Supplementary Table S1. Posthoc analysis of biomass (t/ha) for the experimentation years 20017-2023. Each line corresponds to a pairwise comparison. The asterisk corresponds to p-values<0.05, the dot to 0.05<p-values<0.10 and NS stands for non-significant (p-values>0.10).

group1	group2	statistic	unadjusted p-value	unadjusted p-value result	fdr-adjusted p-value	fdr-adjusted p-value result
			2020			
BLB	CRM	1.454	0.146	NS	0.292	NS
BLB	CS	1.757	0.079	.	0.193	NS
BLB	F17	0.683	0.495	NS	0.778	NS
BLB	F32	0.632	0.527	NS	0.786	NS
BLB	F75	1.656	0.098	.	0.215	NS
BLB	FRM	0.581	0.561	NS	0.800	NS
BLB	KCD	1.036	0.300	NS	0.550	NS
BLB	S27	0.114	0.909	NS	0.960	NS
BLB	S70	2.098	0.036	*	0.116	NS
BLB	TGR	0.834	0.404	NS	0.702	NS
BLB	U31	0.910	0.363	NS	0.647	NS
CRM	CS	0.303	0.762	NS	0.931	NS
CRM	F17	2.136	0.033	*	0.113	NS
CRM	F32	2.086	0.037	*	0.116	NS
CRM	F75	0.202	0.840	NS	0.939	NS
CRM	FRM	2.035	0.042	*	0.126	NS
CRM	KCD	0.417	0.677	NS	0.876	NS
CRM	S27	1.567	0.117	NS	0.241	NS
CRM	S70	0.645	0.519	NS	0.786	NS
CRM	TGR	2.288	0.022	*	0.091	.
CRM	U31	2.364	0.018	*	0.091	.
CS	F17	2.439	0.015	*	0.091	.
CS	F32	2.389	0.017	*	0.091	.
CS	F75	0.101	0.919	NS	0.960	NS
CS	FRM	2.338	0.019	*	0.091	.
CS	KCD	0.720	0.471	NS	0.759	NS
CS	S27	1.871	0.061	.	0.162	NS
CS	S70	0.341	0.733	NS	0.925	NS
CS	TGR	2.591	0.010	*	0.085	.
CS	U31	2.667	0.008	*	0.084	.
F17	F32	0.051	0.960	NS	0.960	NS
F17	F75	2.338	0.019	*	0.091	.
F17	FRM	0.101	0.919	NS	0.960	NS
F17	KCD	1.719	0.086	.	0.202	NS
F17	S27	0.569	0.570	NS	0.800	NS
F17	S70	2.781	0.005	*	0.084	.

F17	TGR	0.152	0.879	NS	0.960	NS
F17	U31	0.228	0.820	NS	0.939	NS
F32	F75	2.288	0.022	*	0.091	.
F32	FRM	0.051	0.960	NS	0.960	NS
F32	KCD	1.668	0.095	.	0.215	NS
F32	S27	0.518	0.604	NS	0.831	NS
F32	S70	2.730	0.006	*	0.084	.
F32	TGR	0.202	0.840	NS	0.939	NS
F32	U31	0.278	0.781	NS	0.937	NS
F75	FRM	2.237	0.025	*	0.098	.
F75	KCD	0.619	0.536	NS	0.786	NS
F75	S27	1.770	0.077	.	0.193	NS
F75	S70	0.442	0.658	NS	0.869	NS
F75	TGR	2.490	0.013	*	0.091	.
F75	U31	2.566	0.010	*	0.085	.
FRM	KCD	1.618	0.106	NS	0.225	NS
FRM	S27	0.468	0.640	NS	0.862	NS
FRM	S70	2.680	0.007	*	0.084	.
FRM	TGR	0.253	0.800	NS	0.939	NS
FRM	U31	0.329	0.742	NS	0.925	NS
KCD	S27	1.150	0.250	NS	0.485	NS
KCD	S70	1.062	0.288	NS	0.544	NS
KCD	TGR	1.871	0.061	.	0.162	NS
KCD	U31	1.946	0.052	.	0.148	NS
S27	S70	2.212	0.027	*	0.099	.
S27	TGR	0.720	0.471	NS	0.759	NS
S27	U31	0.796	0.426	NS	0.721	NS
S70	TGR	2.932	0.003	*	0.084	.
S70	U31	3.008	0.003	*	0.084	.
TGR	U31	0.076	0.940	NS	0.960	NS
			2022			
BLB	CS	1.163	0.245	NS	0.555	NS
BLB	F17	1.105	0.269	NS	0.555	NS
BLB	F32	0.039	0.969	NS	0.984	NS
BLB	F75	0.872	0.383	NS	0.617	NS
BLB	FRM	0.911	0.362	NS	0.617	NS
BLB	KCD	1.376	0.169	NS	0.484	NS
BLB	KMP	1.919	0.055	.	0.279	NS
BLB	S27	0.543	0.587	NS	0.791	NS
BLB	TBR	2.675	0.007	*	0.111	NS
BLB	TGR	0.911	0.362	NS	0.617	NS
BLB	U31	0.233	0.816	NS	0.883	NS
CS	F17	2.268	0.023	*	0.220	NS
CS	F32	1.124	0.261	NS	0.555	NS
CS	F75	0.291	0.771	NS	0.881	NS

