation (field with dry beans in 2004) (write in crops grown in previous years) | | |
|--|------------------------|------------------------|
| | Field #1 dry beans '04 | Field #2 dry beans '04 |
| 2003 | | |
| 2002 | | |
| 2001 | | |
| 2000 | | |

| Biggest Production Problem in Dry Beans (circle one & complete table) | | |
|---|----------------|------------|
| | Acres Affected | Bean Class |
| 1 Applied herbicide injury* | | |
| 2.*List herbicide in #1 | | |
| 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 (write in name or #) | No. Acres Treated | No. of Sprays | |
| | | | |
| Dry Bean Insecticides | 1 - Asana XL 2 - Capture 3 - carbaryl (Sevin) 4 - acephate (Orthene, Address) | 5 - Lannate 6 - Mustang 7 - PennCap-M 8 - SpinTor | |
| 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 | |
| Seedcorn Maggot | |

| General Fertilizer Program for Dry Beans lb/A | | | | | |
|---|-----------|--------|------|-------|--|
| Nitrogen | Phosphate | Potash | Zinc | Other | |
| | | | | | |
| Inoculate with rhizobium bacteria? | | | Yes | No | |
| Soil test prior to fertilization? | | | 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 | |

| 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 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Dry Bean herbicide | 1 Assure II 2 Basagran/generics 3 Dual 4 Eptam (fall) 5 Eptam (spring) 6 Frontier 7 Lasso/generics 8 Outlook 9 Poast 10 Prowl | | 11 Pursuit 12 Raptor 13 Reflex 14 Roundup Ultra (preplant) 15 Rezult 16 Select 17 Sonalan (fall) 18 Sonalan (spring) 19 Spartan | | 20 Trifluralin (fall) 21 Trifluralin (spring) 22 Trifluralin + Eptam (spring) 23 No Herbicide 24 Cultivation 25 Rotary hoe 26 Other | |
| Desiccants | Class of bean | Acres treated | Class of bean (if additional) | Acres treated | Class of bean (if additional) | Acres treated |
| 20 Sodium Chlorate (Leafex, Defol) | | | | | | |
| 21 Gramoxone Extra | | | | | | |

| Worst Disease Problems (Rank 1-3; 1 = worst) | Alternaria | Anthracoese | 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 |
| | | | air ground |

| Dry Bean Fungicides | 1 Bravo/ generics | 8 Thiolux |
|---------------------|--|---|
| | 2 Champion/Champ 3 Endura 4 Headline 5 Intercept 6 Kocide 7 Maneb | 9 Tilt 10 Topsin/generics (bradcast) 11 Topsin/generics (banded) 12 Quadris/Amistar 13 Other 14 Any tank mixes? List combination |

Was fungicide-treated seed used? Yes No

Please circle or fill in the requested information on pest problems and pesticide use on your 2005 dry bean crop.

| |
|--------------------------------------|
| Total dry bean acres planted in 2005 |
| Total Irrigated acres |
| Total dry bean acres harvested |
| Dry bean acres with hail damage |
| Dry bean acres with frost 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 GTS 900 | |
| | 3 Maverick | |
| | 4 AC Pintoba | |
| | 5 Remington | |
| | 6 Winchester | |
| | 7 Other Pinto (specify) | |
| Navy | 21 Arthur | |
| | 22 Mayflower | |
| | 23 Navigator | |
| | 24 Norstar | |
| | 25 Vista | |
| | 26 Other Navy (specify) | |
| Kidney | 41 Montcalm (DRK) | |
| | 42 Red Hawk | |
| | 43 Other Kidney (specify) | |
| Black | 61 Onyx | |
| | 62 Jaguar | |
| | 63 T-39 | |
| | 64 Other Black (specify) | |
| | 65 Eclipse | |
| Pink | 81 (specify) | |
| Other | 91 (specify class & variety) | |

| Seed source | Acres Planted |
|----------------------------|---------------|
| Western Grown | |
| Northharvest Grown (ND/MN) | |
| Canadian Grown | |
| Bin run | |

