

Quick Reference Guide: Soybean and Pulse Seeding Tips

| | Soybeans | Field Peas | Dry Beans | Faba Beans |
|--|---|--|--|--|
| Salinity Tolerance | Threshold of 1.0 mmho/cm 25% yield loss (YL) at 1.75 mmho/cm 50% YL at 2.3 mmho/cm Mixed with high calcium carbonates, IDC will set in. | Threshold of 0.3 mmho/cm 25% YL at 1.8 mmho/cm 50% YL at 3.75 mmho/cm | Threshold of 0.5 mmho/cm 25% YL at 1.3 mmho/cm 50% YL at 1.7 mmho/cm | Threshold of 0.75 mmho/cm 25% YL at 1.75 mmho/cm 50% YL at 2.5 mmho/cm |
| Planting Date | Early to Late May Consider calendar date, soil temp, 24-hour forecast and personal risk. | Late April to early May | Late May to early June | Mid-April to early May |
| Minimum Soil Temp. for Germination | 8°C (>14 °C for faster emergence) | 4°C | 12°C (>15°C for faster emergence) | 3 to 5°C |
| Planting Depth | 0.75 – 1.75" | 1.5 – 2" | 0.75 – 1.5" | 2 – 3" |
| Row Spacing | Wide (>15") or narrow (<15") | Narrow | Wide (>15") or narrow (<15") | Narrow |
| Target Plant Stand (live plants/ac) | 140 -160,000 | 350 – 400,000 (80 – 90 live plants/m ²) | Pinto: 70 – 80,000 (wide row) 90 – 120,000 (narrow row) Navy: 90,000 (wide row) >115,000 (narrow row) Black: 90 – 120,000 | 180,000 (45 live plants/m ²) |
| Suggested Seeding Rate | 175 – 200,000 seeds/ac (1.2 – 1.4 units/ac) assuming 80% seed survivability Use the Bean App Seeding Rate Calculator for your most economical seeding rate. | There is wide variation in seed size among varieties and seed lots. Calculate using TSW and expected seed survivability. Refer to field pea table below. Range: 170 – 400 lbs/ac (2.8 – 6.7 bu/ac) | There is wide variation in seed size among varieties and seed lots. Calculate using TSW and expected seed survivability. Refer to dry bean table below. | There is wide variation in seed size among varieties and seed lots. Calculate using TSW and expected seed survivability. Refer to faba bean table below. Range: 140 – 470 lbs/ac (2.4 – 7.8 bu/ac) |
| Inoculant Strategy | Species: <i>Bradyrhizobium japonicum</i> ; <i>B. elkanii</i> Double inoculate first-time soybean fields. Single inoculate if the field has a history of soybeans, previous crops have nodulated well and if the most recent soybean crop was within the past 4 years. | Species: <i>Rhizobium leguminosarum</i> Single inoculate, even if fields have a history of peas. Consider double inoculation if soils have been flooded or have no pulse history. | Inoculants for dry beans are currently being researched. To date, they have not been widely commercially available or effective. Nitrogen fertilization to an average rate of 70 lbs N/ac is standard practice. See MB soil fertility guide for more information. | Species: <i>Rhizobium leguminosarum</i> Single inoculate. Consider double inoculation if soils have been flooded or have no pulse history. |
| Maximum Safe Seed-Placed P ₂ O ₅ | 20 lbs P ₂ O ₅ /ac in narrow rows (<15") and 10 lbs P ₂ O ₅ /ac in wide rows | 20 lbs P ₂ O ₅ /ac | 10 lbs P ₂ O ₅ /ac in narrow rows (<15") and 0 in wide rows | 20 lbs P ₂ O ₅ /ac |
| Post-Emergent Rolling | V1 to V2 | 2 nd to 3 rd true node stage | V1 to V2 | Not typically rolled. If rolling, target pre-emergence. |
| Days to Maturity | 100 – 125 | 90 - 97 | 91 – 101 | 104 – 110 |

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| MPSG Resources Available (links are embedded) | <ul style="list-style-type: none"> • Production Guidelines • Fertility Factsheet • Seed Treatment Risk Assessment • Growth Staging and Maturity Guide • Plant Development Guide • Insect and Disease Scouting Calendar and Identification Guide • Soybean Aphids: Identification, Scouting and Management | <ul style="list-style-type: none"> • Production Guidelines • Growth Staging and Maturity Guide • Insect and Disease Scouting Calendar • Root Rot in Peas and Lentils • Fungicide Decision Worksheet for Mycosphaerella Blight • Desiccation Guide – coming soon | <ul style="list-style-type: none"> • Growth Staging and Maturity Guide • Insect and Disease Scouting Calendar • Fungicide Decision Worksheet for White Mould • Desiccation Guide – coming soon | <ul style="list-style-type: none"> • Growth Staging and Maturity Guide • Insect and Disease Scouting Calendar |
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| For more detailed production information, visit manitobapulse.ca/production and visit the resource links for each crop at the bottom of the page. | | | | |

Field Peas

Field pea seeding rates in lbs/ac and bu/ac targeting 80 to 90 live plants/m² (350 – 400,000 plants/acre) across a range of thousand seed weights (g/1000 seeds) and expected emergence rates (%).