CS	FRM	0.252	0.801	NS	0.881	NS
CS	KCD	0.213	0.831	NS	0.885	NS
CS	KMP	0.756	0.450	NS	0.645	NS
CS	S27	0.620	0.535	NS	0.751	NS
CS	TBR	1.512	0.131	NS	0.431	NS
CS	TGR	0.252	0.801	NS	0.881	NS
CS	U31	1.395	0.163	NS	0.484	NS
F17	F32	1.143	0.253	NS	0.555	NS
F17	F75	1.977	0.048	*	0.264	NS
F17	FRM	2.016	0.044	*	0.263	NS
F17	KCD	2.481	0.013	*	0.144	NS
F17	KMP	3.023	0.002	*	0.080	.
F17	S27	1.647	0.099	.	0.365	NS
F17	TBR	3.779	0.000	*	0.010	*
F17	TGR	2.016	0.044	*	0.263	NS
F17	U31	0.872	0.383	NS	0.617	NS
F32	F75	0.833	0.405	NS	0.621	NS
F32	FRM	0.872	0.383	NS	0.617	NS
F32	KCD	1.337	0.181	NS	0.498	NS
F32	KMP	1.880	0.060	.	0.283	NS
F32	S27	0.504	0.614	NS	0.795	NS
F32	TBR	2.636	0.008	*	0.111	NS
F32	TGR	0.872	0.383	NS	0.617	NS
F32	U31	0.271	0.786	NS	0.881	NS
F75	FRM	0.039	0.969	NS	0.984	NS
F75	KCD	0.504	0.614	NS	0.795	NS
F75	KMP	1.047	0.295	NS	0.591	NS
F75	S27	0.329	0.742	NS	0.874	NS
F75	TBR	1.802	0.071	.	0.302	NS
F75	TGR	0.039	0.969	NS	0.984	NS
F75	U31	1.105	0.269	NS	0.555	NS
FRM	KCD	0.465	0.642	NS	0.799	NS
FRM	KMP	1.008	0.314	NS	0.591	NS
FRM	S27	0.368	0.713	NS	0.855	NS
FRM	TBR	1.764	0.078	.	0.302	NS
FRM	TGR	0.000	1.000	NS	1.000	NS
FRM	U31	1.143	0.253	NS	0.555	NS
KCD	KMP	0.543	0.587	NS	0.791	NS
KCD	S27	0.833	0.405	NS	0.621	NS
KCD	TBR	1.299	0.194	NS	0.512	NS
KCD	TGR	0.465	0.642	NS	0.799	NS
KCD	U31	1.609	0.108	NS	0.374	NS
KMP	S27	1.376	0.169	NS	0.484	NS
KMP	TBR	0.756	0.450	NS	0.645	NS
KMP	TGR	1.008	0.314	NS	0.591	NS

KMP	U31	2.151	0.031	*	0.242	NS
S27	TBR	2.132	0.033	*	0.242	NS
S27	TGR	0.368	0.713	NS	0.855	NS
S27	U31	0.775	0.438	NS	0.645	NS
TBR	TGR	1.764	0.078	.	0.302	NS
TBR	U31	2.907	0.004	*	0.080	.
TGR	U31	1.143	0.253	NS	0.555	NS
			2023			
CS	F17	2.367	0.018	*	0.141	NS
CS	F32	1.543	0.123	NS	0.397	NS
CS	F75	2.579	0.010	*	0.123	NS
CS	FRM	2.388	0.017	*	0.141	NS
CS	KCD	0.465	0.642	NS	0.821	NS
CS	KMP	0.972	0.331	NS	0.569	NS
CS	S70	1.226	0.220	NS	0.517	NS
CS	TBR	0.402	0.688	NS	0.823	NS
CS	TGR	1.374	0.169	NS	0.440	NS
CS	U31	2.135	0.033	*	0.211	NS
F17	F32	0.824	0.410	NS	0.609	NS
F17	F75	0.211	0.833	NS	0.898	NS
F17	FRM	0.021	0.983	NS	0.983	NS
F17	KCD	1.902	0.057	.	0.262	NS
F17	KMP	1.395	0.163	NS	0.440	NS
F17	S70	1.141	0.254	NS	0.517	NS
F17	TBR	2.769	0.006	*	0.103	NS
F17	TGR	0.993	0.321	NS	0.569	NS
F17	U31	0.233	0.816	NS	0.898	NS
F32	F75	1.036	0.300	NS	0.569	NS
F32	FRM	0.845	0.398	NS	0.608	NS
F32	KCD	1.078	0.281	NS	0.552	NS
F32	KMP	0.571	0.568	NS	0.762	NS
F32	S70	0.317	0.751	NS	0.879	NS
F32	TBR	1.945	0.052	.	0.262	NS
F32	TGR	0.169	0.866	NS	0.898	NS
F32	U31	0.592	0.554	NS	0.762	NS
F75	FRM	0.190	0.849	NS	0.898	NS
F75	KCD	2.114	0.035	*	0.211	NS
F75	KMP	1.606	0.108	NS	0.372	NS
F75	S70	1.353	0.176	NS	0.440	NS
F75	TBR	2.980	0.003	*	0.103	NS
F75	TGR	1.205	0.228	NS	0.517	NS
F75	U31	0.444	0.657	NS	0.821	NS
FRM	KCD	1.923	0.054	.	0.262	NS
FRM	KMP	1.416	0.157	NS	0.440	NS
FRM	S70	1.163	0.245	NS	0.517	NS

