

Phenotype scoring with examples

Flowers

Number of Petals



TKI001 – 18 petals

Petal tip fringed (loose, mixed, compressed)



TKI001 – loose



TKI006 – mixed

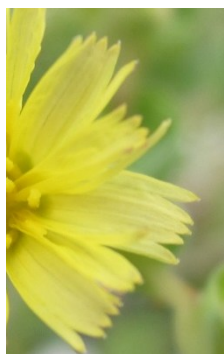


TKI014 – compressed

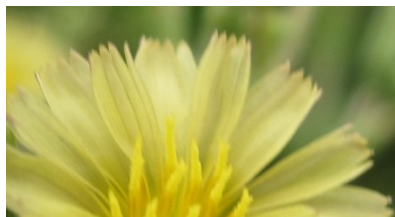
Petal tip anthocyanin intensity (0-5)



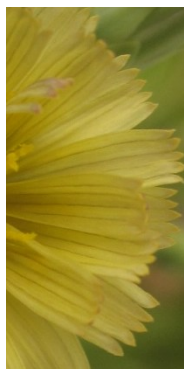
TKI002 – 0



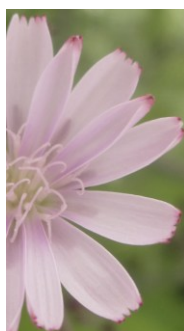
TKI001 – 1



TKI111 - 2



TKI003 – 3



TKI494 – 4



TKI-130

Loose petals (none=0, few=1, medium=2, many=3)



TKI003 - none



TKI001 – few



TKI026 – medium



TKI096 – many

Color (almost white, light yellow, yellow, strong yellow, blue, purple)



TKI143 – white/almost white



TKI004 – light yellow



TKI001 – yellow



TKI002 – strong yellow



TKI475 – purple



TKI480 – pink



TKI487 – light blue



TKI491 – light purple

Petal stripes (0-4)



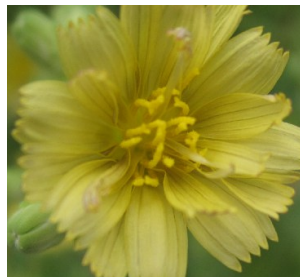
TKI002 - 0



TKI001 – 1



TKI049 – 2



TKI011 – 3



TKI003 – 4

Adults/Juveniles

Long stem (0,1)



TKI001 – 0



TKI233 – 1

Cotyledones with anothocyanin (0,1)

Note: For some pictures cotyledones are not visible. In that case other leaves are used for scoring. In case the plant shows strong red coloring of other leaves but non-red cotyledones, the plant is still scored as red, as coloring might have been lost.



TKI042 – No



TKI194 – Yes

Serration type

Juveniles

Note: In case of mixed phenotypes, we focused on adult leaves as guidance since it seems that young leaves look dentate, even if later on the serration is more sinuate.



TKI043 – None (0)



TKI135 – Dentate (1)



TKI340 – Sinuate (2)

Adults



TKI088 – Dentate (1)



TKI065 - Sinuate (2)

Leaf division

Juveniles

Notes: Young plants probably do not show divided leaves yet. In case of a mixed phenotype, if one leaf is lobed the plant is scored as lobed (1).



TKI026 – Whole leaf (0)



TKI197 – lobed (1)

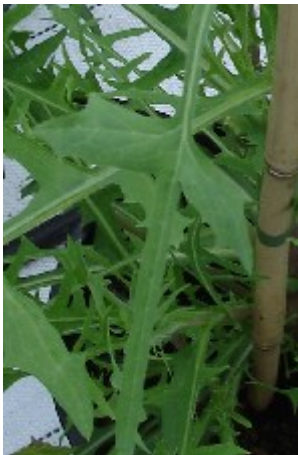
Adults



TKI006 – whole (0)



TKI081 – lobed



TKI383 – divided (note that divided leaves have main vein)

Blistering(0-4)

Note: Plants display both blistered and non blistered leaves. In case blistering is observed the plant is scored with 1 or higher, even if not all leaves are blistered. Score 4 hasn't been observed for any plant (in comparison to examples of the Lettuce calibration book)

Juveniles

Note: Blistering scores of 3 and 4 were not present in young plants.



