

2007 DRY BEAN Grower Survey

of Pest Problems and Pesticide Use

in Minnesota and North Dakota



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Index

| | |
|---|----|
| Introduction | 4 |
| 2007 Dry Bean Grower Survey | |
| Table 1. Number of Northharvest dry bean growers responding, total acres and acres planted by respondents in 2007 | 5 |
| Table 2. Dry bean acres irrigated, harvested and damaged by hail, frost and water in 2007 | 5 |
| Table 3. Sources of dry edible bean seed used for planting by respondents in 2007 | 5 |
| Table 4. Market classes of dry bean grown by respondents in 2007 | 5 |
| Table 5. Dry bean varieties grown in 2007 by respondents | 6 |
| Table 6. Worst dry edible bean production problem in 2007 reported by respondents | 7 |
| Table 7. Worst weed problem in dry edible bean fields in 2007 | 7 |
| Table 8. Weeds ranked as one of the three worst in dry edible bean fields in 2007 | 8 |
| Table 9. Weed control practices used on dry edible bean fields in 2007 | 9 |
| Table 10. Weed control practices used, by bean market class, in 2007 | 10 |
| Table 11. Desiccants used on dry edible bean fields in 2007 | 10 |
| Table 12. Worst disease problem on dry edible bean in 2007 | 10 |
| Table 13. Diseases ranked as one of the three worst on dry edible bean in 2007 | 11 |
| Table 14. Fungicides applied to dry edible bean fields in 2007 | 12 |
| Table 15. Use of fungicide seed treatment on dry edible bean in 2007 | 12 |
| Table 16. Worst insect problem on dry edible bean in 2007 | 13 |
| Table 17. Insects ranked as one of the three worst in dry edible bean fields in 2007 | 13 |
| Table 18. Use of insecticides on dry edible bean fields in 2007 | 13 |
| Table 19. Use of insecticide seed treatment on dry edible bean in 2007 | 14 |
| Table 20. Use of fertilizers on dry edible bean fields in 2007 | 14 |
| Table 21. Use of Rhizobium inoculants on dry edible bean in 2007 | 14 |
| Table 22. Use of soil test prior to fertilization of dry edible bean fields in 2007 | 14 |
| Table 23. Crop grown the year prior to dry edible bean in 2007 | 14 |
| Table 24. Number of years in dry bean rotation in 2007 | 15 |
| Table 25. Will type II bean yield better than type III bean? | 15 |
| Table 26. Percent of total dry bean area harvested by direct combining in 2007 | 15 |
| Table 27. Estimated pounds/acre of beans left in field due to direct combining in 2007 | 15 |
| Table 28. Cost of direct combining compared with conventional two-pass method in 2007 | 15 |
| Other responses | 16 |
| References | 16 |
| Appendix I. Copy of 2007 Dry Bean Grower Survey Form | 17 |
| Acknowledgements | 20 |

Introduction

This (2007) dry bean grower survey is the 18th 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 forms (Appendix I). The survey was mailed to all Northarvest bean growers. All participants in the survey were anonymous.

Results of previous surveys dated 1987-2000, 2002, 2004-2005 and 2006 have been published (1-16). 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. In the tables, the total percentages do not always add up to 100 percent because not all of the respondents answered every question.

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.

2007 Dry Bean Grower Survey

Table 1. Number of Northharvest dry bean growers responding, total acres and acres planted by respondents in 2007.

| Growers | No. of respondents | Respondents' acres | Total acres ^a | Acres surveyed (% of total) |
|--------------|--------------------|--------------------|--------------------------|--------------------------------|
| Minnesota | 77 | 26,181 | 145,000 | 18.1 |
| North Dakota | 138 | 68,031 | 670,000 | 10.2 |
| Northharvest | 215 | 94,212 | 815,000 | 11.6 |

^a Total of dry bean acres planted for area
(source: USDA National Agricultural Statistics Service).

Table 2. Dry bean acres irrigated, harvested and damaged by hail, frost and water in 2007.

| | Minnesota | North Dakota | Northharvest |
|---------------|-------------------------|--------------|--------------|
| | % of respondents' acres | | |
| Irrigated | 30.5 | 1.5 | 9.5 |
| Harvested | 96.3 | 94.3 | 94.8 |
| Hail damaged | 14.8 | 10.8 | 11.9 |
| Frost damaged | 5.6 | 3.8 | 4.3 |
| Water damaged | 13.4 | 9.6 | 10.7 |

Table 3. Sources of dry edible bean seed used for planting by respondents in 2007.

| Seed source | Minnesota | North Dakota | Northharvest |
|--------------|-------------------------|--------------|--------------|
| | % of respondents' acres | | |
| Bin run | 0.0 | 9.7 | 7.0 |
| Canada | 1.8 | 0.0 | 0.5 |
| Northharvest | 16.0 | 30.0 | 26.1 |
| Western | 80.8 | 58.0 | 64.4 |

Table 4. Market classes of dry bean grown by respondents in 2007.

| Market class | Minnesota | North Dakota | Northharvest |
|--------------|-------------------------|--------------|--------------|
| | % of respondents' acres | | |
| Black | 7.7 | 6.8 | 7.1 |
| Kidney | 38.1 | 0.3 | 10.8 |
| Navy | 31.8 | 15.3 | 19.9 |
| Pink | 10.8 | 1.0 | 3.7 |
| Pinto | 10.7 | 71.9 | 54.9 |
| Other | 0.8 | 4.7 | 3.6 |

Table 5. Dry bean varieties grown in 2007 by respondents.

