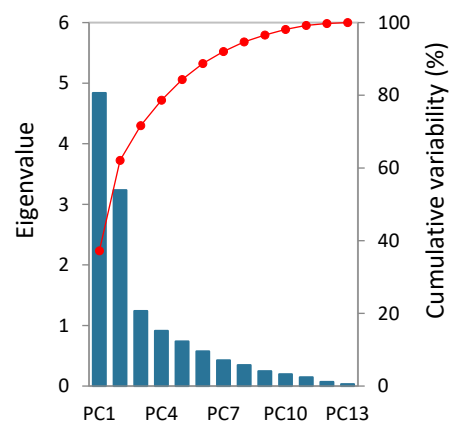
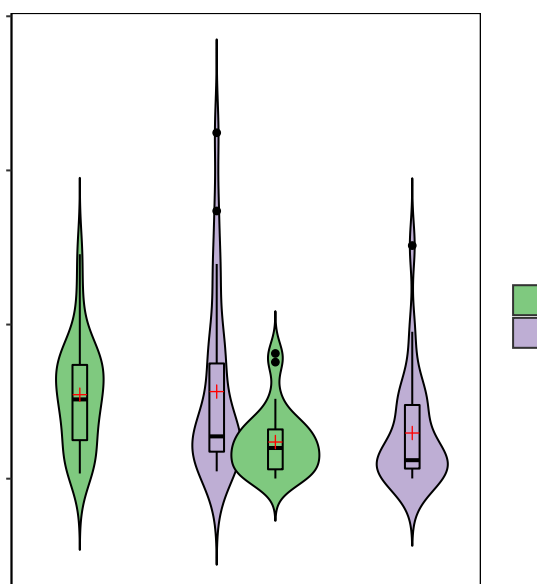


## Supplementary Materials



**Figure S1.** The scree plot for the eigenvalues of factors arranged in descending order of magnitude with explained cumulative variability.



**Figure S2.** Violin plot of initial and general resistance to Fusarium infection (AUDPC-In and AUDPC-Gen) of tested winter wheat cultivars grown at two distinct locations (OS – Osijek and TOV – Tovarnik). Box plots represent the interquartile range with a mean (+) and median (–), whiskers show  $1.5 \times \text{IQR}$ , and dots outliers. The shape of the violin display frequencies of values. The broader distribution illustrates a higher frequency of data points at those values.

