Schedule S1. Subordinate function and *D* value of drought resistance evaluation of 42 *L. chinensis* germplasms

Code	Membership function					*D*-value	Rank
	μ_1	μ_2	μ_3	μ_4	μ_5		
LC01	0.374	0.609	0.514	0.124	0.514	0.431	19
LC02	0.201	0.302	0.311	0.330	0.430	0.288	41
LC03	0.084	0.417	0.145	0.211	0.662	0.258	42
LC04	0.325	0.635	0.000	0.816	0.370	0.416	23
LC05	0.936	0.447	0.198	0.575	0.182	0.560	7
LC06	0.787	0.534	0.401	0.304	0.146	0.519	11
LC07	0.782	1.000	0.856	0.737	0.521	0.804	1
LC08	0.085	0.636	1.000	0.957	0.297	0.509	12
LC09	0.000	0.577	0.696	0.786	0.690	0.441	17
LC10	0.284	0.241	0.598	0.411	0.222	0.337	35
LC11	0.408	0.248	0.615	0.753	0.405	0.455	13
LC12	0.035	0.357	0.533	0.610	0.214	0.293	40
LC13	0.056	0.795	0.725	0.405	0.631	0.453	14
LC14	0.399	0.410	0.628	0.000	0.309	0.371	31
LC15	0.402	0.638	0.824	0.710	0.445	0.573	5
LC16	0.452	0.615	0.309	0.113	0.486	0.421	22
LC17	0.562	0.336	0.474	0.291	0.505	0.452	15
LC18	0.542	0.397	0.470	0.733	0.604	0.533	10
LC19	0.266	0.998	0.822	0.034	0.881	0.565	6
LC20	0.768	0.780	0.638	0.655	0.438	0.692	3
LC21	0.110	0.488	0.434	0.562	0.609	0.374	29
LC22	0.180	0.303	0.406	0.612	0.390	0.332	36
LC23	0.368	0.217	0.270	0.600	1.000	0.429	20
LC24	0.647	0.327	0.742	0.425	0.446	0.535	9
LC25	0.173	0.434	0.341	0.644	0.631	0.383	26
LC26	0.605	0.660	0.467	0.560	0.226	0.541	8
LC27	0.601	0.383	0.493	0.790	0.772	0.583	4
LC28	0.121	0.648	0.571	0.550	0.000	0.359	33
LC29	0.290	0.310	0.669	0.313	0.383	0.372	30
LC30	0.134	0.276	0.653	0.259	0.368	0.298	38
LC31	0.240	0.390	0.780	0.614	0.519	0.450	16
LC32	0.108	0.216	0.903	0.258	0.341	0.314	37
LC33	0.233	0.243	0.729	0.759	0.340	0.405	25
LC34	1.000	0.000	0.956	0.739	0.703	0.696	2
LC35	0.243	0.346	0.688	0.523	0.461	0.406	24
LC36	0.160	0.443	0.550	0.781	0.188	0.379	27
LC37	0.033	0.429	0.408	0.571	0.315	0.295	39
LC38	0.199	0.356	0.377	1.000	0.666	0.435	18
LC39	0.342	0.222	0.584	0.286	0.335	0.346	34
LC40	0.276	0.152	0.861	0.262	0.537	0.376	28
LC41	0.054	0.606	0.468	0.820	0.132	0.364	32
LC42	0.161	0.586	0.584	0.549	0.482	0.421	21

Schedule S2. Subordinate function and *D* value of rhizome space expansion ability of 42 *L. chinensis* germplasms

