

Supplementary 1. Code, name, origin, and pedigree of the evaluated oat genotypes.

Code	Genotype name	Origin	Pedigree
1	CARROLUP	Australia	MORTLOCK/KENT/BALLIDU/CURT/TAMO-312/WEST
2	DURACK	Australia	01Q211/ 94Q601-45-28
3	MULGARA	Australia	OX89;030-26/QUAKER93-112
4	WANDERING	Australia	MORTLOCK/ECHIDNA// OT207 SWAN
5	WINTAROO	Australia	MILOR P86-3/ECHIDNA/WALLAROO
6	BANNISTER	Australia	ECHIDNA/MORTLOCK/SWAN/DUMONT/FULMARK/ NEWTON/75Q:198
7	KOWARI	Australia	MITIKA/AWA
8	MITIKA	Australia	OX87;072-13/OX87;080-1/OX88;045-12
9	WILLIAMS	Unknown	CARROLUP/MURRAY/PENNLO/TAM386
10	WOMBAT	Australia	POSSUM/BETTONG/POTOROO/EURO/82059-58-10
11	YALLARA	Australia	EURO/ ND931075/ SV97001-13-4
12	ECHIDNA	Australia	WEST/ OT207
13	KOJONUP	Australia	CI/CC/ OT207/ MORTLOCK/ COOMALLO/ Swan/ Hay/ Curt/ Cortez
14	POSSUM	Australia	ND863468 / OX82059-58-10 // CARROLUP
15	EURO	Australia	MORTLOCK/ ECHIDNA
16	QUOLL	Australia	BANDICOOT/ MILOR-86
17	GA_MITCHEL	USA	GA-76T-2507/ GA-76T2579
18	BRUSHER	Australia	DUMONT/ WALLAROO// BANDICOOT
19	HERON	USA	Unknown
20	SWAN	Australia	KENT/BALLIDU
21	KINGFISHER	UK	GERALD/81-40CN5
22	MORTLOCK	Australia	ELAN-6161 /3/FULMARK/NEWTON// SWAN
23	TARAHUMARA	Mexico	7714 / Chihuahua // Curt / 3*Nodaway /3/ AB110 / Indio /4/ AB177 / Curt // 7639
24	42 ZOP 95	Canada	Unknown
25	C-1/130	Unknown	Unknown
26	POTOROO	Australia	OX79;119-20/OX80;266-2H/ ECHIDNA
27	UGF775456	Unknown	Unknown
28	13 ZOP 95	Canada	Unknown
29	WALLAROO	Australia	WEST*2/OX77;74-5
30	4 ZOP 95	Canada	Unknown
31	OZARK	USA	FLORIDA501/PI 296254
32	KALOTT	Sweden	LO1321(=ORION II/MESDAGS)/SIRIUS
33	GRISE D'HIVER	France	Unknown
34	ARNOLD	Germany	HALLEST.5746/WEIHENSTEPHANERST.CS115B/LANG-DOERFLERWEIHNSTE PHANER WEISS
35	1 ZOP 95	Canada	Unknown
36	OH 1022	USA	Unknown
37	IA910 98-2	USA	Unknown
38	UPF-775456	Brazil	Unknown
39	UFRGS-48886	Brazil	Unknown
40	UFRGS-94886-4	Brazil	OX89;153-122
41	URANO	Chili	Unknown
42	NUMBAT	Australia	BANDICOOT/MORTLOCK/ECHIDNA
43	FORESTER	Australia	OT285/BETTONG/86057-28/85065-1
44	TAMMAR	Australia	ZLATAK/EURO/OX89;153-122
45	ND873365	USA	Unknown
46	UC 145	USA	Unknown
47	PRESTON	USA	Otee/ DaL
48	CN12497	UK	Unknown
49	UFRGS-940257	Brazil	Unknown
50	IL92-6745	USA	IL86-5262/ IL88-14752
51	NZ2742	New Zealand	Unknown
52	SOLVA	UK	PENNAL/ PADARN/ NELSON/ OYSTER.7270
53	LGOVSKIJ	Russia	Unknown
54	9404657	Australia	Unknown
55	GLIDER	USA	ME 1554/ CRCPX/ SRCPX/ C7512
56	AK5	Unknown	
57	NZ 2101	New Zealand	Unknown

58	AMAGALON	USA	AVENA MAGNA (CI 8330) / AVENA LONGIGLUMIS
59	DALYUP	Australia	SWAN/ OT207/ MOREGRAIN/ WEST
60	UFRGS94098	Brazil	Unknown
61	FLAMINGSNOVA	Germany	PENDEK/FLAMINGSSTAHL
62	CORONADO	USA	COMP76B-1-84-1/SW74-8A-47/MUSTANG/FZSPS102
63	ND87330	USA	Unknown
64	APPALACHES	Canada	SHAW/OGLE
65	CPI-115397	USA	Unknown
66	STH 785	Poland	Unknown
67	P. LOTEK	Poland	Unknown
68	ABED MINOR	Denmark	ABED SOLV/ FRANSK SVARTHARE/ FRENCH BLACK OAT/ ABED SILVER/ SIBLER/ FRANCOUZ SK "CERN"
69	ABUNDANCE	UK	WHITE AUGUST/ WHITE SWEDISH
70	ALGERIAN COLLEGE	New Zealand	Strain of Red Algerian
71	ALGIERS	Algeria	Unknown
72	ALGOL	Germany	PERAGIS FRUH/ HINES SIBER
73	ANGELICA 1 BO 33	Italy	ITALIAN SELECTION FROM AN AFRICAN VARIETY
74	ARABELLE	France	MARKTON/ MANSHOLT BINDER
75	ARDENAS ARMARILLA	China	LANDRACE OR SELECTION FROM A LANDRACE
76	ASTOR	Netherlands	MINOR/ ABED MINOR/ AGED MINOR/ MARNE
77	AVA	Netherlands	ITALIAN SELECTION FROM AN AFRICAN VARIETY
78	BELAR 2760	China	SUNRISE/ Argentin
79	BENTO	USA	CONDOR/ MARINO
80	BERGER	Uruguay	COAST BLACK/ LAND HAFER/ ALBER/ BLACK ALGERIAN
81	BETA	Poland	Unknown
82	BIRDWOOD	Australia	SUNRISE/RIED
83	BONDA	USA	BOND/ANTHONY
84	BORRINOVA	Germany	BORRIESA/FLAEMINGSTREUE
85	BOSTCHORIS	China	Unknown
86	BRIGHTON	Canada	MARKTON/ LAUREL/Banner/chinese
87	BURT	USA	MASS SEL FROM RED RUSTPROOF/
88	CABOT	Canada	FUNDY/ GARRY
89	CAPA	Uruguay	Unknown
90	CHIHUAHUA	Mexico	AB-177/PUTMAN61
91	CLINTON	USA	D69/BOND=RICHLAND/GREEN RUSSIAN/BOND
92	COLLEGE ALGERIAN	Sweden	ALGERIAN LAND VARIETY/
93	COLT	UK	LEANDA/TITAN
94	DIAMANT	Czech Republic	PENDEK/ROYAL/ROYALC.A
95	DIAMANTE	Mexico	Unknown
96	DODGE	USA	HAWKEY/VICTORIA/GARRY CLINTLAND
97	DOLPHIN	Australia	SAME PARENTS AS ECHIDNA/WEST/OT207
98	DUN	Australia	Unknown
99	DWARF	USA	Unknown
100	DYFED	UK	Unknown
101	EMPIRE	USA	PURE LINE SELECTION FROM BIG FOUR
102	FLAMING MIRUS	Germany	BORRIESA/PHNIX/CARSTENS VIII/STAMM2083-51
103	FULGHUM WINTER	USA	Selection from Fulghum, CI 699
104	GERKULES	Former Soviet Union	Unknown
105	GLABROTA	Australia	Unknown
106	GLASNEVIN	Ireland	Unknown
107	GOLDEN RAIN	Sweden	VICTORY/GULDREGN/SEGER
108	GORA	Belgium	Addi/Vigor
109	GORDEN	UK	Unknown
110	GRATUS	Czech Republic	Kyto/Ajax
111	GREAT MOGUL	Sweden	PURE LINE SELECTION FROM BLACK TARTAR
112	HAJIRA	Algeria	Collected from El-Hajira
113	HAJIRA SELN	Algeria	Unknown
114	HANNES	Finland	SISU/ EHO; WINTER OAT
115	HAYER III (MANSCOLTS)	Netherlands	Unknown
116	HAWKEY	China	RICHLAND/ GREEN RUSSIAN