TKI036 - 0



TKI026 – 1



TKI052 - 2

Adults



TKI019 - 0



TKI036 - 1



TKI042 - 2



TKI082 - 3

Anthocyanin distribution

Juveniles



TKI006 – None (0)



TKI134 – Diffused (1)



TKI110 – In spots (2)



TKI081 – Diffused and spots (3)

Adults



TKI006 – 0



TKI082 – 1



TKI412 - 2



TKI468 - 3

Seeds

Darkness (white, tan, dark, black)



TKI006 – white



TKI150 – tan



TKI382 – dark



TKI340 - dark



TKI026 – black



TKI431 – black

Color variation



TKI467 – Yes



TKI468 – No

ImageJ length measurements

Note: Measurements were always performed on the same leaf/seed. For replicates, this was repeated for several seeds/leaves in the image.

Seed length



Length is measured from tip to tip of the seed including a small tail, if still present.

Width



Width is measured at the broad end of the seed, approximately along 1/3 of the length.

Leaf length

Note: Length from stem of leaf to tip. Largest leaf measured unless it is not in clear view, then second largest leaf.

Juveniles



TKI204

Leaf width

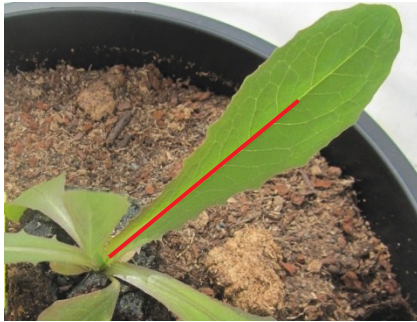
Note: Width at widest point. Same leaf that was measured for length.



TKI204

Leaf length to widest point

Measure from the beginning of the leaf to the widest point. Same leaf as measured for length and width.



TKI204

Adults



The yellow name tag served as a reference for calibrating ImageJ distance measurements, allowing length to be normalized across all images independent of camera distance.