Field Pea Seeding
Rate Reference Chart

| Field Pea Seeding Rate Reference Chart | | | Expected Emergence Rate (%) | | | | | |
|---|--------|-----------|---|-----------|-----------|-----------|-----------|-----------|
| | | | 60 | 65 | 70 | 75 | 80 | 85 |
| | | | ----- seeding rates targeting 80 to 90 live plants/m ² ----- | | | | | |
| Thousand Seed Weight (TSW) (g) | 200 | lbs/ac | 237 - 267 | 219 - 246 | 203 - 229 | 190 - 214 | 178 - 200 | 168 - 188 |
| | | bu/ac | 4.0 - 4.5 | 3.7 - 4.1 | 3.4 - 3.8 | 3.2 - 3.6 | 3.0 - 3.3 | 2.8 - 3.1 |
| | 210 | lbs/ac | 249 - 280 | 230 - 259 | 214 - 240 | 199 - 224 | 187 - 210 | 176 - 198 |
| | | bu/ac | 4.2 - 4.7 | 3.8 - 4.3 | 3.6 - 4.0 | 3.3 - 3.7 | 3.1 - 3.5 | 2.9 - 3.3 |
| | 220 | lbs/ac | 261 - 294 | 241 - 271 | 224 - 252 | 209 - 235 | 196 - 220 | 184 - 207 |
| | | bu/ac | 4.4 - 4.9 | 4.0 - 4.5 | 3.7 - 4.2 | 3.5 - 3.9 | 3.3 - 3.7 | 3.1 - 3.5 |
| | 230 | lbs/ac | 273 - 307 | 252 - 283 | 234 - 263 | 218 - 246 | 205 - 230 | 193 - 217 |
| | | bu/ac | 4.5 - 5.1 | 4.2 - 4.7 | 3.9 - 4.4 | 3.6 - 4.1 | 3.4 - 3.8 | 3.2 - 3.6 |
| | 240 | lbs/ac | 285 - 320 | 263 - 296 | 244 - 275 | 228 - 256 | 214 - 240 | 201 - 226 |
| | | bu/ac | 4.7 - 5.3 | 4.4 - 4.9 | 4.1 - 4.6 | 3.8 - 4.3 | 3.6 - 4.0 | 3.4 - 3.8 |
| | 250 | lbs/ac | 297 - 334 | 274 - 308 | 254 - 286 | 237 - 267 | 223 - 250 | 209 - 236 |
| | | bu/ac | 4.9 - 5.6 | 4.6 - 5.1 | 4.2 - 4.8 | 4.0 - 4.5 | 3.7 - 4.2 | 3.5 - 3.9 |
| | 260 | lbs/ac | 309 - 347 | 285 - 320 | 264 - 298 | 247 - 278 | 231 - 260 | 218 - 245 |
| | | bu/ac | 5.1 - 5.8 | 4.7 - 5.3 | 4.4 - 5.0 | 4.1 - 4.6 | 3.9 - 4.3 | 3.6 - 4.1 |
| | 270 | lbs/ac | 320 - 360 | 296 - 333 | 275 - 309 | 256 - 288 | 240 - 270 | 226 - 254 |
| | | bu/ac | 5.3 - 6.0 | 4.9 - 5.5 | 4.6 - 5.1 | 4.3 - 4.8 | 4.0 - 4.5 | 3.8 - 4.2 |
| | 280 | lbs/ac | 332 - 374 | 307 - 345 | 285 - 320 | 266 - 299 | 249 - 280 | 235 - 264 |
| | | bu/ac | 5.5 - 6.2 | 5.1 - 5.8 | 4.7 - 5.3 | 4.4 - 5.0 | 4.2 - 4.7 | 3.9 - 4.4 |
| 290 | lbs/ac | 344 - 387 | 318 - 357 | 295 - 332 | 275 - 310 | 258 - 290 | 243 - 273 | |
| | bu/ac | 5.7 - 6.5 | 5.3 - 6.0 | 4.9 - 5.5 | 4.6 - 5.2 | 4.3 - 4.8 | 4.0 - 4.6 | |
| 300 | lbs/ac | 356 - 401 | 329 - 370 | 305 - 343 | 285 - 320 | 267 - 300 | 251 - 283 | |
| | bu/ac | 5.9 - 6.7 | 5.5 - 6.2 | 5.1 - 5.7 | 4.7 - 5.3 | 4.5 - 5.0 | 4.2 - 4.7 | |