117	HEIN 2	Norway	Odin/ Perle
118	INIAP 67	Ecuador	BT-SF/ CK/ CL.5919-S/ MO.811
119	K.H.C.	France	Unknown
120	KHERSONS	Khersons	Unknown
121	LAGGAN	Australia	selection from Kelsall
122	LAUREL	Canada	BANNER/CHINESE/HULLESS
123	LIGOWA	Sweden	SELECTION FROM THE LIGOW OAT
124	MANU	Germany	SWEDISH BLACK OAT/CHINESE A.NUDA
125	MILFORD	USA	VICTORY/S172/KYKO/GRAY WINTER/BOUNTIFUL
126	MINOR	Denmark	ABED SOLV/RRANSK/SVARTHAVER/FRENCH BLACK OAT/ABED SILVER/SIBLER/Franz Sischer Schwarzhfer
127	MINOTA	USA	Pure-line selection from an unnamed commercial variety
128	NAGI PUTAWSKI	Poland	Unknown
129	NAKOTA	Netherlands	MARKTON/RICHLAND/KIBLLY/SWEDISH SELECT
130	NEVESADSKI II	Netherlands	Unknown
131	NIAGARA	USA	VICTORIA/GOLDWIN/GARRY SELECTION 5 (CL6589)/RAINBOW/BRANCH
132	NINA	Sweden	PALU/SAXO/ABED PALU/
133	NIP	Sweden	ORION II/SV27/659(=GULDERGN II) ORION I
134	OKAY	USA	CHILOCCO/ORA
135	OMIHI	New Zealand	MILFORD/RODNEY/AVON
136	OTSUKU	Japan	Honami/Zenshin/
137	PAJBJERG REX	Denmark	MANSHOLT BINDER/ORN/BINDER
138	PALESTINE	Australia	PALESTINE
139	PALESTINE 1005	Cyprus	Unknown
140	PALU	Denmark	ORN/ ABED MINOR/ ADLER/ MINOR
141	RANDOM OATS	Canada	PENDEK/ GLEN/
142	ROMULUS	Germany	HALLEST 3152-37/ MANSHOLTS
143	ROXTON	Canada	SIBERAIN/ JOONETTE/ LANARK/ SIBERIAN2107/ EARLYRIPE/ O.A.C72
144	SAN MAMEDE	Portugal	Unknown
145	SANTA FE	Argentina	Sel. From Argentina oat
146	SANTON	South Africa	Unknown
147	SCOTCH GREY	Unknown	Unknown
148	SELMA	Sweden	PALU/ SAXO/ ABED PALU
149	SIOUX	Canada	GARRY/ PEX
150	SMYRNA	South Africa	ALGERIAN LAND VARIETY
151	SOUTH AFRICAAN SKINLESS	UK	Unknown
152	STANTON	USA	VICTORIA/ LEE/ SISTER LINE OF LENOIR/ LALATE/LETORIA/LEGA( LEVIC&DESOTO)
153	STAR	Belgaum	SEGAR/ KRON/ VICTORY/
154	TITUS	Sweden	ALBER/ SOL II/ PERLE/ STJARN
155	VAN DER BYL	South Africa	167-VAN DER BYL
156	VICTORIA	Poland	SAME PARENTAGE AS KLEIN CAPA, KLEIN VICTORIA
157	BANDICOOT	USA	WEST/ TERRA/ CL4492/ OX77
158	CTC 88PO7	Brazil	Unknown
159	TYLER	USA	CLINTLAND/ MO.O-205/ SISTER LINE OF TIPPE CANOE
160	MOORE	USA	SWAN/ NEWTON/ FULMARK
161	NILE	Australia	Blythe/ Avon
162	CYPRESS	Australia	KENT/ ORIENT//COOLABAH. FULMARK/ COOBA
163	MARLOO	Australia	WEST/ OX77;74-1 NEWZEALAND CAPE/ SISTER LINE TO WALLAROO
164	ACHILLES	New Zealand	HAJIRA/ BANNER/ VICTORY
165	ALASKA	USA	S-TOBOLSK/
166	ALBER	Uruguay	BERGER/ RED ALGERIAN/ BLACK ALGERIAN/ CASSEL/ LAND HAFER/ MS LAND HAFER/ COAST BLACK
167	ALGERIAN RED	Romania	ALGERIAN LAND VARIETY/
168	ALPHA	Australia	MULGA/ BURKE
169	AMARELA	USA	Iowa/United States
170	BANNER	USA	SILVER MINE SELECTION
171	BINDA	Australia	SUNRISE/ REID
172	BLOUNT	USA	SANTA FE/ STANTA/ FULGRAIN ST.6/ LECONT
173	BOND	Australia	GOLDEN RAIN/ AVENA STERILIS (RED ALGERIAN)/ CLAV 2733

174	BOONE	USA	VICTORIA/ SAME PARENTAGE AS VICTORIA, TAMA, VICLAND, COKER
175	BOPPY	Australia	ALGERIAN/ WHITE LIGOWO
176	BORRIS OPUS	Denmark	SELECTION BORRIS STANDT/
177	BUCK EPECUEN	Argentina	Unknown
178	BUDDAH	Australia	SELECTION FROM SUNRISE/ ALGERIAN/ WHITE LIGOWO
179	CAESAR	Germany	UNNAMED NAKED AMERICAN LINE/ HARLY/ US-NACKTHAFER/ BREUSTEDTS HARLY/ US NAKED OAT
180	CALCUTTA	India	Unknown
181	CASCADE	Canada	RANDOM/FORWARD
182	CENAD 309	Romania	CENAD3/HOHEN HEIMER
183	CERNIGOVSKIJ83	Ukraine	Lv // Libertas / Lgovskij 1026; Dutch Libertas / Lgovskij 1026; landrace // Libertas / Lgovskij 1026;
184	CHINESE	China	CHINESE NAKEDOAT/SELECTION LAND RACE/
185	COKER 227	USA	PI2872/SUREGRAIN/MILFORDSEL/MOREGRAIN/CL7330/FL500 NWOOD GRIAN
186	COLO	USA	BOND/MOROTA/HANCOCK
187	COMMON YELLOW	Brazil	Unknown
188	CONDOR	Netherlands	ABED MINOR/EXPERTS
189	COOBA	Australia	VICTORIA/ SUNRISE/ FULGHUM/ RICHLAND//ALGERIAN
190	CREMA	Italy	Unknown
191	CUAUHTEMOC	Mexico	SISTER LINE OF CHIHUAHUA/PUTMAN/AB-177
192	DUNS	New Zealand	Unknown
193	EAGLE	Canada	VICTORY/ SEGAR/ VONLOCHOWS YELLOW
194	HIUGA	Japan	Unknown
195	HOJER	Romania	Unknown
196	HOLDEN	USA	HAWKEY/ VICTORIA/ GARRY/ CLINTLAND
197	HONAMI	Japan	KUROMI/ VICTORY
198	JAPANESE	Japan	Unknown
199	JARLE	Norway	Unknown
200	JAVI	India	Unknown
201	KENT	Australia	RICHLAND/GREEN RUSSIAN/BOND D69
202	KURRI	Australia	selection from Ruakura
203	LA PREVISION	Argentina	Unknown
204	MINNESOAT	Czech Republic	Unknown
205	MOIWA	Japan	MILFORD/ ZENSHIN/ S.84
206	NASSER GRUND	China	Unknown
207	NICOL	Germany	Unknown
208	NOVOSADSKY	Yugoslavia	Unknown
209	OHOTSUKU	Japan	Unknown
210	ORION	Sweden	LIGOWO/ SV.688/ SELECTION FROM MERO
211	OSIJEK	Croatia	Unknown
212	PARAMO	Mexico	AB-177/CURT/Z NODAWAY
213	PENDEK	Germany	FLAMINGS GOLD/BINDER
214	PENNFIELD	UK	CLEO/IMPROVED GARRY/BONDA/HAJIRA/SANTA FE/JOONETTE/MO. o-205
215	RHODESIA	Rhodesia	Unknown
216	RIGAL	Belgium	BLANCHE RIGIDE GEMBLOUX/ ALTESSE JAUNE
217	RINKAU	Germany	Unknown
218	RISTO	Sweden	PENDEK/ SISU
219	ROMANO-6	Australia	Unknown
220	ROTENBURGER	Germany	Unknown
221	RUBIDA	Poland	Unknown
222	RYHTI	Finland	JO2395/ BLIXT/ JO 50.2395/ BLIXT/ SISU (RTG.M)
223	S. FRANCISCO	Portugal	Unknown
224	SANTE FE	USA	Unknown
225	SILVA	Germany	HALLE 2760/ GOPHER
226	SORBO	Sweden	PERLE/ STJARN/ SOL II
227	STRIND	Denmark	GRENADER/ THOR
228	SUAL	Australia	Min.Ag.331/ Santa Fe/ Algerian
229	SUNRISE	Australia	NATURAL CROSS BY ALGERIAN OAT
230	SUPPORT	USA	winter turf (possiby a hybrid)