FRM	TBR	2.790	0.005	*	0.103	NS
FRM	TGR	1.015	0.310	NS	0.569	NS
FRM	U31	0.254	0.800	NS	0.898	NS
KCD	KMP	0.507	0.612	NS	0.801	NS
KCD	S70	0.761	0.447	NS	0.630	NS
KCD	TBR	0.867	0.386	NS	0.607	NS
KCD	TGR	0.909	0.363	NS	0.588	NS
KCD	U31	1.670	0.095	.	0.372	NS
KMP	S70	0.254	0.800	NS	0.898	NS
KMP	TBR	1.374	0.169	NS	0.440	NS
KMP	TGR	0.402	0.688	NS	0.823	NS
KMP	U31	1.163	0.245	NS	0.517	NS
S70	TBR	1.628	0.104	NS	0.372	NS
S70	TGR	0.148	0.882	NS	0.899	NS
S70	U31	0.909	0.363	NS	0.588	NS
TBR	TGR	1.775	0.076	.	0.321	NS
TBR	U31	2.536	0.011	*	0.123	NS
TGR	U31	0.761	0.447	NS	0.630	NS

Supplementary Table S2. Posthoc analysis of fibers (%) for the experimentation years 20017-2023. Each line corresponds to a pairwise comparison. The asterisk corresponds to p-values<0.05, the dot to 0.05<p-values<0.10 and NS stands for non-significant (p-values>0.10)

group1	group2	statistic	unadjusted p-value	unadjusted p-value result	fdr-adjusted p-value	fdr-adjusted p-value result
			2017			
BLB	F17	2.076	0.038	*	0.136	NS
BLB	F32	2.501	0.012	*	0.093	.
BLB	F75	1.526	0.127	NS	0.238	NS
BLB	S27	0.000	1.000	NS	1.000	NS
BLB	TGR	0.500	0.617	NS	0.712	NS
F17	F32	0.425	0.671	NS	0.719	NS
F17	F75	0.550	0.582	NS	0.712	NS
F17	S27	2.076	0.038	*	0.136	NS
F17	TGR	1.576	0.115	NS	0.238	NS
F32	F75	0.975	0.329	NS	0.494	NS
F32	S27	2.501	0.012	*	0.093	.
F32	TGR	2.001	0.045	*	0.136	NS
F75	S27	1.526	0.127	NS	0.238	NS
F75	TGR	1.025	0.305	NS	0.494	NS
S27	TGR	0.500	0.617	NS	0.712	NS
			2018			
BLB	F17	3.299	0.001	*	0.007	*
BLB	F32	2.677	0.007	*	0.041	*
BLB	F75	2.620	0.009	*	0.041	*
BLB	FRM	0.679	0.497	NS	0.606	NS
BLB	S27	1.018	0.309	NS	0.432	NS
BLB	TGR	0.980	0.327	NS	0.436	NS
BLB	U31	1.546	0.122	NS	0.201	NS
F17	F32	0.622	0.534	NS	0.623	NS
F17	F75	0.679	0.497	NS	0.606	NS
F17	FRM	3.977	0.000	*	0.002	*
F17	S27	2.281	0.023	*	0.079	.
F17	TGR	2.319	0.020	*	0.079	.
F17	U31	1.753	0.080	.	0.189	NS
F32	F75	0.057	0.955	NS	0.970	NS
F32	FRM	3.355	0.001	*	0.007	*
F32	S27	1.659	0.097	.	0.189	NS
F32	TGR	1.696	0.090	.	0.189	NS
F32	U31	1.131	0.258	NS	0.401	NS
F75	FRM	3.299	0.001	*	0.007	*
F75	S27	1.602	0.109	NS	0.191	NS

F75	TGR	1.640	0.101	NS	0.189	NS
F75	U31	1.074	0.283	NS	0.417	NS
FRM	S27	1.696	0.090	.	0.189	NS
FRM	TGR	1.659	0.097	.	0.189	NS
FRM	U31	2.224	0.026	*	0.081	.
S27	TGR	0.038	0.970	NS	0.970	NS
S27	U31	0.528	0.598	NS	0.644	NS
TGR	U31	0.565	0.572	NS	0.640	NS
			2019			
BLB	CRM	3.233	0.001	*	0.035	*
BLB	CS	3.524	0.000	*	0.028	*
BLB	F17	2.375	0.018	*	0.100	.
BLB	F32	2.614	0.009	*	0.071	.
BLB	F75	1.225	0.221	NS	0.465	NS
BLB	FRM	1.162	0.245	NS	0.472	NS
BLB	KCD	0.909	0.363	NS	0.615	NS
BLB	S27	0.707	0.479	NS	0.736	NS
BLB	S70	1.276	0.202	NS	0.445	NS
BLB	TGR	0.644	0.519	NS	0.769	NS
BLB	U31	0.366	0.714	NS	0.873	NS
CRM	CS	0.290	0.771	NS	0.877	NS
CRM	F17	0.859	0.390	NS	0.628	NS
CRM	F32	0.619	0.536	NS	0.769	NS
CRM	F75	2.008	0.045	*	0.155	NS
CRM	FRM	2.071	0.038	*	0.149	NS
CRM	KCD	2.324	0.020	*	0.101	NS
CRM	S27	2.526	0.012	*	0.076	.
CRM	S70	1.958	0.050	*	0.158	NS
CRM	TGR	2.589	0.010	*	0.071	.
CRM	U31	2.867	0.004	*	0.053	.
CS	F17	1.149	0.250	NS	0.472	NS
CS	F32	0.909	0.363	NS	0.615	NS
CS	F75	2.299	0.022	*	0.101	NS
CS	FRM	2.362	0.018	*	0.100	.
CS	KCD	2.614	0.009	*	0.071	.
CS	S27	2.817	0.005	*	0.053	.
CS	S70	2.248	0.025	*	0.101	NS
CS	TGR	2.880	0.004	*	0.053	.
CS	U31	3.158	0.002	*	0.035	*
F17	F32	0.240	0.810	NS	0.877	NS
F17	F75	1.149	0.250	NS	0.472	NS
F17	FRM	1.213	0.225	NS	0.465	NS
F17	KCD	1.465	0.143	NS	0.358	NS
F17	S27	1.667	0.095	.	0.252	NS
F17	S70	1.099	0.272	NS	0.498	NS

