

Appendix A. Tables showing geographic and climatic data for common gardens, sample seed weight and associated collection, year, subspecies, cytotype and UV fluorescence information, and mean seed weight and 99% confidence intervals for subspecies-cytotype groups.

Table A1. Geographic and climatic data for common gardens.

Garden	Longitude	Latitude	Elevation (m)	MAP (mm)	MAT (°C)
Orchard	-115.998	43.322	974	224	10.9
Majors Flat	-111.52	39.339	2,105	414	8

Table A2. Seed weight and associated collection, year, subspecies, cytotype, and UV fluorescence information.

Collection	Population/Seed lot	Year	Subspecies	Cytotype	Mean weight (mg)	Weight variance (mg)	UV fluorescence
commercial	1	2013	<i>vaseyana</i>	na	2.280	0.022	3
commercial	2	2013	<i>vaseyana</i>	na	1.890	0.032	5
commercial	3	2013	<i>vaseyana</i>	na	1.810	0.039	5
commercial	4	2013	<i>wyomingensis</i>	na	1.660	0.029	0
commercial	5	2013	<i>wyomingensis</i>	na	1.670	0.011	0
commercial	6	2013	<i>wyomingensis</i>	na	1.650	0.036	0
commercial	7	2013	<i>wyomingensis</i>	na	1.840	0.016	0
commercial	8	2013	<i>wyomingensis</i>	na	1.570	0.007	0
commercial	9	2013	<i>wyomingensis</i>	na	1.750	0.029	0
commercial	10	2013	<i>wyomingensis</i>	na	1.820	0.020	0
commercial	11	2014	<i>tridentata</i>	na	1.620	0.015	0
commercial	12	2014	<i>tridentata</i>	na	2.380	0.060	0
commercial	13	2014	<i>tridentata</i>	na	1.690	0.025	0
commercial	14	2014	<i>tridentata</i>	na	1.620	0.006	0
commercial	15	2014	<i>tridentata</i>	na	1.860	0.020	0
commercial	16	2014	<i>vaseyana</i>	na	3.020	0.035	4
commercial	17	2014	<i>vaseyana</i>	na	2.410	0.039	0
commercial	18	2014	<i>vaseyana</i>	na	2.490	0.021	4
commercial	19	2014	<i>vaseyana</i>	na	1.870	0.022	4
commercial	20	2014	<i>wyomingensis</i>	na	1.900	0.029	0
commercial	A	2014	<i>wyomingensis</i>	see text	2.300	0.022	1
commercial	B	2014	<i>wyomingensis</i>	see text	1.650	0.041	0
commercial	C	2014	<i>wyomingensis</i>	see text	2.300	0.031	0