231	SZEKACS 8	Hungary	Unknown
232	TARPAN	Netherlands	Marne/Pendek
233	THREE GRAIN	USA	RED RUSTPROOF
234	TRIKALON	Greece	Unknown
235	TRIUMPH	Ireland	GLASNEVIN SONAS/ GLASNEVIN SUCCESS
236	TULANCINGO	Mexico	Curtx Opalo-Curt/ Tippecanoe/ Cuauhtemoc
237	VENTURA	USA	FULTON/ VICTORIA/ SISTER SELECTION OF OSAGE/ RICHLAND
238	VOLL	Norway	NIDER/ GRENADER
239	WESTON	India	LV-IND
240	WILGA	Australia	RED RUSTPROOF
241	WONGAN	Australia	Unknown
242	YULAF	Turkey	Unknown
243	ZENSHIN	Japan	Unknown
244	UPF-10	Brazil	1040 GH Double x short
245	UFRGS-2	Unknown	Unknown
246	HAY	Australia	SWAN/ OT207
247	ENDRESS WEISSHAFFER	Germany	Unknown
248	ITALIAN	Portugal	Unknown
249	SANTA LUZIA	Portugal	selection from Lachlan
250	YARRAN	Australia	WHITE LIGOWO/ALGERIAN
251	BIZANTINA 11	Former Soviet Union	Unknown
252	BYZANTINA 956	Azerbaijan	S-KING FULGHUM
253	JASPER	Canada	CAVELL/ GEMINI/ SAME PARENTAG AS OT739
254	SRMN 842013	USA	Unknown
255	AVALANCHE	France	ORA/ MOSTYN
256	ALFRED	Netherlands	MARNE/ BLACHE FLAMANDE/ MUSTANG/ MG63305
257	LEANDA	Netherlands	CONDOR/ CEBECO 725/ LINKED TO LINE AGE OF MINOR & FRENCH BLACK OAT
258	ZLATAK	Czech Republic	S-LV-NEARZ.BREHNA MORAVE
259	DAVID	Czech Republic	TARPAN/ BENTO/ / SAME PARENTAGE AS VELES/ CIVENA
260	ARDO	Czech Republic	FLAMINGS-NOVA/ PAN/ KR-678/ THOR/ SATURN
261	VELES	Czech Republic	BENTO/ TARPAN/ CIVENA/ / SAME PARENTAGE AS DAVID
262	UPO 94	India	Unknown
263	OX 105-2-1	India	Unknown
264	CENTENNIAL	USA	HOLDEN/GARLAND/6X-AMPHIPLD/CL6936/STORMONT/ FROKER/N569-42-G653/X2449-1 CLINTON/BOND/MILFORD/PI 74544/AJAX/ ARK 674/ RTX/RL 1276/CLINTLAND/CLINTLAND 602
265	NEHUEN	Uruguay	
266	X5560-1	USA	Unknown
267	KARHU	Finland	Unknown
268	BETTONG	Australia	CORONADO/ PENDEK/ CORTEX/ ME1563
269	SISKO	Finland	RYHTI/ POL
270	ANITA	Belgium	GRETA/ DIANE
271	FLAMO	France	Flamande/ Noire De Moyencourt
272	GAMBO	Netherlands	MARINO/ CONDOR/ MARNE/ MANOD
273	HUSAR	Germany	PENDEK/ LUXOR
274	MANA	Belgium	Unknown
275	MARINO	Netherlands	MARNE//SAME PARENTS AS ASTOR
276	OMBRONE	Italy	S-St.1083 Maremmana/
277	STORMONT IRIS	Ireland	Supreme/Victory
278	SVEA	Sweden	VOLL/TITUS/BLIXT
279	FORWARD	UK	PURE-LINE SELECTION FROM SILVER MINE; WHITE MIDSEASON OAT
280	WDO-9326	UK	Unknown
281	VDO-1100	Australia	Unknown
282	VDO-681.2	Argentina	Unknown
283	VDO-140.1	USA	Unknown
284	NMO-476	USA	Unknown
285	NMO-758	Australia	Unknown
286	NMO-787	Ethiopia	Unknown
287	HATVANI 187	Hungary	P FLUG GELB / DOLLAR

288	WDO-9540	Unknown	Unknown
289	SDO-260	USA	Unknown
290	NSO-57	Canada	Unknown
291	VDO-826.1	Bulgaria	Unknown
292	WDO-21594	Canada	Unknown
293	NMO-694	Brazil	Unknown
294	NMO-705	Spain	Unknown
295	VDO-926.1	Greece	Unknown
296	NMO-712	Greece	Unknown
297	SDO-185	Macedonia	Unknown
298	VDO-931.1	Macedonia	Unknown
299	NMO-714	Cyprus	Unknown
300	SDO-186	Yugoslavia	Unknown
301	NMO-327	Turkey	Unknown
302	QHO-562	Brazil	Unknown
303	QHO-709	USA	Unknown
304	VIR 5201	Spain	Unknown
305	VIR 5226/5	Portugal	Unknown
306	VIR 9285	Ukraine	Unknown
307	A. BYZANTINA	Ussr	Unknown
308	ABERYSTWYTH S172	UK	KYOT/ GRRAY WINTER/ BOUNTIFUL
309	AMARILLA KLEIN 70B	Argentina	LANDRACE OR SELECTION FROM A LANDRACE
310	AVENA NUDA	Unknown	Unknown
311	CRIOLLA SALTENA	Argentina	Unknown
312	CW 553	Algeria	Unknown
313	CW 554	Algeria	Unknown
314	DLM3	Argentina	Unknown
315	DSIR 271_02	New Zealand	Unknown
316	E/S 6409-3	Ethiopia	Unknown
317	ETHIOPIAN OAT	Ethiopia	Unknown
318	IOWA 444	Ethiopia	Unknown
319	NO.10522	India	Unknown
320	NO.124	Yugoslavia	Unknown
321	NO.153	Morocco	Unknown
322	NO.9278	Turkey	Unknown
323	NO.95	Morocco	Unknown
324	S.E.S. 52-R47	France	Unknown
325	S.I. 8913	Ethiopia	Unknown
326	S.I.8913 IOWA SELN	Ethiopia	Unknown
327	TURKEY ANKARA 547	Unknown	Unknown
328	TURKEY IZMIR 56	Unknown	Unknown
329	USSR 11100	Unknown	Unknown
330	X117	USA	Cherokee/CI7232/Burnett/Clintland/CI 7555
331	PI 194201	Uruguay	Unknown
332	MUNIN	Norway	Mustang/ Pol
333	DRUMMOND	New Zealand	Unknown
334	CROYDON	UK	Unknown
335	HOKONUI	New Zealand	Unknown
336	OX87: 080-2	Australia	MIOLR-86 / Bandicoot
337	DA YOU MAI	China	Unknown
338	XIA YOU MAI	China	Unknown
339	VIRMA	Finland	ROSINATE/ HJA 30766
340	NOVA	Germany	COMPOSITE OF QUEBEC
341	RAVAC	Yugoslavia	Unknown
342	SLAVUJ	Yugoslavia	UPBS 3024/ UPBS 3074/24
343	MEDITERAN	Yugoslavia	Unknown
344	LAIMA	Latvia	Pol11712/ D 104
345	MARA	Latvia	HOLDEN/ BELAR/ BEEDEE/ TRIS PERNIA
346	SO96400	Canada	Unknown
347	WAOAT 2120	Australia	Unknown
348	INDIA 1	Unknown	Unknown
349	ACACIA	Australia	VICTORIA/ RICHLAND/ ALGERIAN/ FULGHUM

350	MA5875	Australia	Unknown
351	FREJA	Sweden	SANG/ DULA/ SOL II/ AB 4757
352	BIRGITTA	Sweden	Unknown
353	PI 131641	Poland	Unknown
354	SV 95057-35	Australia	Unknown
355	VOLTA	Australia	37-9 / Guiaba Line (breeding line 37-9 = PC50 / 2*Algerian // Amagalon
356	GRAZA 51	Canada	PO21/ W95537/
357	SANG	Sweden	CONDOR/ SV.177/ SV 56697/ ORNE/ DIPPES TIDIGA VITHAVRE
358	MN 12434	USA	Unknown
359	ALADDIN	Australia	Unknown
360	DUNNART	Australia	TOOWOOHBA
361	HOUDAN	France	selection from Grise d'Hiver

Supplementary 2. BLUPs of the studied traits for 361 oat genotypes based on two-year data.