| Variety | Class ^b | Acres planted ^a | | ND | % | Northharvest | % |
|---------------------|--------------------|----------------------------|--------------|---------------|--------------|---------------|--------------|
| | | MN | % | | | | |
| Maverick | P | 1,192 | 4.6 | 31,023 | 45.6 | 32,215 | 34.2 |
| Buster | P | 990 | 3.8 | 3,503 | 5.1 | 4,493 | 4.8 |
| La Paz | P | 300 | 1.1 | 8,319 | 12.2 | 8,619 | 9.1 |
| Other pinto | P | 145 | 0.6 | 3,153 | 4.6 | 3,298 | 3.5 |
| Topaz | P | 0 | 0.0 | 700 | 1.0 | 700 | 0.7 |
| GTS 900 | P | 0 | 0.0 | 1,486 | 2.2 | 1,486 | 1.6 |
| Winchester | P | 0 | 0.0 | 375 | 0.6 | 375 | 0.4 |
| Pintoba | P | 186 | 0.7 | 300 | 0.5 | 486 | 0.5 |
| Remington | P | 0 | 0.0 | 60 | 0.1 | 60 | 0.1 |
| Total pinto | P | 2,813 | 10.8 | 48,919 | 71.9 | 51,732 | 54.9 |
| Norstar | N | 355 | 1.3 | 2,372 | 3.5 | 2,727 | 2.9 |
| Navigator | N | 753 | 2.9 | 1,878 | 2.8 | 2,631 | 2.8 |
| Other navy | N | 506 | 1.9 | 2,544 | 3.7 | 3,050 | 3.2 |
| Ensign | N | 905 | 3.5 | 2,470 | 3.6 | 3,375 | 3.6 |
| Vista | N | 3,142 | 12.0 | 811 | 1.2 | 3,953 | 4.2 |
| Voyager | N | 280 | 1.1 | 0 | 0 | 280 | 0.3 |
| Mayflower | N | 0 | 0.0 | 330 | 0.5 | 330 | 0.4 |
| T9903 | N | 2,395 | 9.1 | 0 | 0 | 2,395 | 2.5 |
| Total navy | N | 8,336 | 31.8 | 10,405 | 15.3 | 18,741 | 19.9 |
| Montcalm | K | 4,670 | 17.8 | 0 | 0 | 4,670 | 5.0 |
| Red Hawk | K | 1,666 | 6.4 | 0 | 0 | 1,666 | 1.8 |
| Other kidney | K | 3,643 | 13.9 | 200 | 0.3 | 3,843 | 4.1 |
| Total kidney | K | 9,979 | 38.1 | 200 | 0.3 | 10,179 | 10.8 |
| Eclipse | B | 1,257 | 4.8 | 4,119 | 6.1 | 5,376 | 5.7 |
| T-39 | B | 76 | 0.3 | 100 | 0.1 | 176 | 0.2 |
| Other black | B | 359 | 1.4 | 325 | 0.5 | 684 | 0.7 |
| Jaguar | B | 330 | 1.2 | 100 | 0.1 | 430 | 0.5 |
| Total black | B | 2,022 | 7.7 | 4,644 | 6.8 | 6,666 | 7.1 |
| Any pink | PK | 2,819 | 10.8 | 650 | 1.0 | 3,469 | 3.7 |
| Total pink | PK | 2,819 | 10.8 | 650 | 1.0 | 3,469 | 3.7 |
| Other varieties | | 212 | 0.8 | 3,213 | 4.7 | 3,155 | 3.3 |
| No variety listed | | 0 | 0.0 | 270 | 0.4 | 270 | 0.3 |
| Total | | 26,181 | 100.0 | 68,031 | 100.0 | 94,212 | 100.0 |

^a Respondents' acres only.

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

Table 6. Worst dry edible bean production problem in 2007 reported by respondents.

| Worst production problem | Respon- dents | Respon- dents | Acres reported ^a | Acres reported ^a |
|--------------------------|------------------|------------------|--------------------------------|--------------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Weeds | 17 | 22.7 | 4,981 | 19.0 |
| Weather | 25 | 33.4 | 6,793 | 25.9 |
| Harvest | 4 | 5.3 | 3,202 | 12.2 |
| Emergence/stand | 6 | 8.0 | 1,008 | 3.9 |
| Other | 0 | 0.0 | 0 | 0.0 |
| None | 4 | 5.3 | 3,422 | 13.1 |
| Disease | 6 | 8.0 | 3,905 | 14.9 |
| Delayed planting | 4 | 5.3 | 487 | 1.9 |
| Insects | 8 | 10.7 | 2,150 | 8.2 |
| Herbicide injury | 1 | 1.3 | 80 | 0.3 |
| Total | 75 | 100.0 | 26,028 | 99.4 |
| North Dakota | | | | |
| Weather | 29 | 21.6 | 14,139 | 20.8 |
| Weeds | 35 | 26.1 | 17,317 | 25.5 |
| None | 15 | 11.2 | 6,482 | 9.5 |
| Harvest | 9 | 6.7 | 3,014 | 4.5 |
| Emergence/stand | 20 | 14.9 | 11,457 | 16.8 |
| Disease | 9 | 6.7 | 6,494 | 9.5 |
| Delayed planting | 14 | 10.5 | 5,707 | 8.4 |
| Other | 2 | 1.5 | 1,100 | 1.6 |
| Herbicide injury | 0 | 0.0 | 0 | 0.0 |
| Insects | 1 | 0.8 | 80 | 0.1 |
| Total | 134 | 100.0 | 65,790 | 96.7 |
| Northarvest | | | | |
| Weather | 54 | 25.8 | 20,932 | 22.2 |
| Weeds | 52 | 24.9 | 22,298 | 23.7 |
| Harvest | 13 | 6.2 | 6,216 | 6.6 |
| None | 19 | 9.1 | 9,904 | 10.5 |
| Emergence/stand | 26 | 12.4 | 12,465 | 13.2 |
| Disease | 15 | 7.2 | 10,399 | 11.0 |
| Other | 2 | 1.0 | 1,100 | 1.2 |
| Delayed planting | 18 | 8.6 | 6,194 | 6.6 |
| Herbicide injury | 1 | 0.5 | 80 | 0.1 |
| Insects | 9 | 4.3 | 2,230 | 2.4 |
| Total | 209 | 100.0 | 91,818 | 97.5 |

^a Respondents' acres only.

Table 7. Worst weed problem in dry edible bean fields in 2007.