commercial	21	2014	<i>wyomingensis</i>	na	2.250	0.016	0
commercial	22	2014	<i>wyomingensis</i>	na	1.770	0.018	0
commercial	23	2014	<i>wyomingensis</i>	na	1.880	0.011	0
commercial	24	2014	<i>wyomingensis</i>	na	2.180	0.068	0
commercial	25	2014	<i>wyomingensis</i>	na	2.110	0.110	0
commercial	26	2014	<i>wyomingensis</i>	na	2.920	0.128	0
commercial	D	2014	<i>wyomingensis</i>	see text	1.680	0.024	2
Majors Flat	CAT-1	2012	<i>tridentata</i>	2x	1.900	0.040	0
Majors Flat	CAT-2	2012	<i>tridentata</i>	2x	1.725	0.028	0
Majors Flat	COT-1	2012	<i>tridentata</i>	2x	1.758	0.266	0
Majors Flat	IDT-1	2012	<i>tridentata</i>	2x	1.642	0.052	0
Majors Flat	IDT-2	2012	<i>tridentata</i>	2x	1.792	0.057	0
Majors Flat	IDT-3	2012	<i>tridentata</i>	2x	1.708	0.041	0
Majors Flat	MTT-1	2012	<i>tridentata</i>	2x	2.117	0.100	0
Majors Flat	NVT-1	2012	<i>tridentata</i>	2x	1.608	0.084	0
Majors Flat	NVT-2	2012	<i>tridentata</i>	2x	2.433	0.086	0
Majors Flat	NVW-1	2012	<i>tridentata</i>	2x	1.850	0.021	0
Majors Flat	ORT-1	2012	<i>tridentata</i>	2x	1.983	0.051	0.3
Majors Flat	ORT-2	2012	<i>tridentata</i>	2x	2.125	0.064	0
Majors Flat	ORT-3	2012	<i>tridentata</i>	2x	2.042	0.030	0
Majors Flat	ORW-2	2012	<i>tridentata</i>	2x	2.125	0.048	0
Majors Flat	ORW-3	2012	<i>tridentata</i>	2x	1.900	0.187	0
Majors Flat	UTT-1	2012	<i>tridentata</i>	2x	1.742	0.070	0
Majors Flat	UTT-2	2012	<i>tridentata</i>	2x	1.525	0.037	0
Majors Flat	UTT-3	2012	<i>tridentata</i>	2x	2.167	0.088	0
Majors Flat	WAT-1	2012	<i>tridentata</i>	2x	2.283	0.107	0
Majors Flat	AZT-1	2012	<i>tridentata</i>	4x	2.933	0.064	0.7
Majors Flat	AZW-1	2012	<i>tridentata</i>	4x	2.892	0.143	0.7
Majors Flat	NMT-1	2012	<i>tridentata</i>	4x	2.683	0.783	0
Majors Flat	NMT-2	2012	<i>tridentata</i>	4x	3.317	0.371	0.3
Majors Flat	WAT-2	2012	<i>tridentata</i>	4x	2.917	0.105	0
Majors Flat	CAV-2	2012	<i>vaseyana</i>	2x	2.458	0.054	5
Majors Flat	CAW-3	2012	<i>vaseyana</i>	2x	3.025	0.275	4
Majors Flat	IDV-2	2012	<i>vaseyana</i>	2x	2.400	0.211	3

