**Table S1.** Estimated mean biomass of 0.5 g ai kg-1 fluxofenim-treated and untreated wheat varieties to 1418 g ha-1 *S*-metolachlor herbicide 21 DAT for two experimental runs.a

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety | Run 1 | | | | | Run 2 | | | |
| Treatment | | | | | | | | |
| Untreated  control | M | MS | M vs MS |  | Untreated control | M | MS | M vs MS |
|  | g plant-1 | | | p-value |  | g plant-1 | | | p-value |
| LWW 15-72223\* | 0.153 | 0.067 | 0.121 | <0.001 |  | 0.141 | 0.070 | 0.129 | 0.001 |
| LWW 14-75044\* | 0.159 | 0.076 | 0.130 | <0.001 |  | 0.152 | 0.111 | 0.164 | 0.007 |
| Bruneau | 0.143 | 0.102 | 0.132 | 0.013 |  | 0.161 | 0.128 | 0.191 | 0.001 |
| UI Sparrow | 0.176 | 0.062 | 0.127 | <0.001 |  | 0.151 | 0.092 | 0.145 | 0.001 |
| Bobtail | 0.140 | 0.077 | 0.117 | 0.025 |  | 0.149 | 0.050 | 0.095 | 0.013 |
| UI Magic CL+ | 0.145 | 0.085 | 0.135 | <0.001 |  | 0.141 | 0.101 | 0.115 | 0.252 |
| LWW 15-72234\* | 0.165 | 0.121 | 0.148 | 0.031 |  | 0.159 | 0.147 | 0.158 | 0.296 |
| UI WSU Huffman | 0.136 | 0.091 | 0.121 | 0.017 |  | 0.128 | 0.071 | 0.077 | 0.476 |
| SY Ovation | 0.157 | 0.128 | 0.158 | 0.012 |  | 0.115 | 0.095 | 0.123 | 0.056 |
| 10-08606A\* | 0.149 | 0.093 | 0.124 | <0.001 |  | 0.119 | 0.074 | 0.077 | 0.662 |
| Brundage 96 | 0.155 | 0.135 | 0.144 | 0.342 |  | 0.164 | 0.147 | 0.186 | 0.006 |
| LWW 15-72458\* | 0.151 | 0.133 | 0.140 | 0.185 |  | 0.156 | 0.144 | 0.184 | 0.030 |
| 07-28017B\* | 0.153 | 0.134 | 0.147 | 0.169 |  | 0.114 | 0.099 | 0.117 | 0.030 |
| LCS Artdeco | 0.140 | 0.117 | 0.126 | 0.208 |  | 0.112 | 0.094 | 0.100 | 0.540 |
| LWW 15-72138\* | 0.169 | 0.132 | 0.139 | 0.438 |  | 0.127 | 0.105 | 0.116 | 0.195 |
| 10-20604A\* | 0.162 | 0.136 | 0.146 | 0.403 |  | 0.145 | 0.129 | 0.136 | 0.505 |
| 09-15702A\* | 0.164 | 0.130 | 0.129 | 0.893 |  | 0.136 | 0.136 | 0.171 | 0.053 |
| UI Castle CL+ | 0.149 | 0.129 | 0.127 | 0.783 |  | 0.110 | 0.114 | 0.128 | 0.211 |
| UI Palouse CL+ | 0.140 | 0.124 | 0.131 | 0.391 |  | 0.113 | 0.128 | 0.116 | 0.398 |

M, *S*-metolachlor; MS, *S*-metolachlor + fluxofenim treated seeds.

\*Advanced breeding lines.

ap-value indicates pairwise comparison of mean biomass plant-1 between *S*-metolachlor only treatment and *S*-metolachlor with fluxofenim treated seeds (α = 0.05).

**Table S2.** Estimated mean biomass of 0.5 g ai kg-1 fluxofenim-treated and untreated wheat varieties to 1005 g ha-1 dimethenamid-P herbicide 21 DAT for two experimental runs.a

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety | Run 1 | | | | | Run 2 | | | |
| Treatment | | | | | | | | |
| Untreated  control | D | DS | D vs DS |  | Untreated  control | D | DS | D vs DS |
|  | g plant-1 | | | p-value |  | g plant-1 | | | p-value |
| LWW 15-72223\* | 0.153 | 0.031 | 0.064 | <0.001 |  | 0.141 | 0.041 | 0.104 | 0.001 |
| LWW 14-75044\* | 0.159 | 0.050 | 0.095 | 0.003 |  | 0.152 | 0.072 | 0.138 | 0.001 |
| Bruneau | 0.143 | 0.076 | 0.100 | 0.049 |  | 0.161 | 0.089 | 0.133 | 0.015 |
| UI Sparrow | 0.176 | 0.033 | 0.075 | 0.003 |  | 0.151 | 0.060 | 0.099 | 0.004 |
| Bobtail | 0.140 | 0.057 | 0.100 | 0.017 |  | 0.149 | 0.047 | 0.068 | 0.222 |
| UI Magic CL+ | 0.145 | 0.083 | 0.099 | 0.042 |  | 0.141 | 0.054 | 0.090 | 0.005 |
| LWW 15-72234\* | 0.165 | 0.069 | 0.124 | <0.001 |  | 0.159 | 0.123 | 0.134 | 0.332 |
| UI WSU Huffman | 0.136 | 0.071 | 0.088 | 0.153 |  | 0.128 | 0.048 | 0.080 | 0.001 |
| SY Ovation | 0.157 | 0.099 | 0.118 | 0.087 |  | 0.115 | 0.094 | 0.107 | 0.891 |
| 10-08606A\* | 0.149 | 0.066 | 0.098 | <0.001 |  | 0.119 | 0.038 | 0.079 | <0.001 |
| Brundage 96 | 0.155 | 0.105 | 0.109 | 0.652 |  | 0.164 | 0.125 | 0.144 | 0.145 |
| LWW 15-72458\* | 0.151 | 0.096 | 0.126 | <0.001 |  | 0.156 | 0.113 | 0.096 | 0.344 |
| 07-28017B\* | 0.153 | 0.110 | 0.126 | 0.080 |  | 0.114 | 0.079 | 0.089 | 0.236 |
| LCS Artdeco | 0.140 | 0.071 | 0.097 | 0.002 |  | 0.112 | 0.058 | 0.075 | 0.091 |
| LWW 15-72138\* | 0.169 | 0.103 | 0.121 | 0.063 |  | 0.127 | 0.089 | 0.101 | 0.183 |
| 10-20604A\* | 0.162 | 0.097 | 0.112 | 0.202 |  | 0.145 | 0.108 | 0.140 | 0.005 |
| 09-15702A\* | 0.164 | 0.087 | 0.107 | 0.051 |  | 0.136 | 0.103 | 0.127 | 0.181 |
| UI Castle CL+ | 0.149 | 0.109 | 0.119 | 0.239 |  | 0.110 | 0.090 | 0.117 | 0.025 |
| UI Palouse CL+ | 0.140 | 0.109 | 0.123 | 0.119 |  | 0.113 | 0.094 | 0.116 | 0.117 |