| Weed ^a | Respon- dents | Respon- dents | Acres reported ^b | Acres reported ^b |
|---------------------|------------------|------------------|--------------------------------|--------------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Lambsquarters | 17 | 22.1 | 5,349 | 20.4 |
| Kochia | 14 | 18.2 | 7,948 | 30.3 |
| Ragweed | 18 | 23.3 | 6,637 | 25.4 |
| Other | 4 | 5.2 | 642 | 2.5 |
| Nightshade | 4 | 5.2 | 979 | 3.7 |
| Waterhemp | 6 | 7.8 | 491 | 1.9 |
| Redroot pigweed | 5 | 6.5 | 2,320 | 8.9 |
| Canada thistle | 3 | 3.9 | 487 | 1.9 |
| Foxtail | 5 | 6.5 | 659 | 2.5 |
| Biennial wormwood | 1 | 1.3 | 669 | 2.5 |
| Total | 77 | 100.0 | 26,181 | 100.0 |
| North Dakota | | | | |
| Kochia | 28 | 20.6 | 14,636 | 21.5 |
| Nightshade | 19 | 14.0 | 9,202 | 13.5 |
| Canada thistle | 17 | 12.5 | 6,682 | 9.8 |
| Lambsquarters | 16 | 11.8 | 7,077 | 10.4 |
| Biennial wormwood | 20 | 14.7 | 13,280 | 19.5 |
| Redroot pigweed | 6 | 4.4 | 2,551 | 3.7 |
| Volunteer grain | 1 | 0.7 | 725 | 1.1 |
| Wild mustard | 5 | 3.7 | 1,649 | 2.4 |
| Cocklebur | 6 | 4.4 | 4,178 | 6.1 |
| Ragweed | 7 | 5.2 | 3,530 | 5.2 |
| Foxtail | 3 | 2.2 | 956 | 1.4 |
| Wild oat | 1 | 0.7 | 120 | 0.2 |
| Wild buckwheat | 4 | 2.9 | 1,675 | 2.5 |
| Other | 3 | 2.2 | 1,300 | 1.9 |
| Total | 136 | 100.0 | 67,561 | 99.2 |
| Northarvest | | | | |
| Kochia | 42 | 19.7 | 22,584 | 24.0 |
| Nightshade | 23 | 10.8 | 10,181 | 10.8 |
| Lambsquarters | 33 | 15.5 | 12,426 | 13.2 |
| Canada thistle | 20 | 9.4 | 7,169 | 7.6 |
| Redroot pigweed | 11 | 5.2 | 4,871 | 5.2 |
| Biennial wormwood | 21 | 9.9 | 13,949 | 14.8 |
| Ragweed | 25 | 11.7 | 10,167 | 10.8 |
| Cocklebur | 6 | 2.8 | 4,178 | 4.4 |
| Volunteer grain | 1 | 0.5 | 725 | 0.8 |
| Wild mustard | 5 | 2.3 | 1,649 | 1.8 |
| Other | 7 | 3.3 | 1,942 | 2.1 |
| Foxtail | 8 | 3.8 | 1,615 | 1.7 |
| Wild oat | 1 | 0.5 | 120 | 0.1 |
| Wild buckwheat | 4 | 1.9 | 1,675 | 1.8 |
| Waterhemp | 6 | 2.8 | 491 | 0.5 |
| Total | 213 | 100.0 | 93,742 | 99.5 |

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

^b Respondents' acres only.

Table 8. Weeds ranked as one of the three worst in dry edible bean fields in 2007.

| Weed ^a | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Lambsquarters | 51 | 66.2 | 15,241 | 58.2 |
| Redroot pigweed | 19 | 24.7 | 9,428 | 36.0 |
| Ragweed | 39 | 50.6 | 15,505 | 59.2 |
| Kochia | 16 | 20.8 | 8,308 | 31.7 |
| Canada thistle | 12 | 15.6 | 5,983 | 22.9 |
| Nightshade | 34 | 44.2 | 10,505 | 40.1 |
| Cocklebur | 9 | 11.7 | 2,050 | 7.8 |
| Foxtail | 13 | 16.9 | 2,733 | 10.4 |
| Waterhemp | 10 | 13.0 | 1,651 | 6.3 |
| Other | 8 | 10.4 | 919 | 3.5 |
| Volunteer grain | 3 | 3.9 | 449 | 1.7 |
| Wild mustard | 1 | 1.3 | 310 | 1.2 |
| Wild buckwheat | 1 | 1.3 | 240 | 0.9 |
| Biennial wormwood | 5 | 6.5 | 1,838 | 7.0 |
| North Dakota | | | | |
| Kochia | 75 | 54.3 | 37,331 | 54.9 |
| Canada thistle | 50 | 36.2 | 23,748 | 34.9 |
| Redroot pigweed | 44 | 31.9 | 23,047 | 33.9 |
| Nightshade | 49 | 35.5 | 26,475 | 38.9 |
| Lambsquarters | 36 | 26.1 | 21,083 | 31.0 |
| Biennial wormwood | 39 | 28.3 | 24,955 | 36.7 |
| Cocklebur | 22 | 15.9 | 8,608 | 12.7 |
| Ragweed | 28 | 20.3 | 12,106 | 17.8 |
| Volunteer grain | 6 | 4.3 | 2,647 | 3.9 |
| Wild oat | 5 | 3.6 | 1,751 | 2.6 |
| Other | 9 | 6.5 | 5,170 | 7.6 |
| Wild mustard | 6 | 4.3 | 2,287 | 3.4 |
| Wild buckwheat | 5 | 3.6 | 1,697 | 2.5 |
| Foxtail | 13 | 9.4 | 6,497 | 9.6 |
| Northarvest | | | | |
| Kochia | 91 | 42.3 | 45,639 | 48.4 |
| Redroot pigweed | 63 | 29.3 | 32,475 | 34.5 |
| Canada thistle | 62 | 28.8 | 29,731 | 31.6 |
| Lambsquarters | 87 | 40.5 | 36,324 | 38.6 |
| Nightshade | 83 | 38.6 | 36,980 | 39.3 |
| Biennial wormwood | 44 | 20.5 | 26,793 | 28.4 |
| Ragweed | 67 | 31.2 | 27,611 | 29.3 |
| Cocklebur | 31 | 14.4 | 10,658 | 11.3 |
| Foxtail | 26 | 12.1 | 9,230 | 9.8 |
| Waterhemp | 10 | 4.7 | 1,651 | 1.8 |
| Other | 17 | 7.9 | 6,089 | 6.5 |
| Volunteer grain | 9 | 4.2 | 3,096 | 3.3 |
| Wild mustard | 7 | 3.3 | 2,597 | 2.8 |
| Wild buckwheat | 6 | 2.8 | 1,937 | 2.1 |
| Wild oat | 5 | 2.3 | 1,751 | 1.9 |

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

^b Respondents' acres only.