Majors Flat	IDV-4	2012	<i>vaseyana</i>	2x	3.050	0.105	5
Majors Flat	IDV-5	2012	<i>vaseyana</i>	2x	3.442	0.764	5
Majors Flat	NVV-1	2012	<i>vaseyana</i>	2x	2.450	0.112	5
Majors Flat	NVV-2	2012	<i>vaseyana</i>	2x	2.417	0.022	5
Majors Flat	ORV-2	2012	<i>vaseyana</i>	2x	2.425	0.148	2.7
Majors Flat	UTV-1	2012	<i>vaseyana</i>	2x	2.400	0.028	5
Majors Flat	CAV-4	2012	<i>vaseyana</i>	4x	2.000	0.010	3
Majors Flat	NVV-3	2012	<i>vaseyana</i>	4x	4.717	0.338	2.7
Majors Flat	ORV-1	2012	<i>vaseyana</i>	4x	3.392	0.110	3.3
Majors Flat	UTV-3	2012	<i>vaseyana</i>	4x	3.950	0.047	3.6
Majors Flat	COW-1	2012	<i>wyomingensis</i>	4x	2.908	0.148	0
Majors Flat	COW-2	2012	<i>wyomingensis</i>	4x	3.450	0.143	0.3
Majors Flat	IDW-1	2012	<i>wyomingensis</i>	4x	2.344	0.033	0
Majors Flat	IDW-2	2012	<i>wyomingensis</i>	4x	2.350	0.057	0
Majors Flat	IDW-3	2012	<i>wyomingensis</i>	4x	3.633	0.082	0
Majors Flat	MTW-1	2012	<i>wyomingensis</i>	4x	3.875	0.171	0
Majors Flat	MTW-2	2012	<i>wyomingensis</i>	4x	3.640	0.194	0
Majors Flat	MTW-3	2012	<i>wyomingensis</i>	4x	4.083	0.296	0
Majors Flat	ORW-1	2012	<i>wyomingensis</i>	4x	3.122	0.179	1
Majors Flat	UTV-2	2012	<i>wyomingensis</i>	4x	2.842	0.048	1.7
Majors Flat	UTW-1	2012	<i>wyomingensis</i>	4x	2.533	0.084	0.7
Majors Flat	UTW-2	2012	<i>wyomingensis</i>	4x	2.308	0.079	1
Majors Flat	WAW-1	2012	<i>wyomingensis</i>	4x	2.825	0.138	0
Majors Flat	WYW-1	2012	<i>wyomingensis</i>	4x	3.492	0.166	0
Majors Flat	WYW-2	2012	<i>wyomingensis</i>	4x	3.392	0.237	0
Majors Flat	CAT-1	2013	<i>tridentata</i>	2x	1.442	0.048	na
Majors Flat	CAT-2	2013	<i>tridentata</i>	2x	1.575	0.017	na
Majors Flat	COT-1	2013	<i>tridentata</i>	2x	1.825	0.013	na
Majors Flat	IDT-1	2013	<i>tridentata</i>	2x	1.200	0.011	na
Majors Flat	IDT-2	2013	<i>tridentata</i>	2x	1.575	0.057	na
Majors Flat	IDT-3	2013	<i>tridentata</i>	2x	1.375	0.077	na
Majors Flat	MTT-1	2013	<i>tridentata</i>	2x	2.075	0.037	na
Majors Flat	NVT-1	2013	<i>tridentata</i>	2x	1.792	0.043	na
Majors Flat	NVT-2	2013	<i>tridentata</i>	2x	1.900	0.071	na
Majors Flat	NVW-1	2013	<i>tridentata</i>	2x	1.667	0.092	na
Majors Flat	ORT-1	2013	<i>tridentata</i>	2x	1.775	0.048	na
Majors Flat	ORT-2	2013	<i>tridentata</i>	2x	2.092	0.054	na
Majors Flat	ORT-3	2013	<i>tridentata</i>	2x	1.722	0.052	na
Majors Flat	ORW-2	2013	<i>tridentata</i>	2x	2.100	0.032	na
Majors Flat	ORW-3	2013	<i>tridentata</i>	2x	1.500	0.016	na
Majors Flat	UTT-1	2013	<i>tridentata</i>	2x	1.842	0.134	na
Majors Flat	UTT-2	2013	<i>tridentata</i>	2x	1.267	0.037	na
Majors Flat	UTT-3	2013	<i>tridentata</i>	2x	1.892	0.028	na
Majors Flat	WAT-1	2013	<i>tridentata</i>	2x	2.042	0.024	na
Majors Flat	AZT-1	2013	<i>tridentata</i>	4x	2.658	0.097	na
Majors Flat	AZW-1	2013	<i>tridentata</i>	4x	2.267	0.175	na
Majors Flat	NMT-1	2013	<i>tridentata</i>	4x	2.425	0.057	na
Majors Flat	NMT-2	2013	<i>tridentata</i>	4x	2.400	0.060	na
Majors Flat	WAT-2	2013	<i>tridentata</i>	4x	2.267	0.032	na
Majors Flat	CAV-2	2013	<i>vaseyana</i>	2x	1.933	0.095	na
Majors Flat	CAW-3	2013	<i>vaseyana</i>	2x	2.150	0.015	na
Majors Flat	IDV-2	2013	<i>vaseyana</i>	2x	2.450	0.059	na
Majors Flat	IDV-5	2013	<i>vaseyana</i>	2x	2.683	0.094	na
Majors Flat	NVV-2	2013	<i>vaseyana</i>	2x	1.875	0.091	na
Majors Flat	ORV-2	2013	<i>vaseyana</i>	2x	2.767	0.063	na
Majors Flat	NVV-3	2013	<i>vaseyana</i>	4x	2.850	0.127	na
Majors Flat	COW-1	2013	<i>wyomingensis</i>	4x	2.440	0.054	na
Majors Flat	COW-2	2013	<i>wyomingensis</i>	4x	3.150	0.299	na