F17	TGR	1.730	0.084	.	0.240	NS
F17	U31	2.008	0.045	*	0.155	NS
F32	F75	1.389	0.165	NS	0.388	NS
F32	FRM	1.452	0.146	NS	0.358	NS
F32	KCD	1.705	0.088	.	0.242	NS
F32	S27	1.907	0.056	.	0.169	NS
F32	S70	1.339	0.181	NS	0.411	NS
F32	TGR	1.970	0.049	*	0.158	NS
F32	U31	2.248	0.025	*	0.101	NS
F75	FRM	0.063	0.950	NS	0.960	NS
F75	KCD	0.316	0.752	NS	0.877	NS
F75	S27	0.518	0.605	NS	0.782	NS
F75	S70	0.051	0.960	NS	0.960	NS
F75	TGR	0.581	0.561	NS	0.782	NS
F75	U31	0.859	0.390	NS	0.628	NS
FRM	KCD	0.253	0.801	NS	0.877	NS
FRM	S27	0.455	0.649	NS	0.824	NS
FRM	S70	0.114	0.909	NS	0.953	NS
FRM	TGR	0.518	0.605	NS	0.782	NS
FRM	U31	0.796	0.426	NS	0.670	NS
KCD	S27	0.202	0.840	NS	0.894	NS
KCD	S70	0.366	0.714	NS	0.873	NS
KCD	TGR	0.265	0.791	NS	0.877	NS
KCD	U31	0.543	0.587	NS	0.782	NS
S27	S70	0.568	0.570	NS	0.782	NS
S27	TGR	0.063	0.950	NS	0.960	NS
S27	U31	0.341	0.733	NS	0.877	NS
S70	TGR	0.632	0.528	NS	0.769	NS
S70	U31	0.909	0.363	NS	0.615	NS
TGR	U31	0.278	0.781	NS	0.877	NS
			2020			
BLB	CRM	3.914	0.000	*	0.003	*
BLB	CS	4.116	0.000	*	0.003	*
BLB	F17	3.283	0.001	*	0.011	*
BLB	F32	2.563	0.010	*	0.049	*
BLB	F75	2.248	0.025	*	0.090	.
BLB	FRM	3.169	0.002	*	0.013	*
BLB	KCD	1.692	0.091	.	0.214	NS
BLB	S27	0.379	0.705	NS	0.763	NS
BLB	S70	0.657	0.511	NS	0.630	NS
BLB	TGR	1.263	0.207	NS	0.341	NS
BLB	U31	1.869	0.062	.	0.151	NS
CRM	CS	0.202	0.840	NS	0.866	NS
CRM	F17	0.631	0.528	NS	0.630	NS
CRM	F32	1.351	0.177	NS	0.324	NS

CRM	F75	1.667	0.096	.	0.217	NS
CRM	FRM	0.745	0.456	NS	0.602	NS
CRM	KCD	2.222	0.026	*	0.091	.
CRM	S27	3.536	0.000	*	0.007	*
CRM	S70	3.258	0.001	*	0.011	*
CRM	TGR	2.652	0.008	*	0.044	*
CRM	U31	2.046	0.041	*	0.128	NS
CS	F17	0.833	0.405	NS	0.545	NS
CS	F32	1.553	0.120	NS	0.248	NS
CS	F75	1.869	0.062	.	0.151	NS
CS	FRM	0.947	0.344	NS	0.504	NS
CS	KCD	2.424	0.015	*	0.063	.
CS	S27	3.738	0.000	*	0.004	*
CS	S70	3.460	0.001	*	0.007	*
CS	TGR	2.854	0.004	*	0.029	*
CS	U31	2.248	0.025	*	0.090	.
F17	F32	0.720	0.472	NS	0.610	NS
F17	F75	1.035	0.300	NS	0.461	NS
F17	FRM	0.114	0.910	NS	0.910	NS
F17	KCD	1.591	0.112	NS	0.238	NS
F17	S27	2.904	0.004	*	0.027	*
F17	S70	2.626	0.009	*	0.044	*
F17	TGR	2.020	0.043	*	0.130	NS
F17	U31	1.414	0.157	NS	0.297	NS
F32	F75	0.316	0.752	NS	0.801	NS
F32	FRM	0.606	0.544	NS	0.630	NS
F32	KCD	0.871	0.384	NS	0.527	NS
F32	S27	2.185	0.029	*	0.095	.
F32	S70	1.907	0.057	.	0.151	NS
F32	TGR	1.301	0.193	NS	0.327	NS
F32	U31	0.694	0.487	NS	0.619	NS
F75	FRM	0.922	0.357	NS	0.512	NS
F75	KCD	0.556	0.578	NS	0.658	NS
F75	S27	1.869	0.062	.	0.151	NS
F75	S70	1.591	0.112	NS	0.238	NS
F75	TGR	0.985	0.325	NS	0.487	NS
F75	U31	0.379	0.705	NS	0.763	NS
FRM	KCD	1.477	0.140	NS	0.271	NS
FRM	S27	2.791	0.005	*	0.032	*
FRM	S70	2.513	0.012	*	0.053	.
FRM	TGR	1.907	0.057	.	0.151	NS
FRM	U31	1.301	0.193	NS	0.327	NS
KCD	S27	1.313	0.189	NS	0.327	NS
KCD	S70	1.035	0.300	NS	0.461	NS
KCD	TGR	0.429	0.668	NS	0.747	NS