TKI208

Length

Widest point

Length to widest point

Widest serration

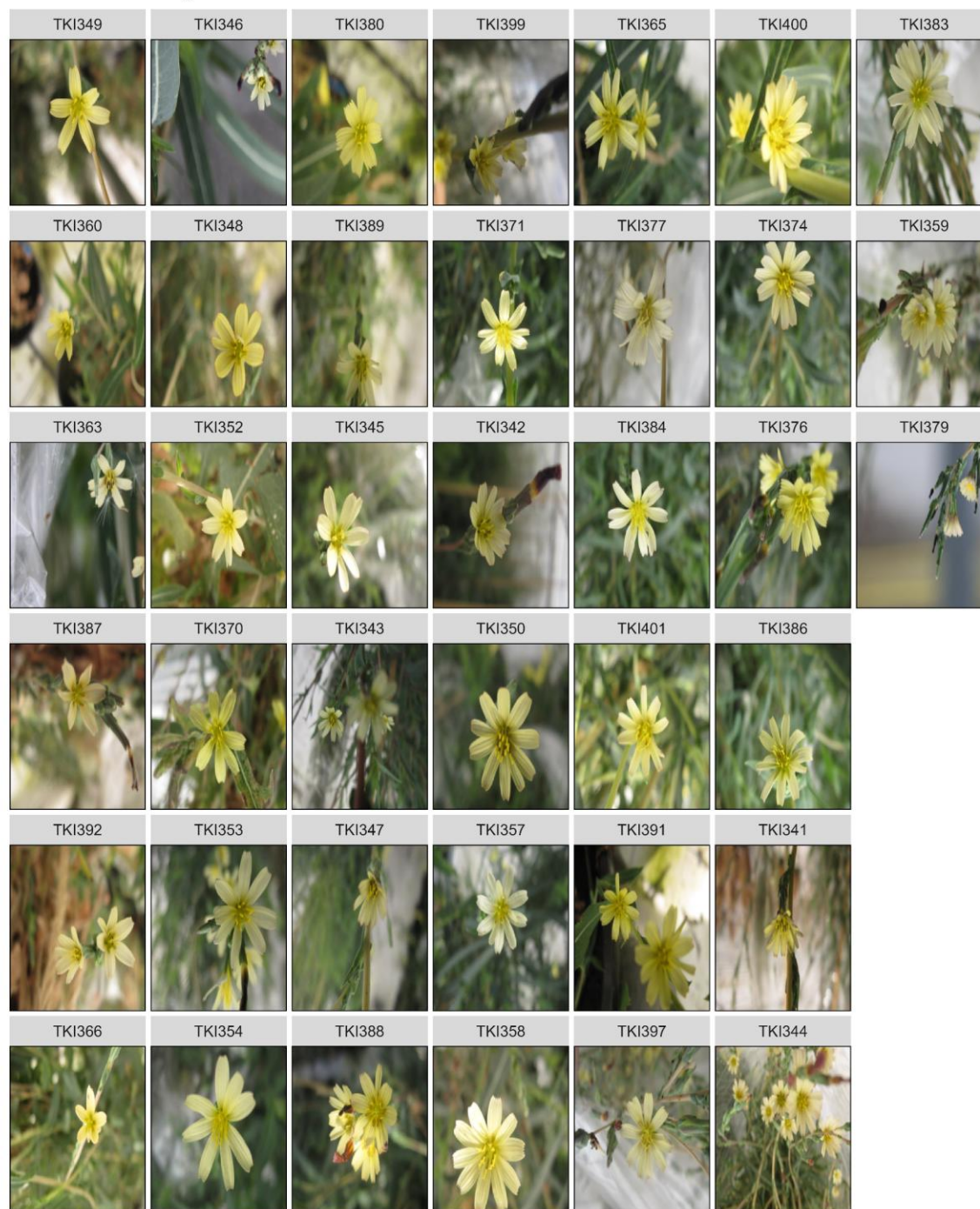
Thinnest serration

Flowers *L. sativa*

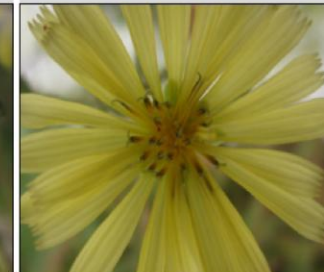
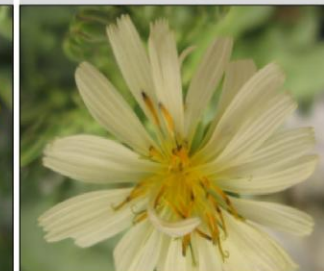


Flowers L. serriola

TKI144	TKI292	TKI299	TKI225	TKI217	TKI219	TKI288	TKI179	TKI209	TKI309	TKI204	TKI180	TKI220	TKI161	TKI308	TKI236	TKI159	TKI265
																	