Code	Membership function					*D*-value	Rank
	μ_1	μ_2	μ_3	μ_4	μ_5		
LC01	0.025	0.381	0.101	0.210	0.186	0.181	35
LC02	0.475	0.403	0.209	0.373	0.165	0.325	26
LC03	0.450	0.649	0.256	0.511	0.310	0.435	20
LC04	0.450	0.830	0.400	0.814	0.674	0.633	8
LC05	0.075	0.173	0.020	0.202	0.120	0.118	41
LC06	0.100	0.416	0.124	0.272	0.214	0.225	31
LC07	0.250	0.709	0.234	0.693	0.506	0.478	17
LC08	0.050	0.319	0.044	0.268	0.097	0.156	37
LC09	0.250	0.276	0.100	0.256	0.073	0.191	33
LC10	0.250	0.689	0.257	0.568	0.356	0.424	21
LC11	0.475	0.646	0.398	0.659	0.462	0.528	12
LC12	0.600	0.743	0.429	0.716	0.570	0.611	9
LC13	0.800	0.743	0.714	0.830	0.728	0.763	2
LC14	0.475	0.614	0.384	0.630	0.435	0.507	16
LC15	1.000	1.000	1.000	1.000	1.000	1.000	1
LC16	0.900	0.786	0.727	0.775	0.625	0.763	3
LC17	0.100	0.243	0.060	0.220	0.055	0.136	39
LC18	0.400	0.551	0.268	0.483	0.268	0.394	22
LC19	0.625	0.868	0.587	0.903	0.815	0.759	4
LC20	0.513	0.669	0.372	0.606	0.400	0.512	14
LC21	0.075	0.422	0.056	0.260	0.079	0.178	36
LC22	0.900	0.657	0.687	0.659	0.485	0.678	5
LC23	0.150	0.049	0.152	0.121	0.138	0.122	40
LC24	0.450	0.462	0.276	0.393	0.320	0.380	23
LC25	0.450	0.641	0.232	0.516	0.352	0.438	19
LC26	0.200	0.946	0.202	0.575	0.366	0.458	18
LC27	0.125	0.486	0.100	0.344	0.157	0.243	29
LC28	0.275	0.495	0.215	0.442	0.288	0.343	24
LC29	0.150	0.381	0.132	0.362	0.165	0.238	30
LC30	0.450	0.746	0.372	0.669	0.475	0.542	10
LC31	0.500	0.605	0.411	0.664	0.484	0.533	11
LC32	0.625	0.770	0.506	0.759	0.633	0.659	7
LC33	0.550	0.714	0.372	0.600	0.391	0.525	13
LC34	0.225	0.405	0.201	0.390	0.262	0.297	28
LC35	0.275	0.376	0.306	0.304	0.295	0.311	27
LC36	0.050	0.241	0.052	0.240	0.142	0.145	38
LC37	0.150	0.416	0.053	0.235	0.059	0.183	34
LC38	0.000	0.000	0.000	0.000	0.000	0.000	42
LC39	0.075	0.589	0.135	0.507	0.343	0.330	25
LC40	0.150	0.346	0.109	0.302	0.161	0.214	32
LC41	0.575	0.873	0.498	0.761	0.601	0.662	6
LC42	0.385	0.730	0.324	0.636	0.463	0.508	15

Schedule S3. Principal component factor scores and comprehensive evaluation of soil improvement effects of 42 *L. chinensis* germplasms

Code	Principal component			Comprehensive score (*F*)	Rank
	F_1	F_2	F_3		
LC01	−2.936	0.976	0.539	−1.696	39
LC02	1.447	1.478	−2.228	0.881	9
LC03	1.137	2.207	−0.828	1.023	7
LC04	2.995	1.625	0.728	2.397	4
LC05	0.641	1.746	0.553	0.825	11
LC06	−1.473	−0.257	0.307	−0.979	32
LC07	5.300	1.400	2.419	4.155	1
LC08	−0.838	−0.350	0.208	−0.588	29
LC09	0.922	0.690	0.605	0.831	10
LC10	−0.249	1.433	−0.597	−0.003	18
LC11	−0.685	0.536	0.661	−0.257	21
LC12	−3.045	−0.737	0.506	−2.080	42
LC13	−2.030	0.704	0.520	−1.144	33
LC14	−0.413	−0.981	−0.885	−0.588	28
LC15	0.839	−1.210	−0.632	0.244	17
LC16	4.076	−0.018	−1.087	2.541	3
LC17	−2.189	−0.347	−1.856	−1.808	41
LC18	3.160	−0.285	−1.268	1.856	6
LC19	0.954	−0.612	−1.010	0.368	14
LC20	−0.423	−0.809	0.497	−0.349	23
LC21	0.040	−1.230	−0.978	−0.346	22
LC22	4.978	−0.916	−0.592	3.058	2
LC23	−0.316	0.706	−1.866	−0.374	24
LC24	−0.987	−0.076	−1.616	−0.922	31
LC25	−2.566	0.770	−0.651	−1.671	38
LC26	−2.408	1.642	−0.750	−1.426	34
LC27	0.620	−0.248	−0.062	0.359	15
LC28	1.047	−2.708	0.375	0.271	16
LC29	1.120	−0.708	1.837	0.905	8
LC30	1.352	−1.059	0.143	0.733	12
LC31	−0.482	−1.844	0.402	−0.588	27
LC32	0.308	−1.704	−0.085	−0.113	20
LC33	−1.131	0.024	0.110	−0.732	30
LC34	−1.084	1.198	−0.070	−0.518	26
LC35	−2.390	0.080	0.646	−1.476	35
LC36	3.152	−0.509	0.723	2.120	5
LC37	−2.182	−0.926	0.542	−1.534	36
LC38	0.065	1.098	1.829	0.524	13
LC39	−2.709	−0.101	1.380	−1.607	37
LC40	−2.734	−0.280	0.525	−1.788	40

LC41	−0.843	0.034	0.535	−0.472	25
LC42	−0.042	−0.433	0.471	−0.032	19