Dry Beans

Dry bean seeding rates in lbs/ac targeting 20 to 30 live plants/m² (80 – 120,000 plants/acre) across a range of thousand seed weights (g/1000 seeds) and expected emergence rates (%).

| Dry Bean Seeding Rate Reference Chart | | | Expected Emergence Rate (%) | | | | | |
|---|--------------------|-----|---|-----------|----------|----------|----------|----------|
| | | | 70 | 75 | 80 | 85 | 90 | 95 |
| | | | ----- seeding rate (lbs/ac) targeting 20 to 30 live plants/m ² ----- | | | | | |
| Thousand Seed Weight (TSW) (g) | Navy & Black Beans | 160 | 41 - 61 | 38 - 57 | 36 - 53 | 34 - 50 | 32 - 47 | 30 - 45 |
| | | 170 | 43 - 65 | 40 - 61 | 38 - 57 | 36 - 53 | 34 - 50 | 32 - 48 |
| | | 180 | 46 - 69 | 43 - 64 | 40 - 60 | 38 - 57 | 36 - 53 | 34 - 51 |
| | | 190 | 48 - 72 | 45 - 68 | 42 - 63 | 40 - 60 | 38 - 56 | 36 - 53 |
| | | 200 | 51 - 76 | 47 - 71 | 45 - 67 | 42 - 63 | 40 - 59 | 37 - 56 |
| | | 210 | 53 - 80 | 50 - 75 | 47 - 70 | 44 - 66 | 42 - 62 | 39 - 59 |
| | | 220 | 56 - 84 | 52 - 78 | 49 - 73 | 46 - 69 | 44 - 65 | 41 - 62 |
| | Pinto Beans | 300 | 76 - 114 | 71 - 107 | 67 - 100 | 63 - 94 | 59 - 89 | 56 - 84 |
| | | 310 | 79 - 118 | 74 - 110 | 69 - 103 | 65 - 97 | 61 - 92 | 58 - 87 |
| | | 320 | 81 - 122 | 76 - 114 | 71 - 107 | 67 - 101 | 63 - 95 | 60 - 90 |
| | | 330 | 84 - 126 | 78 - 117 | 73 - 110 | 69 - 104 | 65 - 98 | 62 - 93 |
| | | 340 | 86 - 130 | 81 - 121 | 76 - 113 | 71 - 107 | 67 - 101 | 64 - 96 |
| | | 350 | 89 - 134 | 83 - 125 | 78 - 117 | 73 - 110 | 69 - 104 | 66 - 98 |
| | | 360 | 92 - 137 | 85 - 128 | 80 - 120 | 75 - 113 | 71 - 107 | 67 - 101 |
| | | 370 | 94 - 141 | 88 - 132 | 82 - 123 | 77 - 116 | 73 - 110 | 69 - 104 |
| | | 380 | 97 - 145 | 90 - 135 | 85 - 127 | 80 - 119 | 75 - 113 | 71 - 107 |
| | | 390 | 99 - 149 | 93 - 139 | 87 - 130 | 82 - 123 | 77 - 116 | 73 - 110 |
| | | 400 | 102 - 153 | 95 - 142 | 89 - 134 | 84 - 126 | 79 - 119 | 75 - 112 |
| | | 410 | 104 - 156 | 97 - 146 | 91 - 137 | 86 - 129 | 81 - 122 | 77 - 115 |
| | | 420 | 107 - 160 | 100 - 150 | 93 - 140 | 88 - 132 | 83 - 125 | 79 - 118 |

Target plant stands for narrow- and wide-row dry beans.

| Market Class | Avg seeds/lb | TSW range (g/1000 seeds) | | Live plants/acre | Live plants/m ² |
|--------------|--------------|-----------------------------|------------|------------------|----------------------------|
| Pinto | 1200 - 1600 | 300 - 320 | wide row | 70 - 80,000 | 17 - 20 |
| | | | narrow row | 90 - 120,000 | 22 - 30 |
| Navy | 2200 - 2400 | 160 - 220 | wide row | 90,000 | 22 |
| | | | narrow row | > 115,000 | > 28 |
| Black | 2100 - 2500 | 160 - 220 | | 90 - 120,000 | 22 - 30 |

