Supplementary Tables

Table S1. Genotyping platforms with number clones

Genotyping platform	Source	Number of clones	Chips	Fresh market
GeneSeek 31k array	MN		69	28
	WI			
	ND			
	Checks			
sub total		97		
DarTag	MN		46	40
	WI		2	
	ND			
	Checks		1	
sub total		89		
Potato 8k array	MN		1	
	WI		11	
	ND			7
	Checks		4	6
sub total		29		
Total		215	134	81

Table S2. Genomic estimated total genotypic values for all traits

clone_id	yield	r2_yield	sg	r2_sg
Atlantic	352.602679	0.307740084	1.065051595	0.463770452
Cascade	299.737041	0.457741891	1.059884208	0.477237292
Lamoka	352.529728	0.406436264	1.064513352	0.349373058
MN04844	290.017164	0.428794096	1.061611525	0.462443217
MN18AF6643-10	330.475942	0.291533224	1.063592675	0.449235509
MN18AF6643-12	347.697642	0.305897381	1.063861286	0.471684849
MN18AF6643-13	341.173584	0.333777335	1.065304177	0.477244355
MN18AF6643-7	339.730787	0.284637445	1.06497037	0.440859229
MN18AF6643-9	343.986774	0.27967185	1.064917638	0.446467139
MN18AF6648-10	303.274054	0.339773056	1.063765339	0.495134688
MN18AF6648-14	322.477971	0.292590234	1.064300394	0.429639095
MN18AF6648-8	328.354105	0.300488431	1.063848625	0.440886962
MN18AF6648-9	322.036215	0.30837894	1.063750752	0.452182494
MN18AF6658-5	335.487952	0.348803052	1.06392393	0.479133923
MN18AF6661-2	329.561363	0.261584957	1.063832719	0.392341341
MN18AF6661-9	339.713124	0.304445875	1.063981905	0.449163508
MN18AF6675-2	345.743341	0.313315343	1.064213685	0.466384326
MN18AF6680-12	338.728574	0.298341876	1.065046853	0.438292474
MN18AF6680-8	334.213221	0.276874139	1.063363757	0.43149389

MN18AF6716-2	317.47075	0.312373835	1.063530853	0.441809228
MN18AF6717-10	340.623557	0.333784765	1.063126997	0.466394278
MN18AF6717-2	346.897232	0.355815274	1.063832651	0.493123651
MN18AF6717-3	333.663862	0.340817862	1.06314175	0.481483551
MN18AF6717-6	336.567509	0.357724542	1.062887452	0.491637856
MN18AF6717-7	319.476566	0.320851142	1.063563958	0.430893837
MN18AF6717-9	339.485481	0.327512228	1.063642079	0.466412291
MN18AF6718-1	328.512398	0.329249485	1.063783377	0.45958745
MN18AF6720-2	308.42019	0.315958204	1.063945006	0.476448679
MN18AF6722-2	326.428778	0.306020509	1.064561902	0.462539386
MN18AF6724-5	324.429988	0.308408612	1.064190181	0.42825242
MN18AF6724-8	318.267781	0.307222405	1.064193556	0.424313673
MN18AF6724-9	314.396545	0.291946116	1.064293606	0.417743552
MN18AF6725-1	329.030797	0.317846331	1.06451595	0.421547209
MN18AF6725-2	326.943845	0.300795567	1.063360769	0.440921011
MN18AF6726-2	318.654067	0.302714193	1.063405384	0.449465512
MN18AF6726-4	335.802167	0.290196535	1.063341527	0.440023115
MN18AF6728-7	340.397154	0.304081706	1.063914776	0.435768145
MN18AF6729-1	310.788553	0.273284059	1.062711894	0.404361454
MN18AF6730-3	325.818234	0.314054582	1.062631646	0.452637145
MN18AF6730-5	336.420202	0.31229998	1.063601763	0.454112326
MN18AF6730-6	322.108021	0.379161298	1.063469912	0.634724875
MN18AF6734-1	315.582053	0.296634937	1.062710181	0.445169522
MN18AF6745-4	326.546678	0.261312117	1.064112526	0.406049217
MN18SR00045-1	379.594122	0.096080364	1.065760227	0.10483201
MN18SR00045-3	390.909915	0.087349319	1.066348582	0.093099852
MN18TX17730-8	376.472757	0.225924692	1.066253141	0.226097435
MN18TX17748-1	378.61573	0.355731839	1.063650296	0.339001167
MN18W17037-19	375.486184	0.382460863	1.065362603	0.35479996
MN18W17037-2	375.526267	0.36100248	1.065748608	0.331463064
MN18W17037-21	342.956608	0.477192891	1.066853612	0.424681267
MN18W17037-24	374.085171	0.408790304	1.068501102	0.383050685
MN18W17037-26	329.560435	0.501746217	1.067276756	0.44363801
MN18W17037-27	357.614391	0.463868635	1.067164201	0.382847873
MN18W17037-32	433.463916	0.340217309	1.063421363	0.326006825
MN18W17037-34	375.138268	0.517936084	1.067790283	0.427112271
MN18W17037-36	368.687965	0.377426051	1.066753147	0.353266119
MN18W17037-9	334.063842	0.29412787	1.063479294	0.447404525
MN18W17039-1	374.490547	0.403597109	1.068555017	0.376578736
MN18W17039-12	338.83368	0.285991802	1.064147738	0.421071626
MN18W17039-13	326.396	0.279509985	1.063827681	0.429610387
MN18W17039-27	378.329324	0.396073752	1.070385304	0.377192385
MN18W17039-5	401.380712	0.543098246	1.071282083	0.463671171