Genotype code	GY (g/plot)	NPPP	NGPP	TKW (g)	Bio (g/plot)	SY (g/plot)	PH (cm)	PL (cm)	HI (%)	DH	DM
1	326.19	246.66	60.35	32.82	817.89	468.28	62.05	18.24	0.45	172.29	208.82
2	305.17	264.19	51.04	34.03	793.40	462.58	58.98	15.82	0.44	163.96	209.31
3	294.40	220.25	54.72	33.06	851.75	536.12	61.47	17.27	0.39	173.78	210.05
4	422.25	240.11	65.81	34.62	1091.04	661.01	63.89	18.87	0.42	173.74	210.19
5	349.00	255.47	61.88	33.54	1038.87	679.41	71.99	17.11	0.40	171.85	210.48
6	406.17	243.18	51.64	36.14	1100.98	686.47	58.32	17.75	0.42	169.66	211.63
7	338.24	291.37	50.47	33.42	964.94	610.86	55.33	15.02	0.39	170.35	209.34
8	346.47	257.92	60.46	34.03	1005.18	645.47	53.21	15.90	0.38	171.29	210.08
9	426.16	191.74	83.49	29.77	1191.93	763.98	66.32	19.99	0.38	170.49	212.28
10	428.69	237.28	64.10	32.02	1089.63	651.29	62.24	19.01	0.44	174.70	209.90
11	377.94	290.56	49.76	36.48	1114.51	730.32	67.66	16.58	0.37	172.79	212.64
12	432.40	229.73	76.63	29.30	1064.31	620.30	58.57	18.76	0.45	178.73	210.88
13	374.17	213.56	61.45	32.72	1053.53	669.75	60.20	17.91	0.38	172.40	210.20
14	376.50	254.02	69.63	30.83	997.08	606.21	58.80	18.40	0.41	172.19	209.37
15	372.44	253.23	51.38	34.41	1072.19	691.05	69.08	16.87	0.37	169.82	210.98
16	420.51	268.04	61.90	33.59	1148.25	722.22	61.47	19.58	0.41	173.18	208.38
17	405.28	234.99	70.11	30.00	1038.50	620.70	70.27	16.01	0.44	173.82	206.41
18	415.00	279.05	72.23	26.77	1049.29	622.15	57.64	17.87	0.45	174.84	207.31
19	164.66	161.19	68.73	14.98	867.08	682.55	55.10	20.16	0.13	176.49	220.51
20	338.25	213.16	57.33	38.24	967.01	616.64	84.71	19.64	0.36	171.58	213.50
21	294.13	157.04	108.03	22.21	999.47	695.64	83.00	27.07	0.29	185.14	226.04
22	381.83	265.16	59.05	36.52	979.31	584.11	68.35	17.72	0.43	170.02	207.55
23	375.97	220.70	76.91	32.24	1079.43	696.67	69.18	21.09	0.36	181.35	216.99
24	369.73	202.92	91.10	28.52	1195.41	826.85	91.54	22.70	0.32	175.97	211.36
25	423.08	203.13	120.23	26.43	1261.71	842.21	96.58	23.13	0.35	179.03	211.66
26	443.95	240.60	84.05	28.89	1024.40	566.44	67.90	20.73	0.51	176.22	210.85
27	387.75	215.88	79.67	30.36	1341.05	964.30	88.05	20.36	0.30	169.27	213.71
28	431.59	184.04	100.22	29.48	1357.99	936.71	98.14	22.86	0.32	179.64	213.58
29	431.14	242.49	65.51	36.56	1210.94	779.35	87.36	20.54	0.38	167.64	211.20

30	412.25	200.49	112.67	27.13	1299.34	893.34	99.92	23.73	0.33	182.81	210.13
31	318.71	272.45	58.92	30.27	1082.43	758.47	82.02	21.61	0.30	177.37	209.86
32	311.35	140.35	164.29	20.06	1053.62	734.34	94.65	26.30	0.30	184.83	212.99
33	385.22	184.98	109.97	23.36	1094.57	702.46	84.79	21.52	0.37	183.96	212.36
34	337.14	147.67	100.84	24.85	1165.51	828.13	94.24	22.96	0.29	187.07	214.18
35	334.12	151.16	102.52	28.22	1191.05	857.00	108.14	25.40	0.28	188.23	215.81
36	394.16	240.80	93.09	24.69	1113.65	713.38	84.61	20.84	0.38	179.46	209.61
37	344.65	197.91	104.45	20.16	1005.16	647.68	95.37	21.62	0.36	175.67	207.56
38	402.53	226.55	74.07	32.51	1098.39	686.69	84.64	20.52	0.40	169.00	206.80
39	294.45	224.54	52.52	29.53	772.26	450.87	58.49	15.82	0.43	171.01	212.91
40	335.43	235.33	58.29	29.90	855.23	496.65	62.52	15.39	0.45	170.56	212.35
41	333.08	187.02	73.49	26.79	1020.28	676.25	77.54	20.60	0.35	186.96	216.26
42	272.71	232.09	66.98	24.62	955.11	667.46	53.04	16.30	0.29	175.30	213.86
43	335.10	176.98	72.13	32.54	1049.48	703.98	80.88	18.87	0.33	186.56	215.42
44	425.02	242.91	70.94	29.17	1174.87	745.37	77.63	21.05	0.39	178.68	210.86
45	379.35	182.90	100.49	24.66	1034.46	641.56	72.52	19.56	0.41	180.24	212.59
46	296.56	222.31	54.95	29.86	910.03	593.59	65.81	15.41	0.36	165.64	210.79
47	384.48	228.98	87.14	23.77	1098.69	705.68	96.58	21.60	0.38	180.16	208.13
48	426.71	260.04	71.87	30.53	1167.25	735.63	85.37	20.85	0.39	178.02	210.61
49	378.74	268.05	49.61	35.73	1053.54	662.96	69.40	14.56	0.40	171.30	207.85
50	415.26	215.75	100.24	25.24	1118.83	696.61	86.52	21.15	0.39	178.76	208.43
51	351.57	164.45	79.91	31.00	1106.19	748.49	105.41	23.10	0.33	181.85	211.34
52	349.43	202.53	78.36	24.72	1044.38	683.80	82.41	18.99	0.36	175.51	208.81
53	359.11	218.81	98.32	25.10	1275.32	921.87	111.31	26.15	0.28	188.03	214.23
54	401.04	296.74	58.55	34.59	1030.66	615.09	55.24	15.32	0.45	171.24	206.98
55	380.63	229.36	73.33	30.52	1103.85	715.19	83.14	21.99	0.36	184.14	213.46
56	411.13	197.79	61.20	38.66	1160.99	745.05	89.09	20.97	0.37	167.00	209.08
57	375.93	258.59	70.02	26.51	1053.34	663.95	77.57	18.62	0.41	176.96	207.90
58	224.48	157.50	91.26	19.85	916.49	677.49	102.59	23.88	0.23	185.95	212.20
59	393.08	294.34	53.30	33.56	1034.35	629.39	53.86	16.26	0.42	174.11	210.58
60	341.48	282.36	59.06	31.25	910.88	549.80	71.46	16.65	0.42	168.62	209.63
61	353.14	168.62	100.31	24.12	1013.37	647.43	82.54	21.90	0.37	181.92	213.15
62	338.51	184.38	105.59	21.40	1072.62	725.02	99.78	22.23	0.33	182.89	210.48
63	402.03	219.93	113.43	24.41	1090.78	678.42	76.42	19.42	0.40	179.38	211.21
64	420.29	234.97	78.65	27.14	1133.68	706.27	69.30	17.11	0.40	184.45	213.57
65	396.05	170.15	119.49	28.66	1284.86	893.45	115.39	29.24	0.31	183.64	214.09
66	366.56	171.86	120.07	25.11	1111.76	737.87	87.97	20.91	0.34	188.53	215.66
67	372.00	201.53	137.93	20.46	1150.69	773.85	84.73	21.01	0.33	187.48	214.97
68	351.67	266.91	73.99	22.64	1189.26	836.28	108.64	21.99	0.29	182.07	210.95
69	324.06	194.17	73.29	22.53	1041.95	707.51	82.15	17.80	0.31	188.23	218.49
70	376.36	213.73	77.31	28.26	1107.14	723.61	99.86	18.83	0.36	175.77	207.04
71	413.75	230.37	90.89	28.30	1168.10	750.18	97.72	23.08	0.37	172.72	207.25
72	339.38	149.78	118.97	25.06	1051.98	702.01	98.66	23.95	0.34	183.92	213.94
73	326.78	184.04	79.56	26.82	1076.84	739.62	98.41	25.25	0.31	179.61	210.92
74	354.52	174.03	112.50	25.91	1100.94	738.63	92.23	22.15	0.34	183.10	212.54