Table 9. Weed control practices used on dry edible bean fields in 2007.

| Herbicide or other practice* | Acres reported ^a | Acres reported ^a | Herbicide or other practice* | Acres reported ^a | Acres reported ^a |
|------------------------------|-----------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
| | (no.) | (%) | | (no.) | (%) |
| Minnesota | | | Northharvest | | |
| Raptor | 17,023 | 65.0 | Assure II | 1,120 | 1.2 |
| Cultivation* | 6,717 | 25.7 | Basagran | 8,016 | 8.5 |
| Rezult | 11,774 | 45.0 | Cultivation* | 36,674 | 38.9 |
| Sonalan (spring) | 5,664 | 21.6 | Dual | 1,355 | 1.4 |
| Basagran | 4,876 | 18.6 | Eptam (spring) | 2,527 | 2.7 |
| Treflan (spring) | 2,410 | 9.2 | Glyphosate (pre-harvest) | 4,081 | 4.3 |
| Prowl | 6,293 | 24.0 | Lasso | 1,214 | 1.3 |
| Outlook | 3,350 | 12.8 | Other | 1,655 | 1.8 |
| Reflex | 4,557 | 17.4 | Outlook | 5,767 | 6.1 |
| Pursuit | 654 | 2.5 | Poast | 95 | 0.1 |
| Rotary Hoe* | 1,025 | 3.9 | Prowl | 16,656 | 17.7 |
| Assure II | 115 | 0.4 | Pursuit | 6,452 | 6.8 |
| Dual | 700 | 2.7 | Raptor | 58,468 | 62.1 |
| Other | 600 | 2.3 | Reflex | 24,121 | 25.6 |
| Select | 1,789 | 6.8 | Rezult | 65,781 | 69.8 |
| Roundup | 2,500 | 9.5 | Rotary hoe* | 4,036 | 4.3 |
| Lasso | 376 | 1.4 | Roundup | 5,463 | 5.8 |
| Sonalan (fall) | 60 | 0.2 | Select | 13,396 | 14.2 |
| Poast | 95 | 0.4 | Sonalan (fall) | 4,717 | 5.0 |
| Glyphosate (pre-harvest) | 416 | 1.6 | Sonalan (spring) | 35,893 | 38.1 |
| Eptam (spring) | 2,527 | 9.7 | Spartan | 660 | 0.7 |
| North Dakota | | | Treflan (fall) | 187 | 0.2 |
| Rezult | 54,007 | 79.4 | Treflan (spring) | 12,410 | 13.2 |
| Raptor | 41,445 | 60.9 | | | |
| Sonalan (spring) | 30,229 | 44.4 | | | |
| Cultivation* | 29,957 | 44.0 | | | |
| Reflex | 19,564 | 28.8 | | | |
| Select | 11,607 | 17.1 | | | |
| Prowl | 10,363 | 15.2 | | | |
| Pursuit | 5,798 | 8.5 | | | |
| Treflan (spring) | 10,000 | 14.7 | | | |
| Basagran | 3,140 | 4.6 | | | |
| Other | 1,055 | 1.6 | | | |
| Sonalan (fall) | 4,657 | 6.8 | | | |
| Roundup | 2,963 | 4.4 | | | |
| Assure II | 1,005 | 1.5 | | | |
| Glyphosate (pre-harvest) | 3,665 | 5.4 | | | |
| Rotary hoe* | 3,011 | 4.4 | | | |
| Outlook | 2,417 | 3.6 | | | |
| Spartan | 660 | 1.0 | | | |
| Dual | 655 | 1.0 | | | |
| Treflan (fall) | 187 | 0.3 | | | |
| Lasso | 838 | 1.2 | | | |

^a Respondents' acres only.

Table 10. Weed control practices used, by bean market class, in 2007.

| Herbicide or other practice* | Black | Kidney ^b | Navy | Pinto |
|------------------------------|------------------------------|---------------------|------|-------|
| | % acres treated ^a | | | |
| Minnesota | | | | |
| Assure II | 4.0 | 0.4 | 0.0 | 0.0 |
| Basagran | 2.3 | 27.8 | 22.4 | 3.6 |
| Cultivation* | 6.3 | 34.5 | 20.6 | 43.7 |
| Dual | 0.0 | 3.5 | 4.2 | 0.0 |
| Eptam (spring) | 11.5 | 18.5 | 5.4 | 0.0 |
| Glyphosate (pre-harvest) | 0.0 | 0.0 | 30.1 | 5.7 |
| Lasso | 0.0 | 2.4 | 1.6 | 0.0 |
| Other | 0.0 | 4.2 | 2.2 | 0.0 |
| Outlook | 0.0 | 12.2 | 6.1 | 0.0 |
| Poast | 0.0 | 0.5 | 0.6 | 0.0 |
| Prowl | 36.0 | 38.1 | 21.1 | 0.0 |
| Pursuit | 18.8 | 1.9 | 1.0 | 0.0 |
| Raptor | 35.0 | 68.2 | 77.9 | 42.6 |
| Reflex | 33.7 | 6.2 | 26.0 | 12.1 |
| Rezult | 2.2 | 20.1 | 79.7 | 54.7 |
| Rotary hoe* | 0.0 | 0.0 | 3.9 | 24.9 |
| Roundup | 0.0 | 0.0 | 30.0 | 0.0 |
| Select | 33.7 | 5.0 | 7.3 | 0.0 |
| Sonalan (spring) | 33.2 | 24.2 | 19.8 | 33.1 |
| Treflan (spring) | 0.0 | 1.9 | 14.4 | 33.2 |
| North Dakota | | | | |
| Assure II | 0.0 | | 0.6 | 1.9 |
| Basagran | 6.5 | | 0.0 | 5.8 |
| Cultivation* | 4.4 | | 37.3 | 45.9 |
| Dual | 0.0 | | 0.0 | 1.3 |
| Glyphosate (pre-harvest) | 0.0 | | 6.5 | 6.1 |
| Other | 2.2 | | 0.8 | 1.8 |
| Outlook | 2.6 | | 7.8 | 3.0 |
| Lasso | 0.0 | | 6.1 | 0.4 |
| Prowl | 18.3 | | 17.5 | 13.7 |
| Pursuit | 32.4 | | 5.4 | 7.6 |
| Raptor | 28.0 | | 84.1 | 58.7 |
| Reflex | 37.4 | | 24.1 | 31.3 |
| Rezult | 83.6 | | 84.0 | 79.7 |
| Rotary hoe* | 2.2 | | 19.3 | 1.9 |
| Roundup | 3.2 | | 11.4 | 3.3 |
| Select | 7.5 | | 6.3 | 21.7 |
| Sonalan (fall) | 0.0 | | 3.7 | 8.7 |
| Sonalan (spring) | 42.1 | | 46.5 | 45.9 |
| Spartan | 0.0 | | 2.5 | 0.8 |
| Treflan (spring) | 26.0 | | 19.4 | 11.0 |
| Treflan (fall) | 0.0 | | 1.8 | 0.0 |

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

^b Only 200 acres of kidney bean were surveyed in North Dakota. Data are not included.