MN18W17043-11	406.694255	0.336223672	1.067435902	0.304557086
MN18W17043-12	467.800005	0.482648192	1.070259525	0.404334351
MN18W17043-14	349.861889	0.27560693	1.064032389	0.416476069
MN18W17043-17	333.169869	0.347783172	1.064005713	0.467026573
MN18W17043-2	384.659976	0.487089457	1.070923506	0.418723454
MN18W17043-3	372.054411	0.462964984	1.06906886	0.428181696
MN18W17043-6	409.334103	0.492108309	1.068638869	0.417163753
MN18W17043-7	435.098449	0.368344307	1.068408662	0.341390952
MN18W17043-8	442.141331	0.318702269	1.064720517	0.295508364
MN18W17052-15	315.831327	0.423826191	1.068562868	0.404719688
MN18W17052-4	378.566776	0.525647739	1.072926559	0.457958727
MN18W17052-6	369.726202	0.516855952	1.070833233	0.432845339
MN18W17055-4	325.104043	0.450673313	1.066819041	0.421955193
MN18W17057-1	315.076121	0.419975057	1.068600287	0.394877808
MN18W17057-3	327.77881	0.453659958	1.066965429	0.422622657
MN18W17057-5	342.203719	0.465546694	1.066989361	0.339199002
MN18W17065-5	370.17919	0.305813675	1.065027019	0.280592399
MN18W17065-7	325.280195	0.292009402	1.063277708	0.447111321
MN18W17092-7	331.508918	0.291825758	1.064053233	0.446499012
MN19AF6866-1	330.851582	0.414076062	1.065597268	0.375712747
MN19AF6866-10	331.957809	0.376284483	1.06592961	0.417482755
MN19AF6866-11	335.037648	0.433313117	1.06579434	0.435287719
MN19AF6866-13	332.661041	0.373359982	1.065836501	0.42216222
MN19AF6866-14	337.663517	0.440008538	1.065835825	0.440611696
MN19AF6866-4	316.785239	0.305427285	1.067038959	0.360280806
MN19AF6867-3	350.783139	0.372365372	1.066873822	0.331776692
MN19AF6869-12	335.501877	0.322815446	1.065847672	0.342294227
MN19AF6869-19	307.465246	0.316798623	1.066802823	0.338185027
MN19AF6869-20	336.111768	0.233254733	1.065630872	0.249920722
MN19AF6869-21	321.957819	0.332881424	1.065458177	0.345685849
MN19AF6869-5	324.872656	0.31200402	1.065682343	0.335254591
MN19AF6869-6	304.274049	0.347272812	1.066262313	0.364355625
MN19AF6869-7	324.933138	0.4364417	1.067277864	0.402041482
MN19AF6892-10	383.470355	0.305103365	1.069115107	0.316514179
MN19AF6892-2	365.748949	0.307574776	1.069254073	0.325878337
MN19AF6892-9	392.177862	0.400985087	1.07055243	0.376805706
MN19TX18010-1	380.666835	0.265857062	1.064318342	0.292138359
MN19TX18014-1	321.770151	0.253366705	1.065000803	0.26040773
MN19TX18014-4	345.849128	0.232058553	1.065466248	0.242114564
MN19TX18031-1	390.75931	0.249405204	1.064893018	0.280515492
MN19TX18032-1	360.949022	0.420304436	1.063245825	0.388729994
MN19TX18032-10	328.183486	0.413839123	1.061494115	0.386903744
MN19TX18032-5	378.629707	0.40403407	1.062995795	0.377108971