75	354.63	255.80	66.65	28.33	1139.09	779.37	91.51	21.38	0.33	184.56	210.69
76	329.31	178.84	101.60	24.54	1255.19	928.57	84.07	21.66	0.23	192.56	218.39
77	331.68	246.37	71.23	26.82	892.68	542.08	75.10	20.07	0.40	178.27	209.10
78	319.59	152.94	119.93	22.72	936.71	600.66	86.24	24.66	0.36	184.82	213.82
79	293.56	132.62	117.76	26.24	872.76	557.71	74.13	23.43	0.35	189.84	219.21
80	284.95	177.09	99.65	16.87	899.18	595.48	91.34	22.81	0.32	186.28	212.16
81	337.11	228.98	73.43	26.55	1087.36	742.80	95.04	23.04	0.32	180.90	210.33
82	357.03	256.59	65.24	26.17	1238.86	884.25	109.89	23.30	0.29	178.27	208.52
83	362.28	194.01	82.71	29.88	1174.64	810.46	104.34	21.41	0.31	182.90	212.15
84	339.74	165.92	107.14	24.09	1046.45	695.85	84.14	22.83	0.34	186.03	214.16
85	361.27	163.66	106.64	23.90	1162.25	798.03	95.59	24.62	0.31	190.49	218.05
86	323.77	170.50	100.01	23.99	1118.20	789.09	100.98	26.98	0.28	185.27	215.25
87	319.44	194.40	66.24	29.44	982.17	647.53	96.80	19.48	0.36	173.08	206.57
88	344.37	178.03	114.27	22.58	1069.70	716.99	101.91	26.19	0.32	181.86	209.47
89	341.24	191.44	97.25	22.12	1172.21	830.23	109.54	23.01	0.29	183.20	210.48
90	380.34	179.49	83.90	26.83	1102.49	714.60	95.39	19.94	0.36	175.32	208.59
91	338.24	181.08	108.38	22.34	1070.20	723.24	95.98	20.35	0.32	182.59	211.26
92	396.99	281.45	77.61	26.52	1197.17	798.22	93.24	20.16	0.35	179.59	209.30
93	334.12	177.93	132.32	21.08	1166.93	830.99	87.36	23.11	0.28	190.96	216.41
94	278.39	169.19	109.95	22.20	1112.61	829.88	83.31	24.30	0.23	190.67	216.89
95	311.79	178.77	75.16	27.09	922.22	589.49	89.19	18.19	0.37	173.49	208.74
96	307.65	173.27	98.77	23.93	1030.05	714.09	86.50	22.42	0.31	190.37	216.54
97	314.88	185.25	77.17	26.67	1004.13	677.66	90.58	26.17	0.32	186.42	216.61
98	356.68	245.33	60.77	30.45	1085.90	722.37	94.62	25.37	0.34	179.83	207.84
99	287.92	148.46	92.58	26.48	951.27	648.09	75.05	21.36	0.30	191.82	218.55
100	261.86	125.52	104.22	22.34	1003.85	730.29	90.05	22.60	0.23	188.62	218.20
101	413.94	226.77	80.14	29.23	1153.98	734.27	99.03	23.60	0.38	171.77	206.88
102	416.70	178.09	123.09	24.05	1314.03	903.90	97.65	24.89	0.31	183.62	216.00
103	376.81	344.73	60.82	29.77	1158.36	777.63	95.93	20.15	0.34	178.87	209.35
104	327.14	143.76	124.46	22.77	1112.11	779.04	101.16	25.38	0.27	186.83	218.52
105	300.03	187.13	97.39	18.58	979.23	664.01	93.18	24.28	0.30	185.99	211.70
106	413.14	278.52	79.94	31.79	1194.80	779.32	92.82	18.86	0.34	182.78	211.69
107	319.62	163.49	72.16	27.03	1075.03	747.94	99.28	24.03	0.28	182.36	214.17
108	361.94	159.63	108.43	28.12	1156.35	790.75	96.66	22.77	0.30	188.95	216.02
109	207.80	115.33	106.08	13.28	967.20	746.36	101.48	30.40	0.14	182.83	225.96
110	332.04	204.07	93.11	22.01	1149.30	814.32	94.76	22.52	0.28	189.66	215.11
111	245.45	124.58	103.59	19.75	1061.21	807.91	99.81	28.30	0.19	194.33	220.54
112	273.73	167.96	107.41	17.31	950.67	660.63	99.81	21.53	0.29	186.21	212.23
113	331.88	189.00	126.53	18.06	1071.09	729.98	104.39	24.23	0.31	182.42	210.60
114	324.69	173.17	103.11	19.09	1210.33	884.64	102.69	24.01	0.25	187.13	214.70
115	364.41	350.66	53.12	23.27	1034.78	660.51	84.27	20.70	0.37	175.11	208.71
116	321.23	178.62	148.42	17.85	1020.39	688.59	92.16	26.46	0.31	182.76	210.68
117	318.98	135.67	102.13	26.72	987.85	655.87	94.25	24.44	0.33	189.96	218.19
118	399.07	254.38	67.41	27.01	1154.65	752.13	89.29	22.19	0.35	177.22	209.87
119	331.61	179.62	114.41	22.55	1027.87	684.31	99.69	25.43	0.33	183.87	211.85

120	354.26	214.38	96.30	19.24	1007.51	638.38	84.57	20.47	0.38	177.74	211.10
121	354.20	229.41	83.92	26.39	1118.29	758.00	101.81	23.84	0.32	168.58	212.19
122	276.83	149.71	122.79	18.36	1031.06	743.81	100.97	25.10	0.26	186.81	215.89
123	450.73	229.04	85.73	28.60	1512.60	1081.52	101.86	29.60	0.29	181.20	213.65
124	262.18	198.36	65.38	21.14	1133.58	868.74	92.53	25.03	0.21	194.16	220.36
125	343.00	199.82	115.86	24.28	1195.55	852.19	81.38	20.57	0.28	184.81	215.91
126	336.87	166.18	106.40	23.74	1234.44	901.38	94.16	24.07	0.25	187.24	216.27
127	314.32	161.13	108.06	20.81	1138.68	821.67	94.82	24.60	0.26	189.68	215.59
128	255.08	160.90	93.16	17.70	1230.81	981.07	96.58	25.30	0.18	189.90	215.60
129	282.86	181.35	119.67	15.26	1033.74	740.82	103.04	22.39	0.26	185.13	210.66
130	323.81	263.45	88.27	20.52	1305.02	989.11	104.77	27.84	0.22	187.82	214.83
131	360.22	172.84	111.17	24.41	1222.44	863.50	99.11	22.95	0.29	186.71	214.54
132	338.10	167.27	95.44	24.22	1203.75	866.06	100.67	23.18	0.27	185.55	214.39
133	338.02	150.46	137.11	22.58	1116.44	770.83	99.10	24.34	0.31	180.41	213.42
134	350.81	290.08	56.98	33.52	1025.96	665.43	79.75	19.64	0.35	176.45	209.02
135	262.73	165.68	68.59	28.71	1156.05	894.62	76.60	23.31	0.21	193.08	223.25
136	336.15	144.97	105.39	23.18	1064.27	720.42	90.17	23.17	0.32	191.53	216.81
137	310.57	147.75	81.16	29.81	1170.49	860.37	97.35	26.48	0.25	193.23	222.02
138	345.62	225.05	55.67	34.28	916.87	550.72	70.94	19.23	0.43	166.39	208.15
139	400.24	243.33	67.03	33.73	1085.45	674.93	73.13	20.70	0.41	169.89	209.30
140	321.23	178.76	111.15	25.30	1125.11	799.40	86.69	23.95	0.27	188.97	218.21
141	375.25	193.35	106.45	25.90	1158.94	780.01	83.79	20.98	0.33	184.87	216.20
142	375.02	190.69	115.16	24.30	1188.53	812.00	95.67	22.81	0.31	186.05	217.55
143	313.02	173.71	85.29	23.22	1322.50	1019.46	116.27	27.81	0.22	190.47	220.25
144	363.22	255.57	67.91	26.68	1216.10	853.61	94.48	19.30	0.28	173.02	207.35
145	363.84	237.81	92.14	23.09	1174.60	809.50	102.00	27.85	0.30	180.71	209.82
146	331.79	227.60	91.16	23.75	1112.61	776.14	101.56	24.04	0.29	182.70	209.99
147	398.37	336.35	74.02	22.69	1226.86	829.51	98.02	24.49	0.32	174.17	209.78
148	305.86	143.20	113.13	26.78	1011.95	693.90	86.21	23.33	0.30	189.76	217.10
149	334.08	168.53	113.97	19.64	1130.29	791.02	97.84	22.30	0.28	181.94	216.41
150	300.64	185.51	96.71	20.39	1023.23	711.02	97.61	21.17	0.30	179.74	210.84
151	212.96	144.61	66.78	20.74	872.76	639.52	105.53	20.51	0.20	168.50	206.67
152	386.52	238.16	81.24	22.65	1207.43	818.78	90.99	24.49	0.34	177.59	209.72
153	268.51	170.33	107.12	23.50	1071.85	800.40	98.18	26.71	0.25	188.86	216.25
154	339.25	168.41	121.57	21.77	1079.60	734.76	95.68	26.75	0.31	187.10	213.78
155	323.24	238.02	118.81	20.52	992.02	657.20	94.92	25.81	0.34	180.07	211.57
156	368.90	256.09	79.05	23.57	1108.31	734.56	103.38	23.44	0.34	176.52	209.17
157	281.79	240.09	81.08	23.67	934.45	636.39	56.46	16.90	0.31	174.20	212.20
158	220.75	237.72	47.69	19.20	854.83	612.95	105.45	19.75	0.23	173.76	212.93
159	392.30	239.46	93.12	22.76	1291.34	905.78	93.37	22.41	0.29	179.27	210.64
160	411.60	243.13	63.22	34.31	1206.50	794.67	81.67	19.03	0.36	171.01	212.44
161	516.74	330.40	62.76	32.32	1491.91	992.96	91.05	22.66	0.35	179.63	209.78
162	382.82	242.94	69.18	28.98	1094.44	703.69	89.70	21.26	0.36	171.57	207.61
163	402.15	246.79	59.37	35.73	1278.41	881.44	91.96	17.76	0.33	169.23	210.13
164	400.10	195.68	86.31	32.09	1539.92	1165.53	108.81	24.61	0.25	185.02	214.51