Majors Flat	IDW-1	2013	<i>wyomingensis</i>	4x	2.257	0.090	na
Majors Flat	IDW-3	2013	<i>wyomingensis</i>	4x	3.400	0.050	na
Majors Flat	MTW-1	2013	<i>wyomingensis</i>	4x	3.950	0.005	na
Majors Flat	MTW-2	2013	<i>wyomingensis</i>	4x	3.408	0.175	na
Majors Flat	MTW-3	2013	<i>wyomingensis</i>	4x	2.967	0.019	na
Majors Flat	ORW-1	2013	<i>wyomingensis</i>	4x	2.750	0.011	na
Majors Flat	UTV-2	2013	<i>wyomingensis</i>	4x	2.614	0.148	na
Majors Flat	UTW-1	2013	<i>wyomingensis</i>	4x	2.258	0.034	na
Majors Flat	UTW-2	2013	<i>wyomingensis</i>	4x	2.850	0.495	na
Majors Flat	WAW-1	2013	<i>wyomingensis</i>	4x	2.792	0.052	na
Orchard	CAT-1	2012	<i>tridentata</i>	2x	2.108	0.034	na
Orchard	CAT-2	2012	<i>tridentata</i>	2x	1.600	0.102	na
Orchard	COT-1	2012	<i>tridentata</i>	2x	1.833	0.095	na
Orchard	IDT-1	2012	<i>tridentata</i>	2x	1.558	0.064	na
Orchard	IDT-2	2012	<i>tridentata</i>	2x	1.817	0.129	na
Orchard	IDT-3	2012	<i>tridentata</i>	2x	1.542	0.026	na
Orchard	MTT-1	2012	<i>tridentata</i>	2x	2.017	0.010	na
Orchard	MTW-1	2012	<i>tridentata</i>	2x	2.317	0.354	na
Orchard	NVT-1	2012	<i>tridentata</i>	2x	1.678	0.027	na
Orchard	NVT-2	2012	<i>tridentata</i>	2x	1.317	0.029	na
Orchard	NVW-1	2012	<i>tridentata</i>	2x	1.856	0.115	na
Orchard	ORT-1	2012	<i>tridentata</i>	2x	2.133	0.070	na
Orchard	ORT-2	2012	<i>tridentata</i>	2x	2.325	0.102	na
Orchard	ORT-3	2012	<i>tridentata</i>	2x	1.733	0.003	na
Orchard	ORW-2	2012	<i>tridentata</i>	2x	1.533	0.052	na
Orchard	ORW-3	2012	<i>tridentata</i>	2x	1.750	0.214	na
Orchard	UTT-1	2012	<i>tridentata</i>	2x	2.133	0.023	na
Orchard	UTT-2	2012	<i>tridentata</i>	2x	1.625	0.031	na
Orchard	WAT-1	2012	<i>tridentata</i>	2x	1.617	0.011	na
Orchard	WAT-2	2012	<i>tridentata</i>	4x	2.283	0.318	na
Orchard	IDV-2	2012	<i>vaseyana</i>	2x	2.517	0.446	na
Orchard	NVV-1	2012	<i>vaseyana</i>	4x	1.767	0.013	na
Orchard	ORV-1	2012	<i>vaseyana</i>	4x	2.833	0.087	na
Orchard	IDW-3	2012	<i>wyomingensis</i>	4x	2.867	0.023	na
Orchard	MTW-3	2012	<i>wyomingensis</i>	4x	2.467	0.103	na
Orchard	UTV-2	2012	<i>wyomingensis</i>	4x	3.233	0.023	na
Orchard	UTW-1	2012	<i>wyomingensis</i>	4x	2.200	0.320	na
Orchard	UTW-2	2012	<i>wyomingensis</i>	4x	2.100	0.060	na
Orchard	WAW-1	2012	<i>wyomingensis</i>	4x	2.250	0.047	na
Orchard	WYW-2	2012	<i>wyomingensis</i>	4x	3.283	0.214	na
Orchard	CAT-1	2013	<i>tridentata</i>	2x	2.133	0.011	na
Orchard	CAT-2	2013	<i>tridentata</i>	2x	1.744	0.103	na
Orchard	COT-1	2013	<i>tridentata</i>	2x	1.917	0.038	na
Orchard	IDT-1	2013	<i>tridentata</i>	2x	1.617	0.020	na
Orchard	IDT-2	2013	<i>tridentata</i>	2x	1.556	0.148	na
Orchard	IDT-3	2013	<i>tridentata</i>	2x	1.525	0.018	na
Orchard	NVT-1	2013	<i>tridentata</i>	2x	1.400	0.020	na
Orchard	NVT-2	2013	<i>tridentata</i>	2x	1.222	0.022	na
Orchard	NVW-1	2013	<i>tridentata</i>	2x	2.417	0.038	na
Orchard	ORT-1	2013	<i>tridentata</i>	2x	2.100	0.180	na
Orchard	ORT-2	2013	<i>tridentata</i>	2x	2.158	0.148	na
Orchard	ORT-3	2013	<i>tridentata</i>	2x	1.758	0.101	na
Orchard	ORW-2	2013	<i>tridentata</i>	2x	1.592	0.043	na
Orchard	ORW-3	2013	<i>tridentata</i>	2x	1.600	0.120	na
Orchard	UTT-1	2013	<i>tridentata</i>	2x	1.967	0.051	na
Orchard	UTT-2	2013	<i>tridentata</i>	2x	1.967	0.043	na
Orchard	WAT-1	2013	<i>tridentata</i>	2x	1.475	0.100	na
Orchard	WAT-2	2013	<i>tridentata</i>	4x	2.917	0.070	na