TKI237	TKI310	TKI304	TKI298	TKI229	TKI249	TKI293	TKI223	TKI213	TKI312	TKI212	TKI184	TKI231	TKI174	TKI155	TKI244	TKI205	
																	
TKI215	TKI185	TKI314	TKI307	TKI323	TKI255	TKI296	TKI262	TKI218	TKI328	TKI227	TKI187	TKI251	TKI175	TKI241	TKI302	TKI233	
																	
TKI306	TKI206	TKI332	TKI316	TKI148	TKI256	TKI311	TKI300	TKI232	TKI338	TKI322	TKI188	TKI252	TKI221	TKI254	TKI151	TKI143	
																	
TKI195	TKI245	TKI339	TKI318	TKI162	TKI258	TKI315	TKI146	TKI238	TKI142	TKI336	TKI194	TKI260	TKI222	TKI153	TKI271	TKI157	
																	
TKI207	TKI259	TKI152	TKI331	TKI166	TKI275	TKI327	TKI167	TKI243	TKI158	TKI156	TKI198	TKI263	TKI246	TKI173	TKI319	TKI186	
																	
TKI248	TKI261	TKI168	TKI160	TKI170	TKI277	TKI333	TKI192	TKI247	TKI169	TKI164	TKI201	TKI269	TKI268	TKI208	TKI334	TKI182	
																	
TKI291	TKI274	TKI224	TKI193	TKI214	TKI284	TKI335	TKI200	TKI253	TKI171	TKI176	TKI202	TKI324	TKI295	TKI211	TKI197	TKI190	
																	

Flowers in *L. virosa*Flowers in *L. saligna*

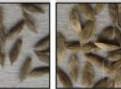
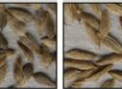
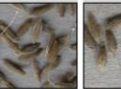
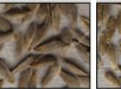
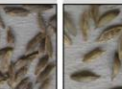
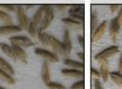
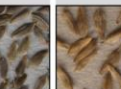
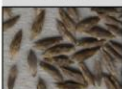
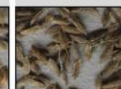
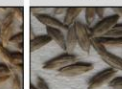
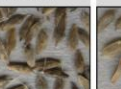
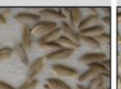
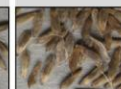
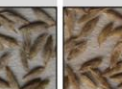
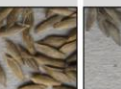
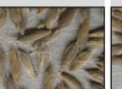
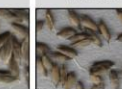
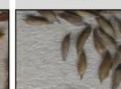
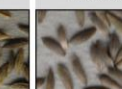
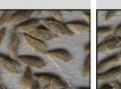
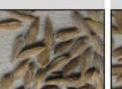
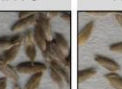
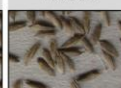
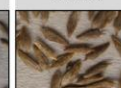
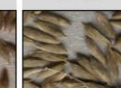
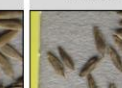
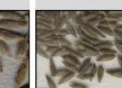
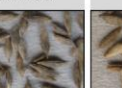
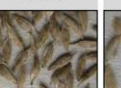
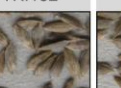
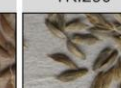
Flowers in Lactuca species

TKI475 L. floridana 	TKI473 L. canadensis 	TKI453 L. georgica 	TKI468 L. sativa x L. serriola 	TKI452 L. georgica 	TKI472 L. biennis 	TKI459 L. georgica 
TKI470 L. quercina 	TKI494 L. palmensis 	TKI454 L. georgica 	TKI449 L. georgica 	TKI469 L. sativa x L. serriola 	TKI465 L. aculeata 	TKI460 L. georgica 
TKI479 L. raddeana 	TKI147 L. sativa x L. serriola 	TKI455 L. georgica 	TKI481 L. sagittata 	TKI476 L. homblei 	TKI457 L. georgica 	TKI461 L. georgica 
TKI462 L. georgica 	TKI474 L. canadensis 	TKI466 L. altaica 	TKI149 L. sativa x L. serriola 	TKI477 L. indica 	TKI458 L. georgica 	TKI463 L. georgica 