165	408.63	213.26	92.26	26.37	1360.37	963.84	117.06	23.93	0.29	181.10	210.03
166	357.92	223.55	77.11	27.93	1191.85	834.53	120.78	27.22	0.30	173.44	208.34
167	447.16	313.08	76.18	32.96	1436.55	1005.49	106.61	20.96	0.31	178.74	210.59
168	408.25	314.98	57.14	28.53	1270.81	866.59	97.34	19.09	0.32	173.12	208.84
169	356.54	262.29	72.08	25.25	1139.91	779.78	87.65	24.57	0.32	182.73	211.94
170	397.35	226.95	84.59	28.67	1258.34	864.85	110.55	24.18	0.31	176.31	208.61
171	366.11	193.85	84.98	29.06	1242.49	878.43	104.90	22.24	0.30	176.65	208.70
172	389.01	266.73	64.45	28.25	1222.05	839.19	82.62	19.49	0.32	180.14	212.07
173	355.03	218.96	69.14	30.40	1239.01	891.22	97.43	18.94	0.30	182.53	212.77
174	380.18	273.68	66.22	32.47	1197.15	820.31	96.89	19.30	0.32	176.82	210.13
175	400.83	249.07	82.91	29.27	1233.60	837.75	97.45	19.43	0.33	180.05	210.48
176	388.80	249.34	88.99	25.23	1290.34	909.97	96.81	22.55	0.29	185.40	213.94
177	382.48	262.86	63.91	28.86	1225.41	846.01	95.93	19.34	0.32	172.48	209.38
178	308.68	140.72	64.61	29.07	1015.65	697.25	100.68	21.88	0.31	171.20	209.63
179	300.05	301.22	65.16	23.21	1388.62	1106.56	101.34	27.98	0.20	191.40	219.24
180	409.87	275.73	76.78	29.20	1324.78	924.95	102.75	20.49	0.30	178.78	212.36
181	403.88	162.07	122.57	29.13	1383.62	994.09	95.56	27.20	0.28	186.93	219.28
182	461.82	224.09	110.35	23.92	1538.47	1100.84	97.70	23.54	0.30	187.21	216.52
183	386.92	164.64	121.14	23.51	1356.63	983.74	105.48	24.53	0.28	184.61	214.34
184	419.65	304.10	63.87	30.90	1367.27	961.41	101.80	19.80	0.30	178.28	211.13
185	314.36	256.43	41.17	31.27	1049.69	728.18	82.70	18.51	0.29	172.82	209.66
186	298.91	178.61	103.09	24.63	1280.96	992.45	110.51	24.39	0.22	181.40	213.59
187	405.77	286.32	58.44	34.78	1264.59	863.97	98.56	21.36	0.31	172.27	207.40
188	363.59	343.41	46.89	30.16	1283.29	928.01	96.49	21.32	0.28	178.82	211.35
189	337.58	207.42	96.01	29.59	1122.89	782.40	93.94	20.59	0.30	171.31	209.29
190	406.48	244.20	61.27	33.51	1358.25	962.70	101.21	20.06	0.28	177.33	208.75
191	439.80	230.39	103.13	30.98	1228.36	793.68	97.66	21.73	0.37	175.13	210.28
192	516.73	256.46	68.49	34.81	1459.73	961.83	89.82	20.76	0.37	171.84	212.68
193	374.35	197.83	105.74	21.79	1286.40	922.12	99.75	23.18	0.29	186.27	213.21
194	498.45	348.11	82.26	24.51	1402.55	918.71	93.57	23.52	0.36	174.83	208.70
195	421.65	262.23	87.29	21.07	1380.83	973.32	96.69	21.16	0.31	178.64	210.88
196	385.83	194.75	83.58	29.45	1113.61	722.45	101.51	21.50	0.36	177.55	211.61
197	345.96	177.43	103.17	22.13	1417.15	1090.06	104.86	24.41	0.22	191.15	221.37
198	398.30	222.00	88.83	23.26	1371.92	987.48	99.77	23.00	0.29	175.67	210.70
199	354.51	184.20	94.94	27.60	1417.90	1081.91	112.88	24.03	0.23	186.04	216.28
200	353.79	194.22	74.47	33.52	1087.12	727.17	96.32	23.07	0.33	168.57	207.98
201	452.50	269.53	75.30	36.92	1566.44	1140.44	104.06	23.61	0.29	169.29	212.62
202	431.79	268.84	83.36	23.68	1368.48	950.26	103.74	21.84	0.31	173.04	208.76
203	526.19	299.52	77.98	29.51	1434.80	924.25	97.56	17.65	0.36	172.62	206.81
204	344.36	204.40	72.52	29.81	1290.94	956.38	88.01	23.36	0.25	184.45	214.84
205	336.77	189.12	79.47	26.39	1217.92	885.77	92.03	21.33	0.27	182.74	212.65
206	364.10	183.68	103.87	24.34	1388.07	1039.44	105.89	25.19	0.25	185.44	214.28
207	364.90	189.54	88.05	23.69	1313.68	959.27	102.46	25.32	0.27	182.36	212.73
208	265.92	265.96	57.36	22.86	1210.37	950.07	101.75	24.21	0.19	185.35	216.38
209	258.49	173.31	92.47	23.72	1261.75	1011.33	98.11	25.16	0.17	188.97	223.02