KCD	U31	0.177	0.860	NS	0.873	NS
S27	S70	0.278	0.781	NS	0.818	NS
S27	TGR	0.884	0.377	NS	0.527	NS
S27	U31	1.490	0.136	NS	0.271	NS
S70	TGR	0.606	0.544	NS	0.630	NS
S70	U31	1.212	0.225	NS	0.363	NS
TGR	U31	0.606	0.544	NS	0.630	NS
			2022			
BLB	CS	2.307	0.021	*	0.107	NS
BLB	F17	1.881	0.060	.	0.172	NS
BLB	F32	2.424	0.015	*	0.092	.
BLB	F75	0.427	0.670	NS	0.762	NS
BLB	FRM	1.939	0.053	.	0.172	NS
BLB	KCD	1.183	0.237	NS	0.447	NS
BLB	KMP	0.756	0.450	NS	0.618	NS
BLB	S27	0.252	0.801	NS	0.867	NS
BLB	TBR	2.889	0.004	*	0.051	.
BLB	TGR	0.950	0.342	NS	0.528	NS
BLB	U31	0.000	1.000	NS	1.000	NS
CS	F17	0.427	0.670	NS	0.762	NS
CS	F32	0.116	0.907	NS	0.936	NS
CS	F75	1.881	0.060	.	0.172	NS
CS	FRM	0.368	0.713	NS	0.797	NS
CS	KCD	1.125	0.261	NS	0.478	NS
CS	KMP	3.063	0.002	*	0.048	*
CS	S27	2.055	0.040	*	0.172	NS
CS	TBR	0.582	0.561	NS	0.726	NS
CS	TGR	1.357	0.175	NS	0.372	NS
CS	U31	2.307	0.021	*	0.107	NS
F17	F32	0.543	0.587	NS	0.745	NS
F17	F75	1.454	0.146	NS	0.321	NS
F17	FRM	0.058	0.954	NS	0.968	NS
F17	KCD	0.698	0.485	NS	0.640	NS
F17	KMP	2.637	0.008	*	0.069	.
F17	S27	1.629	0.103	NS	0.253	NS
F17	TBR	1.008	0.313	NS	0.528	NS
F17	TGR	0.931	0.352	NS	0.528	NS
F17	U31	1.881	0.060	.	0.172	NS
F32	F75	1.997	0.046	*	0.172	NS
F32	FRM	0.485	0.628	NS	0.762	NS
F32	KCD	1.241	0.215	NS	0.443	NS
F32	KMP	3.180	0.001	*	0.048	*
F32	S27	2.171	0.030	*	0.141	NS
F32	TBR	0.465	0.642	NS	0.762	NS
F32	TGR	1.474	0.141	NS	0.320	NS

F32	U31	2.424	0.015	*	0.092	.
F75	FRM	1.512	0.130	NS	0.308	NS
F75	KCD	0.756	0.450	NS	0.618	NS
F75	KMP	1.183	0.237	NS	0.447	NS
F75	S27	0.174	0.861	NS	0.902	NS
F75	TBR	2.462	0.014	*	0.092	.
F75	TGR	0.523	0.601	NS	0.748	NS
F75	U31	0.427	0.670	NS	0.762	NS
FRM	KCD	0.756	0.450	NS	0.618	NS
FRM	KMP	2.695	0.007	*	0.069	.
FRM	S27	1.687	0.092	.	0.233	NS
FRM	TBR	0.950	0.342	NS	0.528	NS
FRM	TGR	0.989	0.323	NS	0.528	NS
FRM	U31	1.939	0.053	.	0.172	NS
KCD	KMP	1.939	0.053	.	0.172	NS
KCD	S27	0.931	0.352	NS	0.528	NS
KCD	TBR	1.706	0.088	.	0.232	NS
KCD	TGR	0.233	0.816	NS	0.869	NS
KCD	U31	1.183	0.237	NS	0.447	NS
KMP	S27	1.008	0.313	NS	0.528	NS
KMP	TBR	3.645	0.000	*	0.018	*
KMP	TGR	1.706	0.088	.	0.232	NS
KMP	U31	0.756	0.450	NS	0.618	NS
S27	TBR	2.637	0.008	*	0.069	.
S27	TGR	0.698	0.485	NS	0.640	NS
S27	U31	0.252	0.801	NS	0.867	NS
TBR	TGR	1.939	0.053	.	0.172	NS
TBR	U31	2.889	0.004	*	0.051	.
TGR	U31	0.950	0.342	NS	0.528	NS
			2023			
CS	F17	0.739	0.460	NS	0.602	NS
CS	F32	1.056	0.291	NS	0.471	NS
CS	F75	1.521	0.128	NS	0.321	NS
CS	FRM	1.394	0.163	NS	0.359	NS
CS	KCD	2.260	0.024	*	0.109	NS
CS	KMP	3.464	0.001	*	0.015	*
CS	S70	2.788	0.005	*	0.063	.
CS	TBR	0.084	0.933	NS	0.933	NS
CS	TGR	2.366	0.018	*	0.095	.
CS	U31	2.619	0.009	*	0.069	.
F17	F32	0.317	0.751	NS	0.827	NS
F17	F75	0.781	0.435	NS	0.597	NS
F17	FRM	0.655	0.513	NS	0.641	NS
F17	KCD	1.521	0.128	NS	0.321	NS
F17	KMP	2.725	0.006	*	0.063	.