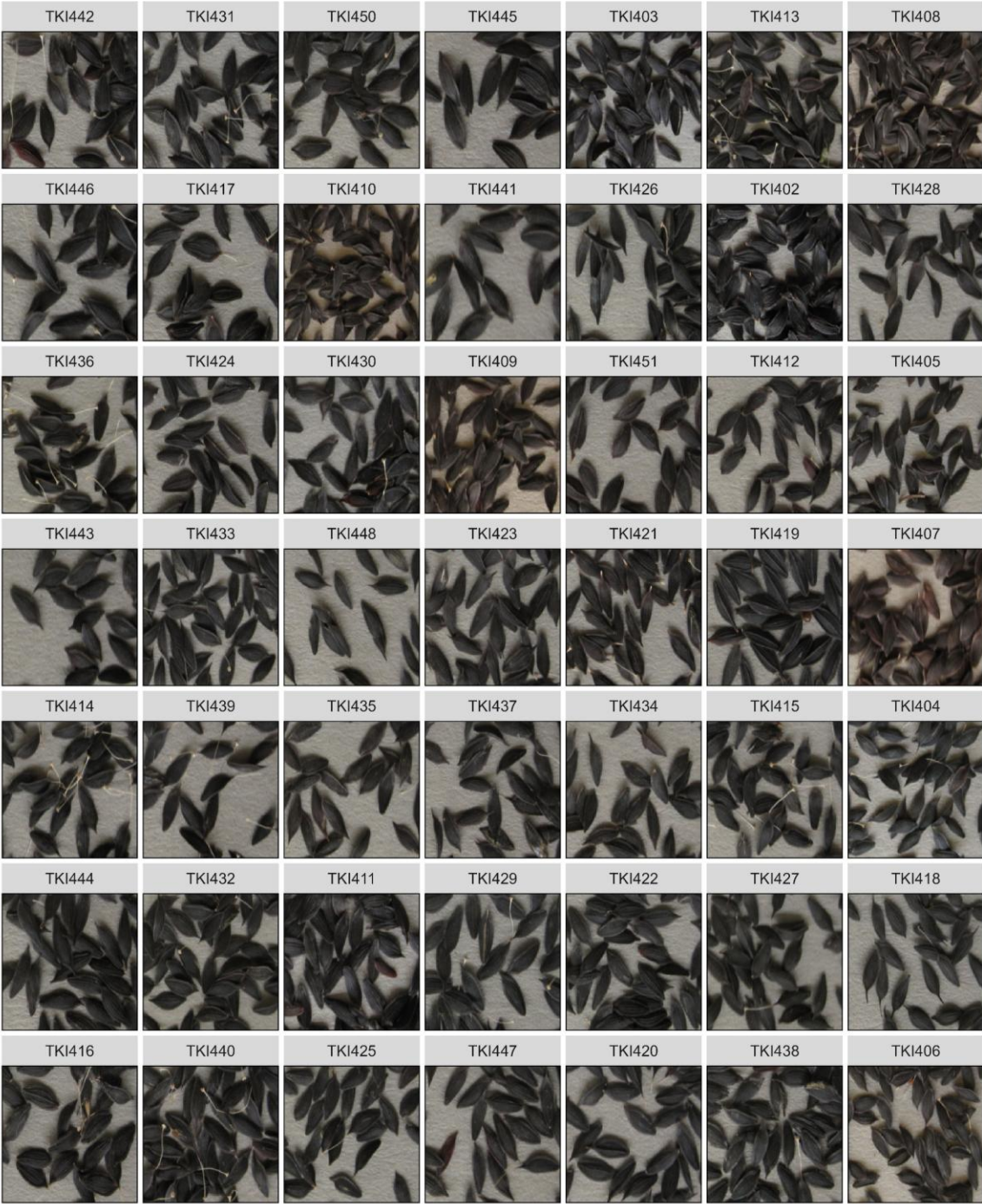
Seed color *L. sativa*

TKI097	TKI139	TKI047	TKI132	TKI121	TKI141	TKI074	TKI099	TKI105	TKI063	TKI059	TKI042	TKI138	TKI027
TKI102	TKI137	TKI125	TKI024	TKI021	TKI002	TKI075	TKI108	TKI116	TKI130	TKI098	TKI117	TKI023	TKI046
TKI041	TKI080	TKI079	TKI068	TKI026	TKI076	TKI118	TKI037	TKI078	TKI055	TKI134	TKI039	TKI025	TKI028
TKI131	TKI111	TKI091	TKI129	TKI013	TKI020	TKI048	TKI065	TKI008	TKI113	TKI017	TKI036	TKI006	TKI032
TKI119	TKI109	TKI136	TKI090	TKI035	TKI070	TKI031	TKI038	TKI120	TKI082	TKI112	TKI100	TKI001	
TKI045	TKI081	TKI071	TKI089	TKI016	TKI057	TKI073	TKI124	TKI106	TKI107	TKI011	TKI019	TKI003	
TKI114	TKI053	TKI085	TKI093	TKI140	TKI062	TKI064	TKI058	TKI083	TKI110	TKI095	TKI014	TKI018	
TKI103	TKI123	TKI092	TKI049	TKI034	TKI072	TKI050	TKI056	TKI029	TKI104	TKI122	TKI004	TKI067	
TKI094	TKI088	TKI128	TKI044	TKI135	TKI051	TKI069	TKI077	TKI066	TKI086	TKI127	TKI022	TKI043	
TKI087	TKI101	TKI126	TKI495	TKI033	TKI096	TKI115	TKI054	TKI084	TKI040	TKI007	TKI009	TKI030	

