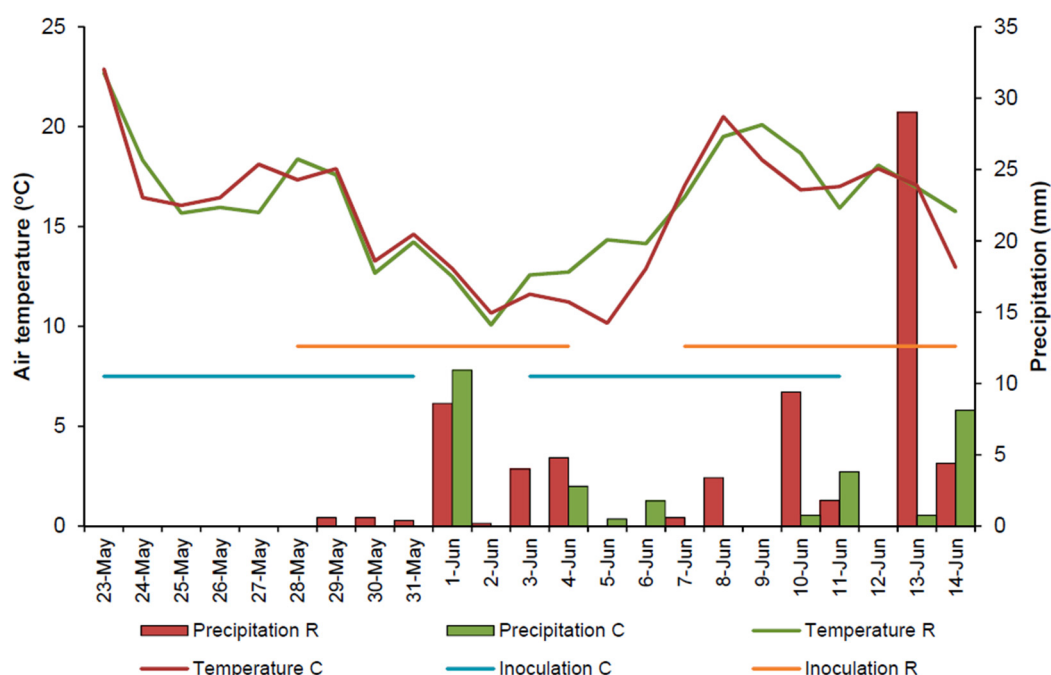


# Supplementary Materials: Higher *Fusarium* Toxins Accumulation in Grain of Winter Triticale Lines Inoculated with *Fusarium culmorum* as Compared with Wheat

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**Figure S1.** Daily air temperature and sum of precipitation in Cerekwica (C) and Radzików (R) during *Fusarium* inoculation of triticale and wheat heads.

**Table S1.** Flowering periods of winter triticale and winter wheat in 2012 in two experimental locations.

| Location  | Triticale     | Wheat         |
|-----------|---------------|---------------|
| Cerekwica | 23–30 May     | 3 May–11 June |
| Radzików  | 28 May–4 June | 7–14 June     |

**Table S2.** Average daily air temperature and sum of precipitation in Cerekwica and Radzików from triticale and wheat flowering until the end of harvest in 2012.

| Days/month  | Cerekwica        |                    | Radzików         |                    |
|-------------|------------------|--------------------|------------------|--------------------|
|             | Temperature (°C) | Precipitation (mm) | Temperature (°C) | Precipitation (mm) |
| 22–31 May   | 17.0             | 0                  | 16.8             | 1.6                |
| 1–30 June   | 16.6             | 112.3              | 17.4             | 92.6               |
| 1–31 July   | 19.8             | 152.1              | 21.0             | 79.6               |
| 1–15 August | 18.5             | 26.7               | 18.8             | 38.8               |

**Table S3.** Resistance to *Fusarium* head blight and mycotoxin accumulation in grain of 29 lines and three cultivars of winter triticale inoculated with *Fusarium culmorum* isolates in the field experiments in Radzików and Cerekwica. FHB: *Fusarium* head blight; FDK: *Fusarium* damaged kernels; DON: deoxynivalenol; 3AcDON: 3-acetyldeoxynivalenol; 15AcDON: 15-acetyldeoxynivalenol; NIV: nivalenol; TCT B: type B trichothecenes; ZEN: zearalenone.