Orchard	IDV-2	2013	<i>vaseyana</i>	2x	1.933	0.023	na
Orchard	IDW-1	2013	<i>wyomingensis</i>	4x	2.800	0.210	na
Orchard	IDW-2	2013	<i>wyomingensis</i>	4x	2.708	0.134	na
Orchard	IDW-3	2013	<i>wyomingensis</i>	4x	2.667	0.053	na
Orchard	UTW-2	2013	<i>wyomingensis</i>	4x	2.650	0.071	na
Orchard	WAW-1	2013	<i>wyomingensis</i>	4x	1.950	0.023	na
Original	COT-1	2009	<i>tridentata</i>	2x	1.580	0.083	na
Original	IDT-1	2009	<i>tridentata</i>	2x	1.404	0.080	na
Original	IDT-3	2009	<i>tridentata</i>	2x	1.653	0.167	na
Original	MTT-1	2009	<i>tridentata</i>	2x	1.217	0.071	na
Original	NVT-1	2009	<i>tridentata</i>	2x	1.319	0.042	na
Original	NVT-2	2009	<i>tridentata</i>	2x	1.793	0.096	na
Original	NVW-1	2009	<i>tridentata</i>	2x	1.587	0.201	na
Original	ORT-1	2009	<i>tridentata</i>	2x	1.587	0.131	na
Original	ORT-3	2009	<i>tridentata</i>	2x	1.780	0.036	na
Original	ORW-2	2009	<i>tridentata</i>	2x	1.500	0.051	na
Original	ORW-3	2009	<i>tridentata</i>	2x	2.417	0.056	na
Original	UTT-2	2009	<i>tridentata</i>	2x	1.900	0.061	na
Original	UTT-3	2009	<i>tridentata</i>	2x	2.060	0.225	na
Original	WAT-1	2009	<i>tridentata</i>	2x	1.940	0.123	na
Original	AZT-1	2009	<i>tridentata</i>	4x	2.313	0.198	na
Original	AZW-1	2009	<i>tridentata</i>	4x	2.446	0.139	na
Original	NMT-1	2009	<i>tridentata</i>	4x	2.093	0.132	na
Original	WAT-2	2009	<i>tridentata</i>	4x	1.900	0.600	na
Original	CAV-2	2009	<i>vaseyana</i>	2x	1.827	0.052	na
Original	CAW-3	2009	<i>vaseyana</i>	2x	2.753	0.234	na
Original	IDV-4	2009	<i>vaseyana</i>	2x	1.787	0.250	na
Original	IDV-5	2009	<i>vaseyana</i>	2x	2.400	0.233	na
Original	MTV-1	2009	<i>vaseyana</i>	2x	2.093	0.171	na
Original	NVV-2	2009	<i>vaseyana</i>	2x	1.922	0.089	na
Original	ORV-2	2009	<i>vaseyana</i>	2x	1.867	0.175	na
Original	UTV-1	2009	<i>vaseyana</i>	2x	2.392	0.179	na
Original	CAV-3	2009	<i>vaseyana</i>	4x	1.673	0.028	na
Original	CAV-4	2009	<i>vaseyana</i>	4x	2.680	0.187	na
Original	NVV-1	2009	<i>vaseyana</i>	2x	1.740	0.071	na
Original	NVV-3	2009	<i>vaseyana</i>	4x	3.387	0.190	na
Original	UTV-3	2009	<i>vaseyana</i>	4x	3.127	0.215	na
Original	COW-1	2009	<i>wyomingensis</i>	4x	2.440	0.177	na
Original	COW-2	2009	<i>wyomingensis</i>	4x	2.713	0.251	na
Original	IDW-1	2009	<i>wyomingensis</i>	4x	2.736	0.098	na
Original	UTV-2	2009	<i>wyomingensis</i>	4x	2.653	0.126	na
Original	UTW-1	2009	<i>wyomingensis</i>	4x	2.633	0.210	na
Original	UTW-2	2009	<i>wyomingensis</i>	4x	2.547	0.110	na
Original	WAW-1	2009	<i>wyomingensis</i>	4x	1.587	0.023	na
Original	WYW-2	2009	<i>wyomingensis</i>	4x	2.117	0.042	na

Table A3. Mean seed weight and 99% confidence intervals for subspecies-cytotype groups.

Subspecies-cytotype	Weight (mg)	Lower	Upper
<i>2x-tridentata</i>	1.77	1.48	2.07
<i>4x-tridentata</i>	2.52	1.92	3.07
<i>2x-vaseyana</i>	2.38	1.81	2.88
<i>4x-vaseyana</i>	2.8	2.19	3.44
<i>wyomingensis</i>	2.82	2.28	3.26