**Table S1:** Spearman correlation matrix of technical and rheological properties for uninfected and infected winter wheat cultivars (n = 50) grown at two locations (OS and TOV). The display option used is blue-red and presents a negative correlation with cold colors (blue for correlations close to -1) and positive correlations with warm colors (red for correlations close to 1). Values in bold differ from 0 with a significance level  $\alpha = 0.05$ ; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Variables	CP	SV	WG	PA	FN	WA	DS	DoS	FQN	E	RtE	Ext	AUDPC Inic	AUDPC Gen
CP	<b>1</b>	<b>0.62***</b>	<b>0.72***</b>	<b>-0.54***</b>	0.02	<b>0.48***</b>	<b>0.31*</b>	<b>-0.54***</b>	<b>0.50***</b>	0.05	-0.08	0.11	0.22	0.12
SV	<b>0.62***</b>	<b>1</b>	<b>0.60***</b>	<b>-0.74***</b>	0.06	<b>0.30*</b>	0.24	<b>-0.66***</b>	<b>0.57***</b>	0.27	0.19	0.24	0.08	-0.02
WG	<b>0.72***</b>	<b>0.60***</b>	<b>1</b>	<b>-0.52***</b>	-0.01	<b>0.32*</b>	<b>0.31*</b>	<b>-0.47**</b>	<b>0.43**</b>	0.08	-0.04	0.05	0.24	0.12
PA	<b>-0.54***</b>	<b>-0.74***</b>	<b>-0.52***</b>	<b>1</b>	-0.14	<b>-0.35*</b>	-0.05	<b>0.73***</b>	<b>-0.55***</b>	<b>-0.51***</b>	<b>-0.46**</b>	<b>-0.38**</b>	0.16	0.22
FN	0.02	0.06	-0.01	-0.14	<b>1</b>	0.11	-0.05	-0.26	0.20	0.10	0.08	0.09	-0.09	-0.14
WA	<b>0.48***</b>	<b>0.30*</b>	<b>0.32*</b>	<b>-0.35*</b>	0.11	<b>1</b>	0.16	-0.26	<b>0.43**</b>	0.09	-0.09	0.21	-0.06	-0.10
DS	<b>0.31*</b>	0.24	<b>0.31*</b>	-0.05	-0.05	0.16	<b>1</b>	-0.16	<b>0.41**</b>	-0.13	-0.15	0.11	0.16	0.09
DoS	<b>-0.54***</b>	<b>-0.66***</b>	<b>-0.47**</b>	<b>0.73***</b>	-0.26	-0.26	-0.16	<b>1</b>	<b>-0.71***</b>	<b>-0.34*</b>	<b>-0.35*</b>	<b>-0.45**</b>	0.22	<b>0.29*</b>
FQN	<b>0.50***</b>	<b>0.57***</b>	<b>0.43**</b>	<b>-0.55***</b>	0.20	<b>0.43**</b>	<b>0.41**</b>	<b>-0.71***</b>	<b>1</b>	0.21	0.13	<b>0.29*</b>	-0.04	-0.12
E	0.05	0.27	0.08	<b>-0.51***</b>	0.10	0.09	-0.13	<b>-0.34*</b>	0.21	<b>1</b>	<b>0.89***</b>	<b>0.54***</b>	<b>-0.37**</b>	<b>-0.40**</b>
RtE	-0.08	0.19	-0.04	<b>-0.46**</b>	0.08	-0.09	-0.15	<b>-0.35*</b>	0.13	<b>0.89***</b>	<b>1</b>	<b>0.63***</b>	<b>-0.48***</b>	<b>-0.48***</b>
Ext	0.11	0.24	0.05	<b>-0.38**</b>	0.09	0.21	0.11	<b>-0.45**</b>	<b>0.29*</b>	<b>0.54***</b>	<b>0.63***</b>	<b>1</b>	<b>-0.48***</b>	<b>-0.53***</b>
AUDPC Inic	0.22	0.08	0.24	0.16	-0.09	-0.06	0.16	0.22	-0.04	<b>-0.37**</b>	<b>-0.48***</b>	<b>-0.48***</b>	<b>1</b>	<b>0.96***</b>
AUDPC Gen	0.12	-0.02	0.12	0.22	-0.14	-0.10	0.09	<b>0.29*</b>	-0.12	<b>-0.40**</b>	<b>-0.48***</b>	<b>-0.53***</b>	<b>0.96***</b>	<b>1</b>

**Table S2:** Eigenvalues and the proportion of explained variation by the principal components.

	PC1	PC2	PC3	PC4	PC5
Eigenvalue	4.839	3.235	1.239	0.913	0.737
Variability (%)	37.225	24.883	9.533	7.020	5.667
Cumulative %	37.225	62.107	71.640	78.660	84.327

**Table S3:** Correlations between variables and factors in principal component analysis before and after varimax rotation.

	No rotation		Varimax rotation	
	PC1	PC2	PC1	PC2
CP	<b>-0.632</b>	0.587	<b>0.852</b>	0.135
SV	<b>-0.767</b>	0.345	<b>0.829</b>	-0.142
WG	<b>-0.583</b>	0.558	<b>0.796</b>	0.138
PA	<b>0.862</b>	-0.049	<b>-0.743</b>	0.441
WA	-0.469	0.253	<b>0.530</b>	-0.051
DS	-0.247	0.410	<b>0.434</b>	0.203
DoS	<b>0.850</b>	-0.067	<b>-0.743</b>	0.418
FQN	<b>-0.733</b>	0.280	<b>0.764</b>	-0.177
E	<b>-0.583</b>	-0.539	0.183	<b>-0.773</b>
RtE	-0.525	<b>-0.679</b>	0.057	<b>-0.857</b>
Ext	<b>-0.608</b>	-0.484	0.235	<b>-0.741</b>
AUDPC Inic	0.295	<b>0.789</b>	0.195	<b>0.819</b>
AUDPC Gen	0.393	<b>0.730</b>	0.081	<b>0.825</b>