MN19TX18032-6	363.269837	0.286183592	1.062244433	0.306510065
MN19TX18032-9	376.047331	0.317601566	1.062991466	0.334402472
MN19TX18054-2	369.537723	0.329104976	1.064721904	0.311224442
MN19TX18093-1	499.74575	0.3896995	1.066171485	0.359027135
MN19TX18120-1	377.633756	0.32156588	1.066065851	0.300822979
MN19TX18171-1	366.850866	0.207488438	1.065326974	0.216999896
MN19TX18171-6	369.232111	0.215580761	1.065328939	0.237779618
MN19TX18188-1	341.065616	0.391622774	1.060746654	0.370583064
MN19TX18211-1	414.565444	0.341404614	1.064819753	0.335436931
MN19TX18212-7	375.194402	0.37294833	1.062760414	0.342888585
MN19TX18212-8	403.639644	0.274797168	1.063922294	0.294031395
MN19TX18260-1	371.814107	0.352875154	1.067428219	0.307453382
MN19TX18280-2	396.787179	0.404439384	1.063782975	0.384879112
MN19TX18304-1	447.028909	0.376870243	1.065886985	0.33191974
Snowden	364.768153	0.325997934	1.066128935	0.292664066
Superior	296.438346	0.461674677	1.060949147	0.47645113
W17037-3	368.716502	0.2935112	1.067090036	0.279344312
W17039-31	342.560879	0.28572549	1.064161715	0.43851164
W17039-7	416.460303	0.337882491	1.068662602	0.316712478
W17043-37	346.02875	0.314479176	1.064156983	0.492223924
W17049-10	399.171245	0.221103649	1.066573865	0.217065095
W17060-22	406.990175	0.341844973	1.069024188	0.31969198
W17065-21	367.226728	0.223829363	1.066298316	0.21711718
W17066-11	375.022096	0.281671999	1.065698639	0.267184654
W17066-34	379.956862	0.294251579	1.066468708	0.283385667
W17067-1	413.305274	0.246494495	1.068495568	0.237797896
W17067-13	395.694515	0.204141402	1.067200094	0.198637907
W17AF6670-1	399.686975	0.241280284	1.068187457	0.233883626
W17AF6685-2	386.189952	0.211900976	1.065560863	0.204733629

Table S3. List of clones based on selection index with equal weights

clone_ID	value	rank
MN18W17052-4	1.46465093	1
MN18W17043-12	1.46383934	2
MN18W17039-5	1.46330839	3
MN18W17039-27	1.46228449	4
MN18W17043-2	1.46209292	5
MN18W17052-6	1.46206908	6
MN18W17043-3	1.46146164	7
W17060-22	1.46116807	8

MN18W17043-7	1.46116406	9
MN19AF6892-9	1.46116139	10
W17039-7	1.46105178	11
MN18W17043-6	1.46103515	12
MN19TX18093-1	1.46079365	13
MN19AF6892-2	1.46039004	14
MN18W17043-11	1.46036571	15
MN18W17052-15	1.46033421	16
W17067-1	1.46019074	17
MN19AF6892-10	1.46006016	18
MN18W17037-36	1.46002237	19
MN18W17057-3	1.45963456	20
MN18W17037-24	1.45948549	21
MN18W17055-4	1.45943931	22
MN18W17037-19	1.45937294	23
MN18W17057-1	1.45927897	24
MN18W17039-1	1.45920063	25
MN18W17043-8	1.45919614	26
MN18W17037-2	1.45897367	27
W17067-13	1.45875334	28
MN18W17037-34	1.45874611	29
MN18SR00045-1	1.45871364	30
W17AF6670-1	1.45862252	31
W17037-3	1.45834039	32
MN19TX18260-1	1.45831525	33
MN19AF6869-7	1.4581878	34
MN18TX17730-8	1.45808172	35
MN18W17037-27	1.45799793	36
MN19TX18304-1	1.45786875	37
MN18W17057-5	1.45784468	38
MN19AF6869-12	1.45779939	39
MN18SR00045-3	1.45775986	40
W17049-10	1.4576769	41
MN18W17037-21	1.45765687	42
W17066-34	1.45765584	43
MN18W17037-26	1.45754367	44
MN19TX18120-1	1.45749881	45
MN18W17037-32	1.45749654	46
MN19TX18212-8	1.45714931	47
MN19TX18031-1	1.45708822	48
W17065-21	1.4570383	49
MN19TX18211-1	1.45702741	50
MN19AF6869-20	1.45689739	51