| No.                       | Line/Cultivar          | FHB Index (%) | FDK (%)     | DON (mg/kg)  | 3AcDON (mg/kg) | 15AcDON (mg/kg) | NIV (mg/kg) | TCT B <sup>b</sup> (mg/kg) | ZEN (mg/kg) |
|---------------------------|------------------------|---------------|-------------|--------------|----------------|-----------------|-------------|----------------------------|-------------|
| 1                         | DL 446/08 <sup>a</sup> | 9.7           | 20.2        | 14.04        | 1.18           | 2.01            | 2.80        | 20.02                      | 0.52        |
| 2                         | DS.9                   | 11.1          | 29.2        | 14.76        | 1.64           | 2.44            | 2.16        | 21.00                      | 0.36        |
| 3                         | DD 436/07              | 11.8          | 43.7        | 14.91        | 1.87           | 2.04            | 7.80        | 26.62                      | 0.77        |
| 4                         | Borwo cv.              | 12.1          | 49.4        | 15.22        | 2.37           | 1.55            | 10.17       | 29.31                      | 1.23        |
| 5                         | BOHD 826-3             | 12.3          | 45.6        | 6.25         | 0.77           | 1.03            | 6.97        | 15.02                      | 0.43        |
| 6                         | BOHD 898-1             | 12.9          | 33.9        | 5.88         | 0.62           | 0.86            | 6.06        | 13.42                      | 0.39        |
| 7                         | MAH 31011-2            | 14.5          | 33.8        | 6.14         | 0.58           | 0.64            | 5.23        | 12.59                      | 0.28        |
| 8                         | LD 121/08              | 14.5          | 31.0        | 11.45        | 1.49           | 1.82            | 7.89        | 22.65                      | 0.41        |
| 9                         | DS 1238                | 14.7          | 38.3        | 15.09        | 1.61           | 2.10            | 2.90        | 21.69                      | 0.58        |
| 10                        | DD 466/07              | 14.8          | 47.2        | 12.20        | 1.78           | 1.87            | 6.86        | 22.70                      | 1.61        |
| 11                        | BOHD 1049-1            | 15.1          | 43.8        | 9.69         | 1.17           | 1.61            | 5.79        | 18.26                      | 0.60        |
| 12                        | MAH 33097-1            | 15.5          | 40.9        | 9.62         | 1.22           | 1.38            | 8.81        | 21.03                      | 0.53        |
| 13                        | Mikado cv.             | 16.9          | 34.7        | 13.67        | 1.16           | 1.13            | 5.14        | 21.09                      | 0.46        |
| 14                        | DAST 27/10             | 17.3          | 33.9        | 15.16        | 1.76           | 1.60            | 2.90        | 21.41                      | 0.41        |
| 15                        | BOH 623-1              | 18.2          | 39.0        | 14.98        | 2.42           | 2.24            | 3.53        | 23.17                      | 0.34        |
| 16                        | BOHD 1190-1            | 18.9          | 41.2        | 9.54         | 1.03           | 1.32            | 7.73        | 19.62                      | 0.80        |
| 17                        | DC 06080-56            | 19.0          | 39.0        | 17.72        | 2.51           | 2.48            | 4.19        | 26.90                      | 0.66        |
| 18                        | BOH 537-2              | 19.8          | 34.7        | 13.40        | 1.78           | 1.88            | 4.36        | 21.42                      | 0.55        |
| 19                        | CM 9/10                | 20.0          | 51.9        | 16.88        | 2.02           | 2.36            | 5.94        | 27.20                      | 1.20        |
| 20                        | MAH 33544-3            | 21.7          | 40.0        | 15.99        | 2.32           | 2.43            | 3.06        | 23.81                      | 0.59        |
| 21                        | DL 593/07              | 21.7          | 40.8        | 16.42        | 1.90           | 2.61            | 3.54        | 24.46                      | 0.34        |
| 22                        | MAH 32247-1            | 21.8          | 38.9        | 15.75        | 1.78           | 2.19            | 4.86        | 24.58                      | 0.70        |
| 23                        | DC 03326/06/2          | 21.9          | 39.4        | 15.31        | 2.24           | 1.93            | 3.03        | 22.51                      | 0.86        |
| 24                        | MAH 31938-4            | 22.7          | 43.7        | 10.52        | 1.61           | 1.59            | 6.56        | 20.28                      | 0.48        |
| 25                        | MAH 33405-1            | 22.8          | 48.6        | 15.55        | 2.26           | 2.23            | 7.10        | 27.13                      | 0.87        |
| 26                        | DC 04294/04/1          | 23.4          | 50.2        | 25.87        | 2.88           | 2.96            | 3.89        | 35.60                      | 0.98        |
| 27                        | DS 1260                | 24.3          | 38.5        | 15.17        | 2.17           | 1.87            | 3.19        | 22.40                      | 0.60        |
| 28                        | DC 04294/04/2          | 25.3          | 43.7        | 22.40        | 2.62           | 3.14            | 2.85        | 31.01                      | 0.95        |
| 29                        | MAH 33881-1/3          | 26.3          | 42.8        | 23.13        | 3.40           | 3.25            | 4.79        | 34.57                      | 0.57        |
| 30                        | BOHD 1233-2            | 27.8          | 54.7        | 14.16        | 1.93           | 2.13            | 8.69        | 26.91                      | 0.70        |
| 31                        | MAH 33767-3            | 30.6          | 33.4        | 9.92         | 2.22           | 0.98            | 4.32        | 17.44                      | 1.06        |
| 32                        | Fredro cv.             | 36.0          | 41.7        | 14.95        | 1.78           | 1.60            | 2.88        | 21.20                      | 0.36        |
| <b>Mean</b>               |                        | <b>19.2</b>   | <b>40.2</b> | <b>14.12</b> | <b>1.82</b>    | <b>1.91</b>     | <b>5.19</b> | <b>23.03</b>               | <b>0.66</b> |
| <b>LSD<sub>0.05</sub></b> |                        | <b>13.0</b>   | <b>15.2</b> | <b>9.92</b>  | <b>1.60</b>    | <b>1.71</b>     | <b>6.10</b> | <b>10.02</b>               | <b>0.62</b> |