F17	S70	2.049	0.040	*	0.159	NS
F17	TBR	0.824	0.410	NS	0.578	NS
F17	TGR	1.626	0.104	NS	0.314	NS
F17	U31	1.880	0.060	.	0.207	NS
F32	F75	0.465	0.642	NS	0.768	NS
F32	FRM	0.338	0.735	NS	0.825	NS
F32	KCD	1.204	0.229	NS	0.419	NS
F32	KMP	2.408	0.016	*	0.095	.
F32	S70	1.732	0.083	.	0.269	NS
F32	TBR	1.141	0.254	NS	0.451	NS
F32	TGR	1.309	0.190	NS	0.403	NS
F32	U31	1.563	0.118	NS	0.321	NS
F75	FRM	0.127	0.899	NS	0.933	NS
F75	KCD	0.739	0.460	NS	0.602	NS
F75	KMP	1.943	0.052	.	0.191	NS
F75	S70	1.267	0.205	NS	0.418	NS
F75	TBR	1.605	0.108	NS	0.314	NS
F75	TGR	0.845	0.398	NS	0.576	NS
F75	U31	1.098	0.272	NS	0.453	NS
FRM	KCD	0.866	0.387	NS	0.576	NS
FRM	KMP	2.070	0.038	*	0.159	NS
FRM	S70	1.394	0.163	NS	0.359	NS
FRM	TBR	1.478	0.139	NS	0.333	NS
FRM	TGR	0.972	0.331	NS	0.521	NS
FRM	U31	1.225	0.221	NS	0.419	NS
KCD	KMP	1.204	0.229	NS	0.419	NS
KCD	S70	0.528	0.597	NS	0.730	NS
KCD	TBR	2.344	0.019	*	0.095	.
KCD	TGR	0.106	0.916	NS	0.933	NS
KCD	U31	0.359	0.720	NS	0.824	NS
KMP	S70	0.676	0.499	NS	0.638	NS
KMP	TBR	3.548	0.000	*	0.015	*
KMP	TGR	1.098	0.272	NS	0.453	NS
KMP	U31	0.845	0.398	NS	0.576	NS
S70	TBR	2.872	0.004	*	0.063	.
S70	TGR	0.422	0.673	NS	0.787	NS
S70	U31	0.169	0.866	NS	0.916	NS
TBR	TGR	2.450	0.014	*	0.095	.
TBR	U31	2.703	0.007	*	0.063	.
TGR	U31	0.253	0.800	NS	0.863	NS

Supplementary Table S3. Posthoc analysis of 1000 seed weight (g) for the experimentation years 20017-2023. Each line corresponds to a pairwise comparison. The asterisk corresponds to p-values<0.05, the dot to 0.05<p-values<0.10 and NS stands for non-significant (p-values>0.10).;

group1	group2	statistic	unadjusted p-value	unadjusted p-value result	fdr-adjusted p-value	fdr-adjusted p-value result
			2017			
BLB	F17	2.339	0.019	*	0.081	.
BLB	F32	0.678	0.498	NS	0.682	NS
BLB	F75	0.590	0.555	NS	0.682	NS
BLB	FIN	3.367	0.001	*	0.012	*
BLB	S27	0.109	0.913	NS	0.930	NS
BLB	TGR	1.793	0.073	.	0.203	NS
F17	F32	1.661	0.097	.	0.203	NS
F17	F75	1.749	0.080	.	0.203	NS
F17	FIN	1.027	0.304	NS	0.456	NS
F17	S27	2.230	0.026	*	0.090	.
F17	TGR	0.547	0.585	NS	0.682	NS
F32	F75	0.087	0.930	NS	0.930	NS
F32	FIN	2.689	0.007	*	0.038	*
F32	S27	0.568	0.570	NS	0.682	NS
F32	TGR	1.115	0.265	NS	0.428	NS
F75	FIN	2.776	0.005	*	0.038	*
F75	S27	0.481	0.631	NS	0.697	NS
F75	TGR	1.202	0.229	NS	0.401	NS
FIN	S27	3.257	0.001	*	0.012	*
FIN	TGR	1.574	0.115	NS	0.220	NS
S27	TGR	1.683	0.092	.	0.203	NS
			2018			
BLB	F17	3.913	0.000	*	0.001	*
BLB	F32	2.784	0.005	*	0.027	*
BLB	F75	2.533	0.011	*	0.042	*
BLB	S27	1.028	0.304	NS	0.395	NS
BLB	TGR	1.781	0.075	.	0.170	NS
F17	F32	1.129	0.259	NS	0.389	NS
F17	F75	1.380	0.168	NS	0.280	NS
F17	S27	2.884	0.004	*	0.027	*
F17	TGR	2.132	0.033	*	0.099	.
F32	F75	0.251	0.802	NS	0.802	NS
F32	S27	1.756	0.079	.	0.170	NS
F32	TGR	1.003	0.316	NS	0.395	NS
F75	S27	1.505	0.132	NS	0.248	NS
F75	TGR	0.752	0.452	NS	0.484	NS