210	289.53	152.10	102.06	23.86	1108.98	819.98	100.33	26.43	0.26	187.60	216.39
211	368.98	312.96	72.78	23.91	1528.46	1187.58	104.19	28.97	0.24	190.00	217.31
212	442.27	245.20	72.50	37.04	1222.87	783.86	93.96	20.43	0.38	170.93	208.75
213	410.88	214.83	98.75	22.42	1311.37	910.77	89.45	21.57	0.31	185.33	214.39
214	365.05	246.28	79.86	25.32	1254.92	896.21	105.98	23.26	0.29	185.64	212.14
215	364.33	222.47	120.40	22.18	1134.82	767.24	100.11	25.90	0.32	178.41	210.54
216	403.32	219.64	99.86	24.99	1260.37	862.51	95.66	21.42	0.32	174.07	212.90
217	332.80	215.77	110.88	20.93	1214.56	885.76	107.09	27.57	0.27	182.23	218.50
218	305.84	172.61	95.31	24.45	1163.06	858.17	96.45	24.51	0.25	189.75	216.89
219	391.33	267.59	69.88	33.08	1435.80	1062.88	98.60	19.26	0.27	180.60	210.29
220	322.25	210.50	78.55	28.66	1346.26	1037.89	103.62	23.88	0.22	179.35	210.49
221	431.16	281.47	79.25	26.15	1642.29	1244.84	103.25	19.89	0.28	177.62	208.95
222	408.89	207.14	120.84	25.07	1467.32	1079.76	109.26	25.53	0.29	184.43	215.67
223	305.90	218.02	59.49	30.74	1183.55	880.48	102.87	19.03	0.25	171.74	209.12
224	397.64	318.47	77.68	26.52	1314.51	926.72	100.44	24.73	0.30	175.95	210.31
225	393.71	194.72	109.88	23.33	1472.47	1099.48	99.05	23.12	0.27	182.80	213.42
226	234.74	133.89	130.94	20.75	1035.07	793.89	95.63	27.47	0.20	191.32	219.90
227	211.38	117.60	77.29	24.56	1014.01	795.18	91.93	24.02	0.16	182.71	215.94
228	385.34	260.58	75.35	29.02	1185.90	799.20	93.56	21.88	0.32	176.04	208.00
229	320.78	241.45	67.40	31.23	1251.08	941.28	107.99	20.97	0.27	175.34	210.60
230	363.82	149.21	102.62	27.21	1361.29	1014.20	99.98	21.25	0.31	191.97	215.11
231	378.75	208.89	95.45	23.22	1432.29	1075.00	108.77	27.68	0.25	190.63	215.64
232	446.20	218.23	105.63	26.38	1342.92	909.16	96.67	26.55	0.33	171.54	212.82
233	422.17	236.17	91.73	25.38	1271.74	856.34	94.93	20.39	0.33	177.97	212.04
234	452.80	267.75	86.50	24.62	1427.25	991.09	104.61	25.37	0.31	174.91	212.98
235	447.18	241.30	78.88	32.21	1360.56	925.82	91.92	22.06	0.32	176.25	211.54
236	275.60	191.57	66.79	26.57	952.14	663.64	88.89	19.09	0.29	173.47	208.26
237	454.46	282.81	86.61	25.08	1484.05	1050.80	87.94	23.18	0.29	175.52	210.04
238	244.53	115.15	98.99	24.60	1022.39	770.81	105.95	29.68	0.20	187.38	220.77
239	409.70	231.16	65.13	34.20	1469.41	1081.00	105.59	22.05	0.27	176.50	211.03
240	332.97	278.51	82.00	22.49	1052.64	713.48	93.47	21.87	0.31	182.44	210.97
241	399.59	246.07	93.27	26.95	1406.52	1024.90	98.17	21.40	0.27	175.02	209.87
242	471.01	324.64	77.48	30.39	1621.46	1181.72	111.53	22.10	0.29	179.19	210.30
243	338.14	145.59	95.15	28.11	1345.31	1021.88	104.81	24.49	0.23	182.73	213.81
244	343.34	207.44	69.75	29.21	1171.22	828.63	103.16	20.45	0.29	175.14	207.63
245	348.29	259.96	69.28	24.64	1005.53	646.14	97.50	19.83	0.36	172.71	209.24
246	441.49	263.32	76.04	27.28	1168.77	725.42	81.45	18.85	0.41	173.74	209.94
247	326.35	265.76	61.98	25.54	1299.36	982.61	88.68	23.23	0.23	176.92	212.35
248	377.75	307.02	59.68	32.00	1247.02	875.76	81.25	21.30	0.30	179.73	209.51
249	310.13	298.95	84.66	24.50	1403.39	1112.14	94.44	23.55	0.23	178.62	210.22
250	438.84	290.15	48.49	41.91	1138.96	695.60	79.48	17.35	0.41	167.43	209.69
251	430.67	262.36	73.42	32.22	1326.15	904.61	101.26	21.67	0.33	184.24	211.95
252	367.78	251.52	61.97	29.95	1148.10	777.00	97.50	19.45	0.33	168.13	207.58
253	375.63	179.68	124.95	25.42	1276.98	906.59	102.85	23.24	0.30	184.11	213.17
254	432.14	241.56	112.13	24.45	1239.97	809.26	83.45	20.79	0.36	184.14	213.84

255	264.94	167.42	82.59	27.00	1009.30	733.48	98.61	25.39	0.25	184.86	214.58
256	406.62	182.62	108.86	24.97	1287.92	886.86	96.21	22.81	0.31	184.28	216.35
257	335.21	166.24	143.00	23.26	1252.21	921.78	89.90	24.06	0.26	189.80	218.63
258	451.78	201.25	104.06	24.88	1338.30	894.35	98.79	22.93	0.34	182.64	214.18
259	412.87	163.64	143.49	28.10	1258.80	850.12	93.81	25.51	0.32	190.33	216.86
260	395.33	169.91	133.59	24.84	1243.98	852.18	95.40	22.32	0.31	183.57	214.07
261	409.12	187.74	124.25	27.97	1313.71	912.37	88.78	23.10	0.30	188.83	215.98
262	371.67	268.34	74.71	29.12	1238.59	870.22	98.40	23.11	0.30	170.04	208.29
263	364.61	263.29	62.47	32.66	1293.23	935.24	109.86	22.92	0.28	166.61	206.75
264	283.39	185.78	82.29	23.53	1140.31	855.15	99.03	19.87	0.24	183.45	214.71
265	334.40	183.99	80.84	27.52	1139.74	801.92	88.89	19.14	0.30	180.09	212.66
266	354.00	156.05	112.19	22.04	1238.17	885.90	93.54	21.10	0.30	189.62	215.49
267	287.28	149.27	121.46	23.45	991.89	693.17	80.03	23.29	0.30	193.81	220.57
268	449.05	271.81	62.01	33.67	1228.56	779.70	83.58	18.73	0.39	169.72	209.44
269	308.76	141.52	82.65	19.46	1018.03	697.91	88.29	21.97	0.30	188.31	214.20
270	369.72	162.57	113.55	25.32	1273.33	908.90	99.38	24.20	0.30	191.54	218.99
271	351.45	174.76	102.70	21.54	1277.29	930.86	90.01	24.47	0.27	189.44	218.42
272	391.36	195.42	100.51	23.25	1330.92	946.65	88.04	22.60	0.29	191.19	217.88
273	347.81	174.32	100.41	24.66	1214.30	866.78	89.07	22.50	0.28	185.53	215.38
274	287.67	144.64	119.60	20.18	1103.97	810.07	86.70	24.72	0.27	190.19	219.08
275	313.91	176.93	75.34	23.32	1204.30	890.78	90.69	22.33	0.25	189.39	216.84
276	405.69	259.20	64.95	30.24	1372.95	977.22	95.51	22.93	0.30	182.65	211.93
277	355.22	175.31	100.30	24.92	1469.90	1133.37	99.84	20.65	0.22	193.22	218.47
278	258.34	141.47	110.13	17.56	1044.91	777.76	94.60	27.66	0.22	184.71	220.52
279	357.80	173.74	108.63	27.30	1587.37	1257.91	118.05	30.70	0.20	191.96	218.99
280	297.04	184.22	110.73	20.31	1597.29	1330.58	107.80	28.56	0.16	188.68	220.48
281	436.64	255.29	65.63	34.05	1309.41	877.73	83.38	16.05	0.35	173.18	209.20
282	393.82	233.97	63.39	31.77	1284.35	893.96	97.54	20.85	0.31	171.50	208.51
283	360.21	275.57	79.29	22.25	1155.77	791.02	93.99	21.63	0.34	181.11	210.13
284	425.54	302.16	78.88	29.27	1404.38	990.65	99.54	20.86	0.32	176.23	207.65
285	450.65	287.52	78.38	29.38	1236.06	782.48	99.98	22.50	0.41	171.52	209.43
286	392.60	389.26	65.22	25.36	1245.62	858.33	76.47	20.93	0.33	176.52	208.83
287	329.95	231.90	104.00	22.20	1187.67	859.42	108.63	28.40	0.27	188.11	214.82
288	375.62	264.59	82.11	26.60	1364.47	1002.22	93.76	24.75	0.30	183.05	217.89
289	417.20	198.89	88.36	30.65	1354.45	948.21	102.13	21.46	0.32	175.34	210.21
290	362.41	271.03	70.67	28.44	1181.49	817.75	95.79	20.22	0.32	169.74	207.53
291	370.83	259.53	69.87	29.88	1177.82	804.41	96.27	19.90	0.33	169.96	208.47
292	372.97	181.86	92.74	30.59	1158.62	782.16	107.55	23.57	0.33	175.24	208.72
293	192.47	194.66	43.12	18.51	829.01	613.80	96.59	17.80	0.21	180.78	213.47
294	462.04	254.73	72.39	35.93	1326.93	871.09	97.12	23.10	0.36	179.76	212.50
295	425.84	294.52	80.88	27.22	1342.24	924.56	94.06	20.61	0.33	175.65	208.43
296	480.48	263.24	89.19	28.78	1590.69	1135.23	96.76	20.59	0.30	184.03	214.97
297	413.19	268.70	95.06	23.92	1530.84	1141.33	110.02	26.93	0.26	185.37	214.91
298	440.77	240.62	121.45	20.96	1629.39	1218.70	114.58	27.92	0.26	186.27	216.13
299	483.61	271.56	66.65	34.34	1445.70	976.82	100.47	20.76	0.34	178.18	210.22