<sup>a</sup> Lines ordered according to FHB index; <sup>b</sup> sum of DON, 3AcDON, 15AcDON, and NIV.

**Table S4.** Resistance to *Fusarium* head blight and mycotoxin accumulation in grain of 32 lines and two cultivars of winter wheat inoculated with *Fusarium culmorum* isolates in the field experiments in Radzików and Cerekwica. FHB: *Fusarium* head blight; FDK: *Fusarium* damaged kernels; DON: deoxynivalenol; 3AcDON: 3-acetyldeoxynivalenol; 15AcDON: 15-acetyldeoxynivalenol; NIV: nivalenol; TCT B: type B trichothecenes; ZEN: zearalenone.

| No.                       | Line/Cultivar         | FHB Index (%) | FDK (%)     | DON (mg/kg)  | 3AcDON (mg/kg) | 15AcDON (mg/kg) | NIV (mg/kg) | TCT B <sup>b</sup> (mg/kg) | ZEN (mg/kg) |
|---------------------------|-----------------------|---------------|-------------|--------------|----------------|-----------------|-------------|----------------------------|-------------|
| 1                         | STH 9059 <sup>a</sup> | 17.4          | 34.4        | 6.95         | 0.85           | 0.72            | 2.86        | 11.37                      | 0.37        |
| 2                         | AND 340/06-1          | 18.4          | 61.3        | 9.07         | 1.42           | 1.27            | 3.61        | 15.37                      | 0.40        |
| 3                         | POB 0111              | 19.5          | 50.5        | 10.19        | 1.62           | 1.55            | 3.25        | 16.60                      | 0.25        |
| 4                         | POB 262/07            | 20.2          | 50.1        | 6.57         | 1.18           | 0.81            | 5.01        | 13.57                      | 0.85        |
| 5                         | KBP 10 40             | 21.1          | 45.4        | 8.67         | 1.19           | 1.35            | 3.17        | 14.38                      | 0.23        |
| 6                         | NAD 06133             | 21.4          | 44.3        | 10.43        | 1.72           | 1.45            | 3.03        | 16.63                      | 0.46        |
| 7                         | POB 0911              | 21.7          | 42.0        | 13.57        | 1.14           | 2.04            | 3.99        | 20.74                      | 0.42        |
| 8                         | SMH 8670              | 22.8          | 56.2        | 11.66        | 1.76           | 1.42            | 4.02        | 18.85                      | 0.33        |
| 9                         | POB 0211              | 23.0          | 55.0        | 14.05        | 2.59           | 2.13            | 1.88        | 20.64                      | 0.21        |
| 10                        | AND 4015/09           | 24.1          | 60.1        | 8.80         | 1.64           | 0.95            | 4.27        | 15.65                      | 0.54        |
| 11                        | DCh 4763/07           | 25.9          | 55.2        | 10.70        | 1.75           | 1.05            | 5.20        | 18.70                      | 0.93        |
| 12                        | DM 2728/09            | 26.0          | 44.9        | 12.26        | 2.89           | 1.89            | 6.60        | 23.64                      | 0.32        |
| 13                        | NAD 08161             | 26.3          | 51.0        | 10.27        | 1.56           | 1.34            | 3.69        | 16.85                      | 0.46        |
| 14                        | POB 457/07            | 26.4          | 58.6        | 7.21         | 0.96           | 0.93            | 3.39        | 12.48                      | 0.30        |
| 15                        | STH 102               | 26.8          | 66.1        | 13.94        | 1.58           | 1.63            | 3.28        | 20.42                      | 0.23        |
| 16                        | DL 528/08             | 26.8          | 44.2        | 12.06        | 2.16           | 1.30            | 3.37        | 18.88                      | 0.55        |