D, Dimethenamid-P; DS, Dimethenamid-P + fluxofenim treated seeds.

\*Advanced breeding lines.

ap-value indicates pairwise comparison of mean biomass plant-1 between dimethenamid-P only treatment and dimethenamid-P with fluxofenim treated seeds (α = 0.05).

**Table S3.** Estimated mean biomass of 0.5 g ai kg-1 fluxofenim-treated and untreated wheat varieties to 118 g ha-1 pyroxasulfone herbicide 21 DAT for two experimental runs.a

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety | Run 1 | | | | | Run 2 | | | |
| Treatment | | | | | | | | |
| Untreated  control | P | PS | P vs PS |  | Untreated  control | P | PS | P vs PS |
|  | g plant-1 | | | p-value |  | g plant-1 | | | p-value |
| LWW 15-72223\* | 0.153 | 0.118 | 0.139 | 0.096 |  | 0.141 | 0.107 | 0.114 | 0.647 |
| LWW 14-75044\* | 0.159 | 0.131 | 0.122 | 0.498 |  | 0.152 | 0.114 | 0.149 | 0.059 |
| Bruneau | 0.143 | 0.127 | 0.141 | 0.204 |  | 0.161 | 0.108 | 0.132 | 0.158 |
| UI Sparrow | 0.176 | 0.123 | 0.144 | 0.108 |  | 0.151 | 0.108 | 0.174 | <0.001 |
| Bobtail | 0.140 | 0.110 | 0.126 | 0.351 |  | 0.149 | 0.126 | 0.141 | 0.377 |
| UI Magic CL+ | 0.145 | 0.110 | 0.125 | 0.051 |  | 0.141 | 0.106 | 0.110 | 0.747 |
| LWW 15-72234\* | 0.165 | 0.106 | 0.141 | 0.006 |  | 0.159 | 0.120 | 0.131 | 0.302 |
| UI WSU Huffman | 0.136 | 0.115 | 0.122 | 0.518 |  | 0.128 | 0.092 | 0.089 | 0.734 |
| SY Ovation | 0.157 | 0.122 | 0.135 | 0.249 |  | 0.115 | 0.110 | 0.103 | 0.607 |
| 10-08606A\* | 0.149 | 0.119 | 0.124 | 0.581 |  | 0.119 | 0.099 | 0.103 | 0.631 |
| Brundage 96 | 0.155 | 0.134 | 0.132 | 0.867 |  | 0.164 | 0.135 | 0.164 | 0.037 |
| LWW 15-72458\* | 0.151 | 0.136 | 0.155 | 0.019 |  | 0.156 | 0.120 | 0.161 | 0.027 |
| 07-28017B\* | 0.153 | 0.115 | 0.120 | 0.594 |  | 0.114 | 0.111 | 0.116 | 0.548 |
| LCS Artdeco | 0.140 | 0.109 | 0.113 | 0.557 |  | 0.112 | 0.080 | 0.091 | 0.259 |
| LWW 15-72138\* | 0.169 | 0.126 | 0.146 | 0.040 |  | 0.127 | 0.096 | 0.103 | 0.385 |
| 10-20604A\* | 0.162 | 0.111 | 0.119 | 0.477 |  | 0.145 | 0.090 | 0.122 | 0.005 |
| 09-15702A\* | 0.164 | 0.109 | 0.114 | 0.578 |  | 0.136 | 0.108 | 0.133 | 0.152 |
| UI Castle CL+ | 0.149 | 0.131 | 0.128 | 0.700 |  | 0.110 | 0.115 | 0.119 | 0.739 |
| UI Palouse CL+ | 0.140 | 0.116 | 0.120 | 0.626 |  | 0.113 | 0.113 | 0.129 | 0.268 |

P, Pyroxasulfone; PS, Pyroxasulfone + fluxofenim treated seeds.

\*Advanced breeding lines.

ap-value indicates pairwise comparison of mean biomass plant-1 between pyroxasulfone only treatment and pyroxasulfone with fluxofenim treated seeds (α = 0.05).