Table 11. Desiccants used on dry edible bean fields in 2007.

| Desiccant | Respon- | Respon- | Acres | Acres |
|---------------------|---------|---------|-----------------------|-----------------------|
| | dents | dents | reported ^a | reported ^a |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Sodium chlorate | 11 | 14.3 | 1,556 | 5.9 |
| Gramoxone Extra | 9 | 11.7 | 2,165 | 8.3 |
| Aim | 1 | 1.3 | 80 | 0.3 |
| Glyphosate | 15 | 19.5 | 2,949 | 11.3 |
| North Dakota | | | | |
| Sodium chlorate | 6 | 4.3 | 1,217 | 1.8 |
| Gramoxone Extra | 16 | 11.6 | 4,760 | 7.0 |
| Aim | 4 | 2.9 | 740 | 1.1 |
| Glyphosate | 31 | 22.5 | 8,923 | 13.1 |
| Northarvest | | | | |
| Sodium chlorate | 17 | 7.9 | 2,773 | 2.9 |
| Gramoxone Extra | 25 | 11.6 | 6,925 | 7.4 |
| Aim | 5 | 2.3 | 820 | 0.9 |
| Glyphosate | 46 | 21.4 | 11,872 | 12.6 |

^a Respondents' acres only.

Table 12. Worst disease problem on dry edible bean in 2007.

| Disease ^a | Respon- | Respon- | Acres | Acres |
|----------------------|------------|--------------|-----------------------|-----------------------|
| | dents | dents | reported ^b | reported ^b |
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Root rot | 19 | 35.8 | 7,794 | 29.8 |
| None | 2 | 3.8 | 128 | 0.5 |
| White mold | 28 | 52.8 | 10,236 | 39.1 |
| Bacterial blight | 3 | 5.7 | 1,336 | 5.1 |
| Mosaic virus | 1 | 1.9 | 111 | 0.4 |
| Total | 53 | 100.0 | 19,605 | 74.9 |
| North Dakota | | | | |
| None | 22 | 19.8 | 10,578 | 15.5 |
| White mold | 60 | 54.1 | 30,682 | 45.1 |
| Bacterial blight | 18 | 16.2 | 11,640 | 17.1 |
| Root rot | 7 | 6.3 | 3,032 | 4.5 |
| Rust | 2 | 1.8 | 829 | 1.2 |
| Other viruses | 2 | 1.8 | 2,665 | 3.9 |
| Total | 111 | 100.0 | 59,426 | 87.3 |
| Northarvest | | | | |
| Bacterial blight | 21 | 12.8 | 12,976 | 13.8 |
| Mosaic virus | 1 | 0.6 | 111 | 0.1 |
| None | 24 | 14.6 | 10,706 | 11.4 |
| Root rot | 26 | 15.9 | 10,826 | 11.5 |
| Rust | 2 | 1.2 | 829 | 0.9 |
| Other viruses | 2 | 1.2 | 2,665 | 2.8 |
| White mold | 88 | 53.7 | 40,918 | 43.4 |
| Total | 164 | 100.0 | 79,031 | 83.9 |

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

^b Respondents' acres only.

Table 13. Diseases ranked as one of the three worst on dry edible bean in 2007.

| Disease ^a | Respon- dents | Respon- dents | Acres reported ^b | Acres reported ^b |
|----------------------|------------------|------------------|--------------------------------|--------------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| White mold | 44 | 57.1 | 17,654 | 67.4 |
| Root rot | 31 | 40.3 | 12,590 | 48.1 |
| Bacterial blight | 24 | 31.2 | 9,960 | 38.0 |
| None | 2 | 2.6 | 128 | 0.5 |
| Rust | 10 | 13.0 | 6,444 | 24.6 |
| Anthracnose | 4 | 5.2 | 990 | 3.8 |
| Viruses | 3 | 3.9 | 690 | 2.6 |
| Mosaic virus | 1 | 1.3 | 111 | 0.4 |
| North Dakota | | | | |
| White mold | 79 | 57.2 | 42,967 | 63.2 |
| None | 22 | 15.9 | 10,578 | 15.5 |
| Bacterial blight | 50 | 36.2 | 32,965 | 48.1 |
| Root rot | 21 | 15.2 | 9,852 | 14.5 |
| Rust | 35 | 25.4 | 19,471 | 28.6 |
| Alternaria | 2 | 1.4 | 569 | 0.8 |
| Anthracnose | 7 | 5.1 | 3,416 | 5.0 |
| Viruses | 3 | 2.2 | 3,165 | 4.7 |
| Mosaic virus | 4 | 2.9 | 1,640 | 2.4 |
| Northarvest | | | | |
| Alternaria | 2 | 0.9 | 569 | 0.6 |
| Anthracnose | 11 | 5.1 | 4,406 | 4.7 |
| Bacterial blight | 74 | 34.4 | 42,925 | 45.6 |
| Mosaic virus | 5 | 2.3 | 1,751 | 1.9 |
| None | 24 | 11.2 | 10,706 | 11.4 |
| Root rot | 52 | 24.2 | 22,442 | 23.8 |
| Rust | 45 | 20.9 | 25,915 | 27.5 |
| Viruses | 6 | 2.8 | 3,855 | 4.1 |
| White mold | 123 | 57.2 | 60,621 | 64.3 |

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

^b Respondents' acres only.

Table 14. Fungicides applied to dry edible bean fields in 2007.

| 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) | 5,572 | 21.3 | 270 | 1.0 | 5,302 | 20.3 |
| Headline | 4,801 | 18.3 | 1,034 | 3.9 | 3,767 | 14.4 |
| Topsin (banded) | 30 | 0.1 | 0 | 0.0 | 30 | 0.1 |
| Total | 10,403 | 39.7 | 1,304 | 4.9 | 9,099 | 34.8 |
| North Dakota | | | | | | |
| Topsin (broadcast) | 9,723 | 14.3 | 3,188 | 4.7 | 5,235 | 7.7 |
| Headline | 11,025 | 16.2 | 3,542 | 5.2 | 7,483 | 11.0 |
| Topsin (banded) | 1,356 | 2.0 | 0 | 0.0 | 1,356 | 2.0 |
| Bravo | 120 | 0.2 | 0 | 0.0 | 120 | 0.2 |
| Endura | 60 | 0.1 | 0 | 0.0 | 60 | 0.1 |
| Maneb | 242 | 0.4 | 207 | 0.3 | 35 | 0.1 |
| Quadris | 423 | 0.6 | 0 | 0.0 | 423 | 0.6 |
| Proline | 4,397 | 6.5 | 1,572 | 2.3 | 2,825 | 4.2 |
| Other | 107 | 0.2 | 0 | 0.0 | 107 | 0.2 |
| Total | 27,453 | 40.5 | 8,509 | 12.5 | 17,644 | 26.1 |
| Northharvest | | | | | | |
| Topsin (broadcast) | 15,295 | 16.2 | 3,458 | 3.7 | 10,537 | 11.2 |
| Headline | 15,826 | 16.8 | 4,576 | 4.9 | 11,250 | 11.9 |
| Topsin (banded) | 1,386 | 1.5 | 0 | 0.0 | 1,386 | 1.5 |
| Bravo | 120 | 0.1 | 0 | 0.0 | 120 | 0.1 |
| Endura | 60 | 0.1 | 0 | 0.0 | 60 | 0.1 |
| Maneb | 242 | 0.3 | 207 | 0.2 | 35 | 0.0 |
| Quadris | 423 | 0.4 | 0 | 0.0 | 423 | 0.4 |
| Proline | 4,397 | 4.7 | 1,572 | 1.7 | 2,825 | 3.0 |
| Other | 107 | 0.1 | 0 | 0.0 | 107 | 0.1 |
| Total | 37,856 | 40.2 | 9,813 | 10.4 | 26,743 | 28.4 |