MN19AF6869-5	1.45665616	52
W17066-11	1.45664068	53
MN19TX18014-4	1.45653408	54
MN19AF6869-21	1.45646722	55
Snowden	1.45645185	56
W17AF6685-2	1.45644648	57
MN19AF6866-4	1.45638101	58
MN19AF6869-19	1.45623858	59
MN18W17065-5	1.45615892	60
MN19AF6866-14	1.45612599	61
MN19AF6869-6	1.45608182	62
MN19TX18010-1	1.45606777	63
MN19TX18054-2	1.45606754	64
MN19AF6866-11	1.45606577	65
MN19TX18171-1	1.45605526	66
MN19TX18032-5	1.45580681	67
MN19AF6866-10	1.45576816	68
MN19TX18280-2	1.45576289	69
MN19TX18171-6	1.45567924	70
MN19AF6866-13	1.45565102	71
MN19TX18032-9	1.45562024	72
MN19TX18032-1	1.45539668	73
MN18TX17748-1	1.45525805	74
MN19TX18212-7	1.45514785	75
MN19TX18014-1	1.4550591	76
MN19AF6866-1	1.45501732	77
MN19AF6867-3	1.45481967	78
MN19TX18032-6	1.45450426	79
Atlantic	1.45376317	80
MN18AF6675-2	1.45319575	81
MN18AF6643-9	1.45316861	82
W17043-37	1.45313059	83
MN18AF6661-9	1.45307414	84
MN19TX18188-1	1.45298512	85
Lamoka	1.45298415	86
MN19TX18032-10	1.45297089	87
MN18AF6680-12	1.45295537	88
MN18AF6643-13	1.45293267	89
W17039-31	1.45292032	90
MN18AF6730-5	1.45290005	91
MN18AF6643-12	1.45287289	92
MN18W17039-12	1.45286812	93
MN18W17043-14	1.45285264	94

MN18W17043-17	1.45279104	95
MN18AF6728-7	1.45268925	96
MN18W17092-7	1.4526169	97
MN18AF6643-7	1.45255801	98
MN18AF6658-5	1.45239354	99
MN18AF6726-4	1.452228	100
MN18AF6643-10	1.4521977	101
MN18AF6745-4	1.45203519	102
MN18W17037-9	1.45201537	103
MN18AF6717-2	1.45199933	104
MN18AF6725-1	1.45195791	105
MN18AF6725-2	1.45190636	106
MN18AF6730-3	1.45186544	107
MN18AF6718-1	1.45185286	108
MN18W17039-13	1.45184796	109
MN18AF6726-2	1.45166095	110
MN18AF6722-2	1.45149341	111
MN18AF6717-9	1.45139763	112
MN18AF6648-8	1.45137337	113
MN18AF6717-3	1.4513675	114
MN18AF6717-6	1.45132372	115
MN18AF6680-8	1.45130905	116
MN18AF6734-1	1.45130114	117
MN18AF6724-8	1.45127745	118
MN18AF6661-2	1.45122129	119
MN18AF6648-14	1.45121612	120
MN18AF6724-9	1.45120903	121
MN18AF6720-2	1.45117485	122
MN18AF6717-10	1.45116404	123
MN18W17065-7	1.45113779	124
MN18AF6730-6	1.45110267	125
MN18AF6724-5	1.45107714	126
MN18AF6729-1	1.45107264	127
MN18AF6716-2	1.45080297	128
MN18AF6648-9	1.45077689	129
MN18AF6717-7	1.45033426	130
MN18AF6648-10	1.45024051	131
MN04844	1.44979686	132
Superior	1.44963539	133
Cascade	1.44906224	134

Table S4. List of clones based on selection index with different weights

clone_ID	value	rank
MN18W17052-4	1.466167	1
MN18W17043-12	1.46613043	2
MN18W17039-5	1.4649907	3
MN18W17043-2	1.46367224	4
MN18W17039-27	1.46358748	5
MN18W17052-6	1.46340682	6
MN19TX18093-1	1.4630715	7
MN18W17043-7	1.46300534	8
MN19AF6892-9	1.4629385	9
W17060-22	1.46275515	10
W17039-7	1.46270609	11
MN18W17043-6	1.4625804	12
MN18W17043-3	1.46248257	13
W17067-1	1.46192465	14
MN18W17043-11	1.46168284	15
MN19AF6892-2	1.46157987	16
MN19AF6892-10	1.46154204	17
MN18W17037-24	1.46077769	18
MN18W17037-36	1.46065964	19
MN18W17052-15	1.46060754	20
MN18W17039-1	1.46056995	21
MN18W17043-8	1.46054641	22
W17AF6670-1	1.46038327	23
W17067-13	1.4601644	24
MN18W17037-34	1.46001077	25
MN18W17037-19	1.45986831	26
MN19TX18304-1	1.45986794	27
MN18W17057-3	1.4597972	28
MN18W17057-1	1.45976095	29
MN18W17037-2	1.45965237	30
MN18W17055-4	1.45956181	31
MN19TX18260-1	1.45951924	32
MN18SR00045-1	1.45950768	33
W17037-3	1.45940278	34
W17049-10	1.45918614	35
MN18TX17730-8	1.45908694	36
MN18SR00045-3	1.45906941	37
MN18W17037-27	1.45898312	38
W17066-34	1.45885529	39
MN18W17037-32	1.458708	40