S27	TGR	0.752	0.452	NS	0.484	NS
			2020			
BLB	F32	0.552	0.581	NS	0.581	NS
BLB	F75	1.242	0.214	NS	0.357	NS
BLB	S27	0.966	0.334	NS	0.447	NS
BLB	TGR	2.163	0.031	*	0.102	NS
F32	F75	0.690	0.490	NS	0.545	NS
F32	S27	1.518	0.129	NS	0.258	NS
F32	TGR	1.611	0.107	NS	0.258	NS
F75	S27	2.209	0.027	*	0.102	NS
F75	TGR	0.920	0.357	NS	0.447	NS
S27	TGR	3.129	0.002	*	0.018	*
			2021			
BLB	F32	2.063	0.039	*	0.098	.
BLB	F75	2.338	0.019	*	0.065	.
BLB	S27	0.917	0.359	NS	0.449	NS
BLB	TGR	0.504	0.614	NS	0.682	NS
F32	F75	0.275	0.783	NS	0.783	NS
F32	S27	1.146	0.252	NS	0.360	NS
F32	TGR	2.568	0.010	*	0.051	.
F75	S27	1.421	0.155	NS	0.259	NS
F75	TGR	2.843	0.004	*	0.045	*
S27	TGR	1.421	0.155	NS	0.259	NS
			2022			
BLB	F17	2.145	0.032	*	0.077	.
BLB	F32	0.083	0.934	NS	0.961	NS
BLB	F75	2.771	0.006	*	0.020	*
BLB	FRM	1.197	0.231	NS	0.333	NS
BLB	KCD	3.719	0.000	*	0.002	*
BLB	S27	0.865	0.387	NS	0.480	NS
BLB	TGR	1.408	0.159	NS	0.269	NS
BLB	U31	2.798	0.005	*	0.020	*
F17	F32	2.228	0.026	*	0.067	.
F17	F75	0.626	0.531	NS	0.580	NS
F17	FRM	0.948	0.343	NS	0.457	NS
F17	KCD	1.574	0.115	NS	0.219	NS
F17	S27	3.010	0.003	*	0.016	*
F17	TGR	0.736	0.461	NS	0.536	NS
F17	U31	0.654	0.513	NS	0.578	NS
F32	F75	2.854	0.004	*	0.019	*
F32	FRM	1.280	0.201	NS	0.301	NS
F32	KCD	3.802	0.000	*	0.002	*
F32	S27	0.782	0.434	NS	0.521	NS
F32	TGR	1.491	0.136	NS	0.245	NS
F32	U31	2.881	0.004	*	0.019	*

F75	FRM	1.574	0.115	NS	0.219	NS
F75	KCD	0.948	0.343	NS	0.457	NS
F75	S27	3.636	0.000	*	0.002	*
F75	TGR	1.362	0.173	NS	0.271	NS
F75	U31	0.028	0.978	NS	0.978	NS
FRM	KCD	2.522	0.012	*	0.038	*
FRM	S27	2.062	0.039	*	0.088	.
FRM	TGR	0.212	0.832	NS	0.881	NS
FRM	U31	1.602	0.109	NS	0.219	NS
KCD	S27	4.584	0.000	*	0.000	*
KCD	TGR	2.311	0.021	*	0.063	.
KCD	U31	0.921	0.357	NS	0.459	NS
S27	TGR	2.274	0.023	*	0.064	.
S27	U31	3.664	0.000	*	0.002	*
TGR	U31	1.390	0.165	NS	0.269	NS
			2023			
CS	F17	3.152	0.002	*	0.014	*
CS	F32	1.681	0.093	.	0.196	NS
CS	F75	3.348	0.001	*	0.011	*
CS	FRM	2.268	0.023	*	0.099	.
CS	KCD	1.924	0.054	.	0.157	NS
CS	KMP	1.146	0.252	NS	0.408	NS
CS	S70	0.054	0.957	NS	0.967	NS
CS	TBR	3.118	0.002	*	0.014	*
CS	TGR	1.390	0.164	NS	0.292	NS
CS	U31	0.763	0.446	NS	0.584	NS
F17	F32	1.802	0.072	.	0.174	NS
F17	F75	0.240	0.811	NS	0.857	NS
F17	FRM	1.083	0.279	NS	0.420	NS
F17	KCD	1.505	0.132	NS	0.260	NS
F17	KMP	1.829	0.067	.	0.174	NS
F17	S70	3.794	0.000	*	0.003	*
F17	TBR	0.041	0.967	NS	0.967	NS
F17	TGR	2.158	0.031	*	0.122	NS
F17	U31	2.926	0.003	*	0.024	*
F32	F75	2.042	0.041	*	0.139	NS
F32	FRM	0.719	0.472	NS	0.604	NS
F32	KCD	0.298	0.766	NS	0.840	NS
F32	KMP	0.358	0.721	NS	0.811	NS
F32	S70	1.992	0.046	*	0.142	NS
F32	TBR	1.761	0.078	.	0.178	NS
F32	TGR	0.355	0.722	NS	0.811	NS
F32	U31	1.124	0.261	NS	0.410	NS
F75	FRM	1.323	0.186	NS	0.320	NS
F75	KCD	1.744	0.081	.	0.178	NS

F75	KMP	2.025	0.043	*	0.139	NS
F75	S70	4.034	0.000	*	0.003	*
F75	TBR	0.281	0.779	NS	0.840	NS
F75	TGR	2.397	0.017	*	0.083	.
F75	U31	3.166	0.002	*	0.014	*
FRM	KCD	0.422	0.673	NS	0.788	NS
FRM	KMP	0.945	0.345	NS	0.486	NS
FRM	S70	2.711	0.007	*	0.037	*
FRM	TBR	1.042	0.298	NS	0.431	NS
FRM	TGR	1.075	0.283	NS	0.420	NS
FRM	U31	1.843	0.065	.	0.174	NS
KCD	KMP	0.601	0.548	NS	0.670	NS
KCD	S70	2.290	0.022	*	0.099	.
KCD	TBR	1.463	0.143	NS	0.272	NS
KCD	TGR	0.653	0.514	NS	0.642	NS
KCD	U31	1.422	0.155	NS	0.284	NS
KMP	S70	1.269	0.204	NS	0.341	NS
KMP	TBR	1.795	0.073	.	0.174	NS
KMP	TGR	0.067	0.946	NS	0.967	NS
KMP	U31	0.560	0.575	NS	0.688	NS
S70	TBR	3.753	0.000	*	0.003	*
S70	TGR	1.637	0.102	NS	0.207	NS
S70	U31	0.868	0.385	NS	0.530	NS
TBR	TGR	2.116	0.034	*	0.126	NS
TBR	U31	2.885	0.004	*	0.024	*
TGR	U31	0.769	0.442	NS	0.584	NS