^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 15. Use of fungicide seed treatment on dry edible bean in 2007.

| | Respondents | Respondents |
|---------------------|-------------|-------------|
| | (no.) | (%) |
| Minnesota | | |
| Treatment used | 39 | 60.0 |
| Treatment not used | 26 | 40.0 |
| North Dakota | | |
| Treatment used | 51 | 48.1 |
| Treatment not used | 55 | 51.9 |
| Northharvest | | |
| Treatment used | 90 | 52.6 |
| Treatment not used | 81 | 47.4 |

Table 16. Worst insect problem on dry edible bean in 2007.

| Insect ^a | Respon- dents | Respon- dents | Acres reported ^a | Acres reported ^a |
|---------------------|------------------|------------------|--------------------------------|--------------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Leafhopper | 53 | 82.8 | 19,252 | 73.5 |
| Aphids | 5 | 7.8 | 1,650 | 6.3 |
| Grasshopper | 5 | 7.8 | 1,635 | 6.2 |
| Spider mite | 1 | 1.6 | 160 | 0.6 |
| Total | 64 | 100.0 | 22,697 | 86.6 |
| North Dakota | | | | |
| None | 27 | 33.3 | 16,203 | 23.8 |
| Aphids | 4 | 4.9 | 1,620 | 2.4 |
| Cutworms | 9 | 11.1 | 4,926 | 7.2 |
| Bean leaf beetle | 5 | 6.2 | 4,700 | 6.9 |
| Caterpillar | 1 | 1.2 | 250 | 0.4 |
| Leafhopper | 24 | 29.6 | 9,318 | 13.7 |
| Grasshopper | 10 | 12.4 | 6,424 | 9.4 |
| Seed corn maggot | 1 | 1.2 | 1,206 | 1.8 |
| Total | 81 | 100.0 | 44,647 | 65.6 |
| Northharvest | | | | |
| Aphids | 9 | 6.2 | 3,270 | 3.5 |
| Bean leaf beetle | 5 | 3.4 | 4,700 | 5.0 |
| Caterpillar | 1 | 0.7 | 250 | 0.3 |
| Cutworms | 9 | 6.2 | 4,926 | 5.2 |
| Grasshopper | 15 | 10.3 | 8,059 | 8.6 |
| Leafhopper | 77 | 53.1 | 28,570 | 30.3 |
| Spider mite | 1 | 0.7 | 160 | 0.2 |
| None | 27 | 18.6 | 16,203 | 17.2 |
| Seed corn maggot | 1 | 0.7 | 1,206 | 1.3 |
| Total | 145 | 100.0 | 67,344 | 71.5 |

^a Respondents' acres only.

Table 17. Insects ranked as one of the three worst in dry edible bean fields in 2007.

| Insect ^a | Respon- dents | Respon- dents | Acres reported ^b | Acres reported ^b |
|---------------------|------------------|------------------|--------------------------------|--------------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Aphids | 24 | 31.2 | 9,537 | 36.4 |
| Bean leaf beetle | 14 | 18.2 | 3,281 | 12.5 |
| Cutworms | 5 | 6.5 | 3,876 | 14.8 |
| Grasshopper | 26 | 33.8 | 8,215 | 31.4 |
| Leafhopper | 57 | 74.0 | 20,937 | 80.0 |
| Other | 1 | 1.3 | 65 | 0.2 |
| Seed corn maggot | 4 | 5.2 | 2,797 | 10.7 |
| Spider mite | 7 | 9.1 | 773 | 3.0 |
| North Dakota | | | | |
| Aphids | 16 | 11.6 | 6,860 | 10.1 |
| Bean leaf beetle | 11 | 8.0 | 7,685 | 11.3 |
| Cutworms | 17 | 12.3 | 9,917 | 14.6 |
| Grasshopper | 25 | 18.1 | 14,888 | 21.9 |
| Leafhopper | 29 | 21.0 | 14,918 | 21.9 |
| Other | 0 | 0.0 | 0 | 0.0 |
| Seed corn maggot | 4 | 2.9 | 2,956 | 4.3 |
| Spider mite | 3 | 2.2 | 820 | 1.2 |
| Northharvest | | | | |
| Aphids | 40 | 18.6 | 16,397 | 17.4 |
| Bean leaf beetle | 25 | 11.6 | 10,966 | 11.6 |
| Cutworms | 22 | 10.2 | 13,793 | 14.6 |
| Grasshopper | 51 | 23.7 | 23,103 | 24.5 |
| Leafhopper | 86 | 40.0 | 35,855 | 38.1 |
| Other | 1 | 0.5 | 65 | 0.1 |
| Seed corn maggot | 8 | 3.7 | 5,753 | 6.1 |
| Spider mite | 10 | 4.7 | 1,593 | 1.7 |

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

^b Respondents' acres only.