Faba Beans

Faba bean seeding rates in lbs/ac and bu/ac targeting 45 live plants/m² (180,000 plants/acre) across a range of thousand seed weights (g/1000 seeds) and expected emergence rates (%).

| <i>Faba Bean Seeding Rate Reference Chart</i> | | | Expected Emergence Rate (%) | | | | | |
|---|------------|---------------|--|-----|-----|-----|-----|-----|
| | | | 60 | 65 | 70 | 75 | 80 | 85 |
| | | | ----- seeding rate targeting 45 live plants/m ² ----- | | | | | |
| Thousand Seed Weight (TSW) (g) | 300 | <i>lbs/ac</i> | 200 | 185 | 172 | 160 | 150 | 141 |
| | | <i>bu/ac</i> | 3.3 | 3.1 | 2.9 | 2.7 | 2.5 | 2.4 |
| | 325 | <i>lbs/ac</i> | 217 | 200 | 186 | 174 | 163 | 153 |
| | | <i>bu/ac</i> | 3.6 | 3.3 | 3.1 | 2.9 | 2.7 | 2.6 |
| | 350 | <i>lbs/ac</i> | 234 | 216 | 200 | 187 | 175 | 165 |
| | | <i>bu/ac</i> | 3.9 | 3.6 | 3.3 | 3.1 | 2.9 | 2.7 |
| | 375 | <i>lbs/ac</i> | 250 | 231 | 215 | 200 | 188 | 177 |
| | | <i>bu/ac</i> | 4.2 | 3.9 | 3.6 | 3.3 | 3.1 | 2.9 |
| | 400 | <i>lbs/ac</i> | 267 | 246 | 229 | 214 | 200 | 188 |
| | | <i>bu/ac</i> | 4.5 | 4.1 | 3.8 | 3.6 | 3.3 | 3.1 |
| | 425 | <i>lbs/ac</i> | 284 | 262 | 243 | 227 | 213 | 200 |
| | | <i>bu/ac</i> | 4.7 | 4.4 | 4.1 | 3.8 | 3.5 | 3.3 |
| | 450 | <i>lbs/ac</i> | 300 | 277 | 257 | 240 | 225 | 212 |
| | | <i>bu/ac</i> | 5.0 | 4.6 | 4.3 | 4.0 | 3.8 | 3.5 |
| | 475 | <i>lbs/ac</i> | 317 | 293 | 272 | 254 | 238 | 224 |
| | | <i>bu/ac</i> | 5.3 | 4.9 | 4.5 | 4.2 | 4.0 | 3.7 |
| | 500 | <i>lbs/ac</i> | 334 | 308 | 286 | 267 | 250 | 236 |
| | | <i>bu/ac</i> | 5.6 | 5.1 | 4.8 | 4.5 | 4.2 | 3.9 |
| | 525 | <i>lbs/ac</i> | 350 | 323 | 300 | 280 | 263 | 247 |
| | | <i>bu/ac</i> | 5.8 | 5.4 | 5.0 | 4.7 | 4.4 | 4.1 |
| | 550 | <i>lbs/ac</i> | 367 | 339 | 315 | 294 | 275 | 259 |
| | | <i>bu/ac</i> | 6.1 | 5.6 | 5.2 | 4.9 | 4.6 | 4.3 |
| | 575 | <i>lbs/ac</i> | 384 | 354 | 329 | 307 | 288 | 271 |
| | | <i>bu/ac</i> | 6.4 | 5.9 | 5.5 | 5.1 | 4.8 | 4.5 |
| | 600 | <i>lbs/ac</i> | 401 | 370 | 343 | 320 | 300 | 283 |
| | | <i>bu/ac</i> | 6.7 | 6.2 | 5.7 | 5.3 | 5.0 | 4.7 |
| | 625 | <i>lbs/ac</i> | 417 | 385 | 358 | 334 | 313 | 294 |
| | | <i>bu/ac</i> | 7.0 | 6.4 | 6.0 | 5.6 | 5.2 | 4.9 |
| | 650 | <i>lbs/ac</i> | 434 | 401 | 372 | 347 | 325 | 306 |
| | | <i>bu/ac</i> | 7.2 | 6.7 | 6.2 | 5.8 | 5.4 | 5.1 |
| | 675 | <i>lbs/ac</i> | 451 | 416 | 386 | 360 | 338 | 318 |
| | | <i>bu/ac</i> | 7.5 | 6.9 | 6.4 | 6.0 | 5.6 | 5.3 |
| | 700 | <i>lbs/ac</i> | 467 | 431 | 401 | 374 | 350 | 330 |
| | | <i>bu/ac</i> | 7.8 | 7.2 | 6.7 | 6.2 | 5.8 | 5.5 |