Supplementary Table S4. Medians of fresh biomass (t/ha) per year/variety along with means of the medians across each year/variety

Registered variety	**Genotypic expression**	**Brief name**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	Mean of medians
BIALOBRZESKIE	monoecious	BLB	19.4	27.5	24.4	20.6	45.3	28.8		*27.7*
CARMAGNOLA	dioecious	CRM			27.5	36.6	43.8			*35.9*
CS	dioecious	CS			38.1	33.8	54.7	56.3	61.3	*48.8*
FEDORA 17	monoecious	F17	15.0	32.2	15.6	17.2	12.5	19.4	36.3	*21.2*
FELINA 32	monoecious	F32	18.4	34.4	17.2	16.6	20.6	37.5	43.8	*26.9*
FERIMON	monoecious	FRM		28.4	21.6	18.1	48.8	47.5	38.8	*33.9*
FUTURA 75	monoecious	F75	21.6	46.3	21.6	34.7	25.3	52.5	30.0	*33.1*
KC DORA	monoecious	KCD			24.1	25.3	36.9	50.0	55.0	*38.3*
KOMPOLTI	dioecious	KMP						57.5	52.5	*55.0*
SANTHICA 27	monoecious	S27	18.1	33.8	17.8	20.6	26.9	40.0		*26.2*
SANTHICA 70	monoecious	S70			33.4	42.8	55.0		50.0	*45.3*
TIBORZLASKI	dioecious	TBR						73.1	75.0	*74.1*
TYGRA	monoecious	TGR	18.1	28.8	19.7	17.5	31.6	47.5	48.8	*30.3*
USO 31	monoecious	U31		35.6	16.3	15.0	31.6	30.6	38.8	*28.0*
Mean of medians			*18.4*	*33.4*	*23.1*	*24.9*	*36.1*	*45.1*	*48.2*	

Supplementary Table S5. Medians of fibers (%) per year/variety along with means of the medians across each year/variety

Registered variety	**Genotypic expression**	**Brief name**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	*Mean of medians*
BIALOBRZESKIE	monoecious	BLB	27.9	28.6	27.9	31.5	23.0	27.2		*27.7*
CARMAGNOLA	dioecious	CRM			15.6	21.4	20.4			*19.1*
CS	dioecious	CS			15.8	20.4	19.1	17.5	17.8	*18.1*
FEDORA 17	monoecious	F17	24.3	21.3	21.5	23.8	21.0	21.3	21.5	*22.1*
FELINA 32	monoecious	F32	22.9	22.5	21.1	24.9	21.8	19.8	21.9	*22.1*
FERIMON	monoecious	FRM		32.1	24.6	23.7	21.0	20.9	23.9	*24.4*
FUTURA 75	monoecious	F75	25.2	22.9	23.7	25.3	23.4	27.2	24.2	*24.6*
KC DORA	monoecious	KCD			24.4	27.8	26.5	23.6	26.0	*25.6*
KOMPOLTI	dioecious	KMP						37.4	34.6	*36.0*
SANTHICA 27	monoecious	S27	28.6	25.5	24.8	30.3	28.1	26.5		*27.3*
SANTHICA 70	monoecious	S70			24.0	29.3	27.9		27.1	*27.1*
TIBORZLASKI	dioecious	TBR						17.5	16.4	*16.9*
TYGRA	monoecious	TGR	28.2	25.7	25.2	28.5	26.0	25.1	25.7	*26.3*
USO 31	monoecious	U31		24.5	29.2	26.5	25.4	27.5	25.4	*26.4*
Mean of medians			*26.2*	*25.4*	*23.1*	*26.1*	*23.6*	*24.3*	*24.0*	

Supplementary Table S6. Medians of 1000seeds weight(g) per year/variety along with means of the medians across each year/variety

Registered variety	**Genotypic expression**	**Brief name**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	Mean of medians
BIALOBRZESKIE	monoecious	BLB	5.8	6.8	7.0	8.0	7.5	9.0		*7.3*
CARMAGNOLA	dioecious	CRM			X	X	X			
CS	dioecious	CS			X	X	X	X	8.0	*8.0*
FEDORA 17	monoecious	F17	7.0	10.6	X	X	X	11.8	12.6	*10.5*
FELINA 32	monoecious	F32	6.0	9.5	8.0	9.0	11.9	9.3	10.0	*9.1*
FERIMON	monoecious	FRM			X	X	X	10.5	11.2	*10.9*
FUTURA 75	monoecious	F75	5.8	9.6	10.8	9.5	12.0	13.5	12.9	*10.6*
FINOLA		FIN	9.8							*9.8*
KC DORA	monoecious	KCD			X	X	X	15.0	10.6	*12.8*
KOMPOLTI	dioecious	KMP						X	9.8	*9.8*
SANTHICA 27	monoecious	S27	5.5	8.4	8.5	6.0	8.5	8.8		*7.6*
SANTHICA 70	monoecious	S70			X	X	X		7.5	*7.5*
TIBORZLASKI	dioecious	TBR						X	12.1	*12.1*
TYGRA	monoecious	TGR	6.8	8.6	8.8	10.0	7.0	11.0	10.3	*8.9*
USO 31	monoecious	U31		X	X	X	X	13.8	8.5	*11.1*
Mean of medians			6.7	8.9	8.6	8.5	9.4	11.4	10.3	