| Crop Rotation (field with dry beans in 2005) (write in crops grown in previous years) | | |
|--|------------------------|------------------------|
| | Field #1 dry beans '05 | Field #2 dry beans '05 |
| 2004 | | |
| 2003 | | |
| 2002 | | |
| 2001 | | |

| Biggest Production Problem in Dry Beans (circle one & complete table) | | |
|---|----------------|------------|
| | Acres Affected | Bean Class |
| 1 Applied herbicide injury* | | |
| 2 *List herbicide in #1 | | |
| 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 (write in name or #) | No. Acres Treated | No. of Sprays |
| | | |
| Dry Bean Insecticides | 1 - Asana XL 2 - Capture 3 - carbaryl (Sevin) 4 - acephate (Orthene, Address) | 5 - Lannate 6 - Mustang 7 - PennCap-M 8 - SpinTor 9 - Proaxis 10-Dimethoate |
| Acres planted Lindane Seed Treatment | | |
| Acres planted Lorsban Seed Treatment | | |
| Acres planted Gaucho Seed Treatment | | |

| Worst Insect/Mite Problem (Rank 1-3; 1 = worst) ONLY mark 3 | |
|---|--|
| Aphids | |
| Cutworms | |
| Bean leaf beetle | |
| Caterpillars | |
| Grasshoppers | |
| Leafhoppers | |
| Spider Mites | |
| Seedcorn Maggot | |

| General Fertilizer Program for Dry Beans lb/A applied | | | | |
|---|-----------|--------|------|-------|
| Nitrogen | Phosphate | Potash | Zinc | Other |
| | | | | |
| Inoculate with rhizobium bacteria? | | | Yes | No |
| Soil test prior to fertilization? | | | Yes | No |

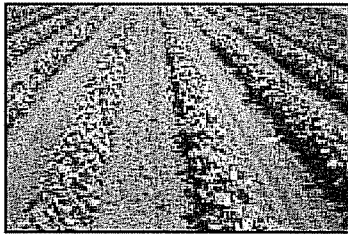
| Worst Weed Problems in Dry Bean (Rank 1-3; 1 = worst) ONLY mark 3 | | | |
|---|--|-----------------|--|
| Biennial Wormwood | | Nightshade | |
| Canada Thistle | | Ragweed | |
| Cocklebur | | Redroot Pigweed | |
| Foxtail | | Volunteer Grain | |
| Kochia | | Wild oat | |
| Lambsquarters | | Other |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

| 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 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Dry Bean herbicide | 1 Assure II 2 Basagran/generics 3 Dual 4 Eptam (fall) 5 Eptam (spring) 6 Frontier 7 Lasso/generics 8 Outlook 9 Poast 10 Prowl | | 11 Pursuit 12 Raptor 13 Reflex 14 Roundup Ultra (preplant) 15 Rezult 16 Select 17 Sonalan (fall) 18 Sonalan (spring) 19 Spartan | | 20 Trifluralin (fall) 21 Trifluralin (spring) 22 Trifluralin + Eptam (spring) 23 No Herbicide 24 Cultivation 25 Rotary hoe 26 Glyphosate (pre harvest) 27 Other | |
| Desiccants | Class of bean | Acres treated | Class of bean (if additional) | Acres treated | Class of bean (if additional) | Acres treated |
| Sodium Chlorate (Leafex, Defol) | | | | | | |
| Gramoxone Extra | | | | | | |
| Aim | | | | | | |

| Worst Disease Problems (Rank 1-3; 1 = worst) ONLY mark 3 | 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 |
| | | | air ground |
| | | | air ground |
| Dry Bean Fungicides | 1 Bravo/ generics 2 Champion/Champ 3 Endura 4 Headline 5 Intercept 6 Kocide 7 Maneb | 8 Thiolux 9 Tilt 10 Topsin/generics (broadcast) 11 Topsin/generics (banded) 12 Quadris/Amistar 13 Other 14 Any tank mixes? List combination | |

| | | |
|----------------------------------|-----|----|
| Was fungicide-treated seed used? | Yes | No |
| If so, what product(s)? | | |



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