| 17                        | POB 1011              | 27.2          | 58.1        | 15.41        | 2.58           | 2.00            | 3.82        | 23.82                      | 0.29        |
| 18                        | KBP 08 20             | 27.5          | 45.3        | 9.17         | 1.33           | 0.89            | 4.66        | 16.05                      | 0.55        |
| 19                        | STH 0290              | 27.9          | 58.8        | 8.70         | 1.91           | 0.97            | 4.10        | 15.67                      | 1.10        |
| 20                        | SMH 8671              | 28.0          | 56.9        | 12.43        | 2.38           | 1.62            | 4.32        | 20.75                      | 0.44        |
| 21                        | DM 3313/09            | 28.1          | 52.5        | 6.80         | 1.13           | 1.03            | 3.10        | 12.06                      | 0.89        |
| 22                        | DC 704/08-4           | 28.2          | 64.6        | 13.62        | 2.68           | 1.81            | 6.26        | 24.37                      | 0.56        |
| 23                        | DD 343/07             | 28.3          | 62.3        | 9.51         | 1.53           | 1.18            | 5.02        | 17.23                      | 1.17        |
| 24                        | STH 087               | 29.2          | 47.8        | 10.64        | 2.08           | 1.52            | 2.51        | 16.76                      | 1.20        |
| 25                        | KBP 10 2              | 29.3          | 57.7        | 11.58        | 2.28           | 1.40            | 2.95        | 18.21                      | 0.51        |
| 26                        | Tonacja cv.           | 29.6          | 58.0        | 14.91        | 2.69           | 1.73            | 4.38        | 23.71                      | 0.48        |
| 27                        | NAD 06130             | 30.3          | 63.3        | 14.90        | 2.61           | 2.26            | 2.62        | 22.39                      | 0.48        |
| 28                        | HRSM 789              | 31.7          | 69.6        | 19.68        | 3.39           | 2.24            | 10.07       | 35.39                      | 1.65        |
| 29                        | STH 104               | 32.2          | 53.0        | 12.87        | 2.50           | 1.66            | 2.53        | 19.55                      | 0.57        |
| 30                        | KBP 09 22             | 33.5          | 69.2        | 10.97        | 2.09           | 1.37            | 3.75        | 18.18                      | 0.58        |
| 31                        | KWS Ozon cv.          | 35.0          | 61.0        | 14.35        | 2.40           | 1.70            | 3.94        | 22.39                      | 0.52        |
| 32                        | DD 414/07-4           | 39.2          | 62.1        | 14.64        | 2.90           | 1.74            | 3.89        | 23.17                      | 1.41        |
| 33                        | DC 44/08-4 (S)        | 47.8          | 65.2        | 12.01        | 2.16           | 1.29            | 5.72        | 21.18                      | 0.88        |
| 34                        | KBP 09 20 (S)         | 50.1          | 67.1        | 17.51        | 3.31           | 1.83            | 6.08        | 28.72                      | 0.42        |
| <b>Mean</b>               |                       | <b>28.0</b>   | <b>55.6</b> | <b>11.65</b> | <b>2.00</b>    | <b>1.47</b>     | <b>4.13</b> | <b>19.25</b>               | <b>0.60</b> |
| <b>LSD<sub>0.05</sub></b> |                       | <b>19.6</b>   | <b>13.9</b> | <b>7.88</b>  | <b>1.50</b>    | <b>1.11</b>     | <b>4.09</b> | <b>9.43</b>                | <b>0.90</b> |

<sup>a</sup> Lines ordered according to FHB index; <sup>b</sup> sum of DON, 3AcDON, 15AcDON, and NIV.