300	319.17	286.25	69.13	22.57	1561.97	1270.92	108.34	26.33	0.18	191.14	220.29
301	430.01	285.18	99.29	20.71	1362.61	941.81	105.07	21.54	0.32	175.44	207.76
302	332.12	241.81	93.42	23.17	1198.94	867.33	92.09	26.22	0.28	183.31	214.24
303	446.92	284.88	70.65	26.94	1310.06	868.40	93.44	19.64	0.36	173.60	207.54
304	231.79	262.11	84.80	14.96	1101.71	864.49	112.90	25.40	0.17	187.95	216.92
305	212.10	412.50	41.39	18.89	831.99	599.78	95.26	18.13	0.26	174.09	212.45
306	299.16	212.86	116.01	22.40	1165.30	866.98	103.37	28.06	0.25	192.91	218.01
307	342.81	264.61	81.08	24.52	1014.33	659.83	78.60	17.64	0.36	171.87	208.19
308	380.54	275.92	65.33	25.54	1098.72	711.19	88.54	19.20	0.37	177.51	209.17
309	348.73	219.03	80.00	28.58	1086.04	729.22	90.09	18.72	0.33	180.23	211.15
310	271.53	186.89	111.02	20.95	1081.70	803.26	97.93	25.00	0.24	188.11	216.95
311	401.25	278.75	60.79	26.34	1304.77	909.91	102.11	23.69	0.31	171.94	209.37
312	347.87	274.87	49.65	33.26	1187.30	838.56	95.32	18.80	0.30	182.51	211.38
313	404.41	286.71	60.68	30.29	1258.88	857.21	97.12	20.38	0.32	179.53	210.41
314	379.27	249.48	73.14	29.40	1182.55	800.88	101.46	20.40	0.33	174.31	208.67
315	353.64	183.65	107.29	27.59	1219.56	867.09	74.19	21.17	0.28	186.64	218.80
316	421.25	404.90	68.07	24.19	1325.85	912.77	86.35	21.47	0.32	173.75	209.23
317	416.37	348.23	47.45	34.64	1164.23	744.14	75.76	18.52	0.37	169.83	210.87
318	333.21	196.14	122.16	18.93	1257.83	929.73	101.65	24.98	0.25	184.51	213.21
319	380.31	251.33	69.50	29.20	1138.55	753.15	89.98	19.85	0.35	169.23	208.27
320	350.93	197.45	73.26	28.90	1481.24	1150.50	109.80	23.34	0.22	182.87	214.76
321	399.32	228.33	81.92	30.84	1296.07	902.39	101.29	22.00	0.31	182.19	213.63
322	456.45	262.86	115.92	24.17	1467.85	1027.95	99.92	23.53	0.31	184.53	213.69
323	408.26	243.86	69.77	33.66	1295.68	891.09	101.46	20.38	0.33	181.58	213.36
324	321.17	166.60	115.21	23.05	1052.38	723.70	102.09	24.61	0.31	184.84	211.94
325	194.81	126.57	47.52	19.33	686.68	459.83	74.40	20.88	0.25	163.59	209.69
326	408.87	282.13	62.28	31.05	1185.51	775.19	104.75	20.20	0.36	171.67	207.05
327	371.80	296.43	65.21	25.74	1106.52	728.05	93.84	20.54	0.35	172.50	209.72
328	370.44	195.07	78.77	27.49	1212.36	842.02	108.88	21.52	0.31	183.31	210.64
329	265.50	287.19	61.01	25.88	1422.64	1175.12	108.40	29.26	0.16	189.22	217.50
330	337.61	195.03	99.40	22.20	1053.69	705.24	102.11	21.50	0.36	181.81	211.19
331	222.67	222.32	50.34	19.01	895.08	653.05	103.73	20.81	0.22	181.66	212.99
332	391.22	141.65	162.66	21.99	1119.25	720.32	87.91	22.26	0.36	186.33	212.23
333	389.57	176.88	103.95	29.61	1338.66	957.43	82.57	25.04	0.29	187.47	220.84
334	398.76	196.41	93.77	26.86	1406.87	1021.30	85.71	23.85	0.27	187.32	220.20
335	379.68	231.45	86.83	21.86	1363.01	994.96	74.17	19.57	0.27	190.62	217.81
336	540.98	358.01	67.06	30.00	1399.35	867.89	69.53	20.52	0.40	174.01	209.94
337	283.50	268.05	77.71	15.07	1344.78	1073.77	114.53	21.68	0.19	180.58	209.74
338	264.32	230.14	73.38	16.57	1297.03	1042.21	105.40	24.24	0.17	187.19	213.26
339	424.32	197.70	143.35	20.27	1449.94	1040.84	97.48	23.51	0.28	187.92	218.27
340	420.59	184.12	131.61	24.14	1307.02	891.74	98.22	23.21	0.33	185.50	213.55
341	421.78	201.97	135.76	22.95	1370.18	958.22	100.49	23.66	0.30	186.30	214.24
342	501.88	256.22	115.06	23.83	1615.18	1137.36	96.33	25.49	0.30	189.70	217.71
343	382.91	207.00	109.92	22.82	1156.48	774.01	86.02	22.38	0.34	188.93	216.30
344	361.77	161.21	115.37	23.88	1237.46	881.59	92.21	25.84	0.29	188.70	217.22

345	438.40	178.41	96.64	25.71	1227.97	792.45	94.12	22.73	0.36	189.55	216.27
346	339.03	161.94	93.05	30.02	999.88	649.30	84.82	21.36	0.35	185.78	214.72
347	436.09	302.17	55.91	34.60	1212.64	776.81	69.68	18.58	0.39	167.48	213.74
348	382.58	249.58	82.00	24.92	1125.33	737.37	84.05	19.17	0.36	170.98	208.54
349	470.16	292.01	62.14	34.38	1411.30	954.94	97.78	21.76	0.33	179.55	210.27
350	389.60	242.28	67.21	32.46	1064.62	665.39	80.95	21.34	0.39	174.36	209.53
351	447.78	194.76	158.73	23.22	1307.04	865.84	90.73	23.51	0.35	186.70	214.90
352	446.53	209.74	121.86	26.09	1405.70	972.86	89.60	20.81	0.32	186.08	216.33
353	262.04	323.56	48.00	17.40	1036.98	766.81	106.63	21.50	0.22	178.27	212.93
354	490.21	306.79	69.42	32.11	1264.80	777.77	66.73	19.39	0.40	174.57	212.24
355	324.09	214.20	114.85	23.31	1185.63	863.63	103.94	22.52	0.25	180.94	213.88
356	360.52	168.90	119.99	23.10	1313.05	962.47	92.77	25.60	0.26	192.11	221.71
357	398.01	194.32	137.03	23.23	1409.95	1027.96	93.89	25.82	0.27	191.06	220.15
358	184.83	166.84	37.65	22.47	1144.41	961.24	103.24	27.01	0.11	189.60	207.84
359	392.61	227.89	62.35	27.67	1265.39	877.89	85.22	17.39	0.30	184.77	216.85
360	498.64	299.94	68.22	33.55	1269.76	773.33	69.69	19.17	0.42	174.19	211.20
361	367.04	265.86	95.21	22.56	1565.18	1224.49	104.62	25.39	0.22	191.16	218.90
LSD (5%)	132.75	76.56	33.38	3.79	386.74	318.67	14.16	3.78	9.09	7.50	4.67

GY: Grain yield, NPPP: Number of panicles per plot, NGPP: Number of grains per panicle, TKW: 1000-kernel weight, Bio: Biomass, SY: Straw yield, PH: Plant height, PL: Panicle length, HI: Harvest index, DH: Day to 50% heading, DM: Days to 50% maturity.