Table 18. Use of insecticides on dry edible bean fields in 2007.

| Insecticide | Respon- dents | Respon- dents | Acres reported ^a | Acres reported ^a |
|---------------------|------------------|------------------|--------------------------------|--------------------------------|
| | (no.) | (%) | (no.) | (%) |
| Minnesota | | | | |
| Asana XL | 32 | 41.6 | 13,580 | 51.9 |
| Dimethoate | 4 | 5.2 | 1,364 | 5.2 |
| Warrior | 6 | 7.8 | 1,279 | 4.9 |
| Mustang | 4 | 5.2 | 613 | 2.3 |
| Baythroid | 3 | 3.9 | 515 | 2.0 |
| North Dakota | | | | |
| Asana XL | 13 | 9.4 | 5,447 | 8.0 |
| Warrior | 3 | 2.2 | 335 | 0.5 |
| Dimethoate | 1 | 0.7 | 135 | 0.2 |
| Northharvest | | | | |
| Asana XL | 45 | 20.9 | 19,027 | 20.2 |
| Baythroid | 3 | 1.4 | 515 | 0.5 |
| Dimethoate | 5 | 2.3 | 1,499 | 1.6 |
| Mustang | 4 | 1.9 | 613 | 0.7 |
| Warrior | 9 | 4.2 | 1,614 | 1.7 |

^a Respondents' acres only.

Table 19. Use of insecticide seed treatment on dry edible bean in 2007.

| Treatment | Respon- dents (no.) | Respon- dents (%) | Acres reported ^a (no.) | Acres reported ^a (%) |
|---------------------|---------------------------|-------------------------|---|---------------------------------------|
| Minnesota | | | | |
| Lorsban | 22 | 28.6 | 12,571 | 48.0 |
| Cruiser | 10 | 13.0 | 1,798 | 6.9 |
| Gaicho | 1 | 1.3 | 320 | 1.2 |
| North Dakota | | | | |
| Lorsban | 20 | 14.5 | 9,276 | 13.6 |
| Cruiser | 10 | 7.2 | 3,115 | 4.6 |
| Gaicho | 3 | 2.2 | 1,060 | 1.6 |
| Northarvest | | | | |
| Lorsban | 42 | 19.5 | 21,847 | 23.2 |
| Cruiser | 20 | 9.3 | 4,913 | 5.2 |
| Gaicho | 4 | 1.9 | 1,380 | 1.5 |

^a Respondents' acres only.

Table 20. Use of fertilizers on dry edible bean fields in 2007.

| Fertilizer | Respondents (no.) | Respondents (%) |
|---------------------|----------------------|--------------------|
| Minnesota | | |
| Nitrogen | 69 | 89.6 |
| Phosphate | 58 | 75.3 |
| Potash | 53 | 68.8 |
| Zinc | 37 | 48.1 |
| Other | 10 | 13.0 |
| North Dakota | | |
| Nitrogen | 96 | 69.6 |
| Phosphate | 92 | 66.7 |
| Potash | 28 | 20.3 |
| Zinc | 54 | 39.1 |
| Other | 6 | 4.3 |
| Northarvest | | |
| Nitrogen | 165 | 76.7 |
| Phosphate | 150 | 69.8 |
| Potash | 81 | 37.7 |
| Zinc | 91 | 42.3 |
| Other | 16 | 7.4 |

Table 21. Use of Rhizobium inoculants on dry edible bean in 2007.

| Rhizobium use | Respondents (no.) | Respondents (%) |
|---------------------|----------------------|--------------------|
| Minnesota | | |
| Inoculant used | 21 | 30.4 |
| Inoculant not used | 48 | 69.6 |
| North Dakota | | |
| Inoculant used | 28 | 25.5 |
| Inoculant not used | 82 | 74.5 |
| Northarvest | | |
| Inoculant used | 49 | 27.4 |
| Inoculant not used | 130 | 72.6 |

Table 22. Use of soil test prior to fertilization of dry edible bean fields in 2007.

| Soil test | Respondents (no.) | Respondents (%) |
|---------------------|----------------------|--------------------|
| Minnesota | | |
| Soil test used | 64 | 83.1 |
| Soil test not used | 13 | 16.9 |
| North Dakota | | |
| Soil test used | 92 | 71.9 |
| Soil test not used | 36 | 28.1 |
| Northarvest | | |
| Soil test used | 156 | 76.1 |
| Soil test not used | 49 | 23.9 |

Table 23. Crop grown the year prior to dry edible bean in 2007.

| Previous crop | Respondents (%) |
|---------------------------------|--------------------|
| Minnesota | |
| Corn | 45.2 |
| Wheat | 37.1 |
| Sugar beets | 11.3 |
| Potatoes | 1.6 |
| Barley | 0.8 |
| Oats | 0.8 |
| Other (alfalfa, soybean, other) | 3.2 |
| North Dakota | |
| Wheat | 63.3 |
| Corn | 15.7 |
| Barley | 8.5 |
| Sugar beets | 10.1 |
| Other (oats, alfalfa, other) | 0.4 |
| Potatoes | 0.8 |
| Fallow | 1.2 |

Table 24. Number of years in dry bean rotation in 2007.

| Number of years | Respondents (%) |
|---------------------|-----------------|
| Minnesota | |
| 1 | 0.8 |
| 2 | 9.5 |
| 3 | 23.0 |
| 4 | 24.6 |
| 5 | 40.5 |
| 9 | 1.6 |
| North Dakota | |
| 1 | 0 |
| 2 | 33.9 |
| 3 | 22.6 |
| 4 | 22.6 |
| 5 | 17.3 |
| 9 | 3.6 |

Table 25. Will type II bean yield better than type III bean?

| Answer | Respondents (no.) | Respondents (%) |
|---------------------|-------------------|-----------------|
| Minnesota | | |
| Yes | 28 | 65.1 |
| No | 15 | 34.9 |
| North Dakota | | |
| Yes | 48 | 53.3 |
| No | 42 | 46.7 |
| Northarvest | | |
| Yes | 76 | 57.1 |
| No | 57 | 42.9 |

Table 26. Percent of total dry bean area harvested by direct combining in 2007.

| Percent direct combined | Respondents (no.) | Respondents (%) |
|-------------------------|-------------------|-----------------|
| Minnesota | | |
| 0% | 37 | 51.4 |
| 1-25% | 3 | 4.1 |
| 26-50% | 2 | 2.8 |
| 51-75% | 0 | 0.0 |
| 76-100% | 30 | 41.7 |
| North Dakota | | |
| 0% | 65 | 49.2 |
| 1-25% | 20 | 15.2 |
| 26-50% | 9 | 6.8 |
| 51-75% | 6 | 4.6 |
| 76-100% | 32 | 24.2 |
| Northarvest | | |
| 0% | 102 | 50.0 |
| 1-25% | 23 | 11.3 |
| 26-50% | 11 | 5.4 |
| 51-75% | 6 | 2.9 |
| 76-100% | 62 | 30.4 |

Table 27. Estimated pounds/acre of beans left in field due to direct combining in 2007.