Seed color L. serriola

TKI334	TKI246	TKI328	TKI330	TKI301	TKI173	TKI272	TKI263	TKI210	TKI203	TKI295	TKI338	TKI185	TKI222	TKI200	TKI249	TKI270	TKI323
																	
TKI231	TKI308	TKI218	TKI217	TKI325	TKI340	TKI251	TKI315	TKI228	TKI154	TKI314	TKI160	TKI146	TKI267	TKI207	TKI318	TKI223	TKI307
																	
TKI242	TKI257	TKI339	TKI144	TKI244	TKI209	TKI221	TKI199	TKI237	TKI204	TKI190	TKI293	TKI176	TKI175	TKI156	TKI312	TKI142	TKI320
																	
TKI208	TKI284	TKI332	TKI212	TKI167	TKI258	TKI181	TKI286	TKI239	TKI177	TKI278	TKI261	TKI287	TKI165	TKI152	TKI288	TKI143	TKI306
																	
TKI254	TKI268	TKI317	TKI191	TKI271	TKI264	TKI296	TKI235	TKI202	TKI224	TKI262	TKI280	TKI159	TKI153	TKI305	TKI319	TKI163	TKI150
																	
TKI259	TKI333	TKI220	TKI227	TKI273	TKI336	TKI252	TKI276	TKI240	TKI180	TKI188	TKI283	TKI214	TKI230	TKI302	TKI196	TKI229	TKI193
																	
TKI187	TKI248	TKI281	TKI299	TKI269	TKI265	TKI216	TKI322	TKI279	TKI157	TKI183	TKI236	TKI234	TKI205	TKI285	TKI310	TKI172	TKI197
																	
TKI327	TKI250	TKI304	TKI213	TKI291	TKI169	TKI179	TKI232	TKI289	TKI194	TKI178	TKI162	TKI275	TKI243	TKI201	TKI311	TKI313	TKI266
																	
TKI215	TKI331	TKI225	TKI321	TKI292	TKI247	TKI329	TKI277	TKI184	TKI211	TKI161	TKI260	TKI195	TKI219	TKI326	TKI151	TKI233	TKI198
																	
TKI300	TKI245	TKI168	TKI282	TKI226	TKI186	TKI189	TKI324	TKI316	TKI174	TKI164	TKI155	TKI238	TKI182	TKI171	TKI335	TKI192	
																	
TKI255	TKI337	TKI256	TKI290	TKI148	TKI297	TKI253	TKI170	TKI166	TKI158	TKI298	TKI274	TKI303	TKI309	TKI206	TKI241	TKI294	
																	

Seed color in *L. virosa*



Seed color in *L. saligna*



Seed color in Lactuca species

TKI449 L. georgica 	TKI459 L. georgica 	TKI452 L. georgica 	TKI461 L. georgica 	TKI472 L. biennis 	TKI465 L. aculeata 	TKI468 L. sativa x L. serriola 
TKI456 L. georgica 	TKI476 L. homblei 	TKI470 L. quercina 	TKI473 L. canadensis 	TKI481 L. sagittata 	TKI394 L. altaica 	TKI467 L. altaica 
TKI477 L. indica 	TKI458 L. georgica 	TKI457 L. georgica 	TKI474 L. canadensis 	TKI469 L. sativa x L. serriola 	TKI494 L. palmensis 	TKI466 L. altaica 
TKI460 L. georgica 	TKI463 L. georgica 	TKI462 L. georgica 	TKI454 L. georgica 	TKI464 L. aculeata 	TKI475 L. floridana 	
TKI453 L. georgica 	TKI479 L. raddeana 	TKI455 L. georgica 	TKI145 L. sativa x L. serriola 	TKI149 L. sativa x L. serriola 	TKI147 L. sativa x L. serriola 	