MN19AF6869-7	1.45867947	41
MN19TX18120-1	1.4585871	42
MN18W17057-5	1.4585843	43
MN19TX18211-1	1.45842533	44
MN18W17037-21	1.4584087	45
MN18W17037-26	1.458232	46
MN19AF6869-12	1.45814273	47
MN19TX18031-1	1.45813951	48
W17065-21	1.45812558	49
MN19TX18212-8	1.45812024	50
W17066-11	1.4577625	51
W17AF6685-2	1.45773618	52
Snowden	1.45757386	53
MN19AF6869-20	1.45737117	54
MN19TX18014-4	1.4571809	55
MN18W17065-5	1.45712474	56
MN19TX18171-1	1.45707247	57
MN19AF6866-4	1.45704687	58
MN19AF6869-5	1.45702449	59
MN19TX18010-1	1.45701805	60
MN19TX18054-2	1.45696033	61
MN19TX18280-2	1.45687033	62
MN19AF6866-14	1.45683113	63
MN19TX18171-6	1.45680719	64
MN19AF6869-21	1.45676976	65
MN19AF6866-11	1.45673272	66
MN19AF6869-19	1.45673091	67
MN19AF6866-10	1.45648468	68
MN19TX18032-5	1.45642469	69
MN19AF6869-6	1.45641318	70
MN19AF6866-13	1.45637639	71
MN19AF6867-3	1.45625763	72
MN19TX18032-9	1.45623565	73
MN18TX17748-1	1.45616005	74
MN19TX18032-1	1.45590003	75
MN19TX18212-7	1.45578268	76
MN19AF6866-1	1.45577777	77
MN19TX18014-1	1.45551649	78
MN19TX18032-6	1.45495158	79
Atlantic	1.45495058	80
MN18AF6643-9	1.45431023	81
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Lamoka	1.45418134	83

MN18AF6675-2	1.45416968	84
W17043-37	1.45410655	85
MN18AF6680-12	1.45409577	86
MN18AF6661-9	1.45392051	87
MN18W17043-14	1.45390756	88
W17039-31	1.45388778	89
MN18AF6643-12	1.45384578	90
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MN18AF6643-7	1.45377187	92
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MN18AF6728-7	1.45360438	94
MN18W17043-17	1.45360275	95
MN18W17092-7	1.45345125	96
MN18AF6658-5	1.45329691	97
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MN18AF6726-4	1.45301307	99
MN18AF6725-1	1.45301032	100
MN19TX18188-1	1.45300336	101
MN19TX18032-10	1.45300039	102
MN18AF6643-10	1.45297679	103
MN18AF6745-4	1.45292729	104
MN18W17037-9	1.45285375	105
MN18AF6718-1	1.45272236	106
MN18W17039-13	1.45269881	107
MN18AF6725-2	1.45262877	108
MN18AF6722-2	1.45261178	109
MN18AF6717-9	1.45248309	110
MN18AF6730-3	1.45238409	111
MN18AF6648-8	1.45235335	112
MN18AF6726-2	1.45232079	113
MN18AF6648-14	1.45226088	114
MN18AF6680-8	1.4522592	115
MN18AF6661-2	1.45224521	116
MN18AF6717-3	1.45223843	117
MN18AF6724-8	1.45221878	118
MN18AF6717-6	1.45217849	119
MN18AF6717-10	1.45217502	120
MN18AF6724-5	1.45214907	121
MN18AF6724-9	1.45213316	122
MN18W17065-7	1.45196608	123
MN18AF6730-6	1.4519422	124
MN18AF6720-2	1.45192356	125
MN18AF6734-1	1.45180076	126

MN18AF6648-9	1.45175531	127
MN18AF6716-2	1.45164943	128
MN18AF6729-1	1.45154686	129
MN18AF6717-7	1.45131264	130
MN18AF6648-10	1.4510504	131
MN04844	1.44992127	132
Superior	1.44971015	133
Cascade	1.44901502	134

comments

MN18 &MN19

MN18 &MN19

WI17

Atlantic

MN

WI17

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0.980138571	0.46544215
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0.982483752	0.16132047
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