| Pounds/acre | Respondents (no.) | Respondents (%) |
|---------------------|-------------------|-----------------|
| Minnesota | | |
| Less than 50 | 6 | 17.6 |
| 50-100 | 16 | 47.1 |
| 100-200 | 7 | 20.6 |
| More than 200 | 5 | 14.7 |
| North Dakota | | |
| Less than 50 | 3 | 4.9 |
| 50-100 | 25 | 41.0 |
| 100-200 | 23 | 37.7 |
| More than 200 | 10 | 16.4 |
| Northarvest | | |
| Less than 50 | 9 | 9.5 |
| 50-100 | 41 | 43.1 |
| 100-200 | 30 | 31.5 |
| More than 200 | 15 | 15.9 |

Table 28. Cost of direct combining compared with conventional two-pass method in 2007.

| Cost of direct combining | Respondents (no.) | Respondents (%) |
|--------------------------|-------------------|-----------------|
| Minnesota | | |
| Less than 25% | 6 | 14.6 |
| Less than 50% | 25 | 61.0 |
| Less than 75% | 6 | 14.6 |
| Equal or more | 4 | 9.8 |
| North Dakota | | |
| Less than 25% | 18 | 25.4 |
| Less than 50% | 24 | 33.8 |
| Less than 75% | 17 | 23.9 |
| Equal or more | 12 | 16.9 |
| Northarvest | | |
| Less than 25% | 24 | 21.4 |
| Less than 50% | 49 | 43.8 |
| Less than 75% | 23 | 20.5 |
| Equal or more | 16 | 14.3 |

Other Responses

The following “other” responses were recorded; the number of responses are in parentheses next to the response.

Other dry bean class:

small red (1);
great northern (4)

Other navy cultivar:

Envoy (1); Panther (1);
Regent (6); Rogers 0076 (3);
Sailor (2); Seabiscuit (2);
Seahawk (1); Shoner (1);
T9905 (2); Western 01054 (3)

Other pinto cultivar:

#195 (1); Baja (2); Durango (2);
Grand Mesa (1); Othello (1);
Rally (2); Sonora (4);
Windbreaker (4); Uprights (1)

Other black cultivar:

Shiny Crow (4)

Other kidney cultivar:

California Early Light Red (5);
Dark Red (1); Drake (3);
Foxfire (3); Small Red (1);
White (1)

Other worst weed:

Bindweed (1); lanceleaf
sage (1); marshelder (2);
millet (2); smartweed (1);
stinkweed (1); velvetleaf (1);
wild sunflower (3)

Other fertilizer:

boron (1); copper (1);
sulfur (10)

Other fungicides:

Cetana XL (1); thiophanate
methyl (1)

Other herbicides:

Permit (1); MSO microrate (2);
Arrow (1)

Other rotation crops:

Peas (4); snap beans (1)

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APPENDIX I.

Please circle or fill in the requested information on pest problems and pesticide use on your 2007 dry bean crop.

| |
|--------------------------------------|
| Total dry bean acres planted in 2007 |
| 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 |

| Crop Rotation (field with dry beans in 2007) (write in crops grown in previous years) | | |
|---|------------------------|------------------------|
| | Field #1 dry beans '07 | Field #2 dry beans '07 |
| 2006 | | |
| 2005 | | |
| 2004 | | |
| 2003 | | |

| State | County | Acres |
|--------------|--------|-------|
| Minnesota | | |
| | | |
| North Dakota | | |
| | | |
| South Dakota | | |
| | | |

| 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 | | |

| 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 Voyager | |
| | 27 Other Navy (specify) | |
| Kidney | 41 Montcalm (DRK) | |
| | 42 Red Hawk | |
| | 43 Other Kidney (specify) | |
| Black | 61 Onyx | |
| | 62 Jaguar | |
| | 63 T-39 | |
| | 64 Eclipse | |
| | 65 Other Black (specify) | |
| Pink | 81 (specify) | |
| Other | 91 (specify class & variety) | |

| 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 Baythroid XL 6 Tombstone 7 Malathion 8 Warrior 9 Lannate LV | 10 Mustang Max 11 PennCap-M 12 SpinTor 13 Proaxis 14 Dimethoate 15 Dipel 16 Nuprid 17 Thimet 20G 18 Endosulfan |
| Was insecticide-treated seed used? | Yes | No |
| If so, what product(s)? | | |
| Acres planted Cruiser 5FS or Cruiser MAXX Beans Seed Treatment | | |
| Acres planted Lorsban Seed Treatment | | |
| Acres planted Gaucho Seed Treatment | | |

| Seed Source | Acres Planted |
|----------------------------|---------------|
| Western grown | |
| Northharvest grown (ND/MN) | |
| Canadian grown | |
| Bin run | |

| Worst Weed Problems in Dry Beans (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 | |

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

| 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 Lasso/generics 7 Outlook 8 Poast 9 Prowl | | 10 Pursuit 11 Raptor 12 Reflex 13 Roundup Ultra (preplant) 14 Rezult 15 Select 16 Sonalan (fall) 17 Sonalan (spring) 18 Spartan | | 19 Trifluralin (fall) 20 Trifluralin (spring) 21 Trifluralin + Eptam (spring) 22 No Herbicide 23 Cultivation 24 Rotary hoe 25 Glyphosate (pre harvest) 26 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 | | | | | | |
| Glyphosate | | | | | | |

| 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 Disease Problems (Rank 1-3; 1 = worst) ONLY mark 3 | Alternaria | Anthracnose | Bacterial Blight | Root Rot | Rust | White Mold | None |
| | | | | | | | |
| | Viruses - General | Bean Common Mosaic Virus | | | | | |
| | | | | | | | |

| 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 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)? | | |

| | | | | | | |
|--|--|---------------|---------------|---------------|----------|----|
| Direct Harvest | A type II bean (upright with short vine bean) will yield better than a type III bean (prostrate or more laying down vine bean)? | | | | Yes | No |
| | On your farm, what percentage of your total dry bean area is being harvested using direct combining? (circle one) | | | | | |
| | 0% | 1 - 25% | 26 - 50% | 51 - 75% | 76 -100% | |
| | If direct combining is a common practice on your farm, do you have an estimate of how many pounds per acre you are leaving in field due to this practice? (circle one) | | | | | |
| | Less than 50 | 50-100 | 100-200 | 200 or more | | |
| The cost of direct combining compared with the conventional method (2 passes) is? (circle one) | | | | | | |
| | Less than 25% | Less than 50% | Less than 75% | Equal or more | | |

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