**Table S4:** PCA of genotypes characteristics factor scores and contribution to the main components after Varimax rotation. Values in bold correspond for each observation to the component for which the squared cosine is the largest (data not shown) to avoid interpretation errors due to projection effects (for example, when the squared cosines associated with the axes used on a chart are low, the position of the observation in question cannot be interpreted). Yellow to green color scale is used to visualize contribution (green high, yellow low).

Genotype	Osijek				Tovarnik			
	Factor scores		% contribution		Factor scores		% contribution	
	PC1	PC2	PC1	PC2	PC1	PC2	PC1	PC2
1	1.351	-1.057	<b>3.240</b>	1.941	-0.140	0.299	0.017	<b>0.076</b>
2	0.851	-1.807	1.008	<b>4.453</b>	-0.485	-1.730	0.530	<b>6.601</b>
3	1.670	0.362	<b>5.237</b>	0.240	-0.587	0.536	<b>0.376</b>	0.306
4	1.752	-0.786	<b>6.360</b>	1.253	-0.048	-0.723	0.004	<b>0.897</b>
5	0.345	-0.548	0.120	<b>0.297</b>	-1.034	0.098	<b>3.092</b>	0.027
6	0.746	0.535	<b>0.671</b>	0.338	-1.656	0.626	<b>4.357</b>	0.610
7	1.119	0.616	<b>2.923</b>	0.867	-0.595	1.475	0.391	<b>2.350</b>
8	0.446	1.176	0.562	<b>3.826</b>	-0.788	1.771	1.455	<b>7.180</b>
9	0.099	-1.410	0.031	<b>6.235</b>	-0.725	-0.019	<b>0.668</b>	0.000
10	0.823	-1.747	1.579	<b>6.971</b>	-0.241	0.044	<b>0.084</b>	0.003
11	1.077	0.427	<b>3.122</b>	0.481	-0.167	0.864	0.089	<b>2.335</b>
12	0.229	-1.527	0.099	<b>4.326</b>	-0.726	-1.362	1.968	<b>6.771</b>
13	1.173	0.740	<b>3.616</b>	1.408	-0.188	0.892	0.108	<b>2.368</b>
14	0.559	1.429	0.449	<b>2.867</b>	-0.979	0.972	<b>1.227</b>	1.184
15	0.594	-1.323	0.779	<b>3.782</b>	-0.391	-1.815	0.262	<b>5.518</b>
16	1.084	1.542	1.752	<b>3.472</b>	-1.263	0.695	<b>1.974</b>	0.585
17	0.462	-1.561	0.402	<b>4.484</b>	-1.724	-0.659	<b>3.585</b>	0.513
18	1.145	-0.003	<b>4.041</b>	0.000	-1.255	0.153	<b>2.931</b>	0.042
19	1.087	0.499	<b>3.511</b>	0.725	-0.759	0.262	<b>1.115</b>	0.130
20	1.099	0.808	<b>3.654</b>	1.932	-1.149	-0.565	<b>3.212</b>	0.761
21	1.469	1.230	<b>3.383</b>	2.322	-0.631	1.056	0.888	<b>2.438</b>
22	1.038	-0.614	<b>3.605</b>	1.234	-1.072	-0.320	<b>2.908</b>	0.253
23	0.711	-0.059	<b>0.708</b>	0.005	-1.825	-0.874	<b>5.812</b>	1.304
24	-0.022	1.450	0.001	<b>3.611</b>	-1.928	0.331	<b>7.946</b>	0.229
25	0.785	0.106	<b>0.832</b>	0.015	-1.333	-0.487	<b>3.317</b>	0.434