

Supplementary Table S1. Pedigree of entries used for testing the genetic gain of ICARDA's breeding program.

ID	Year of field test	Year of cross	Decade	Name	Pedigree	SelHistory
Historicalset-001	All	1977	1975-1984	Yamuna2	BYE*2/Tace//AA/3/Plc/Ruff//Gta/D6715	ICD77-0156-0AP-2AP-1AP-1AP-1AP-0AP
Historicalset-002	All	1978	1975-1984	Amst1	Amal/Stk	ICD78-0030-2AP-2AP-3AP-2AP-0AP
Historicalset-003	All	1984	1984-1993	Rufom1	Ru/Mrb18	ICD84-1255-14AP-0TR
Historicalset-004	All	1984	1984-1993	Rufom5	Ru/Mrb15	ICD84-1257-7AP-TR-17AP-0TR
Historicalset-005	All	1986	1984-1993	Genil2	GdoVZ512/Cit//Ruff/Fg/3/Nile	ICD86-0615-ABL-0TR-2AP-0TR-12AP-0TR
Historicalset-006	All	1986	1984-1993	Sebah	Sbu/Lahn	ICD86-0041-ABL-13AP-0TR-7AP-0TR
Historicalset-007	All	1988	1984-1993	Gerbrach1	GdoVZ512/Cit//Ruff/Fg/3/Brachoua	ICD88-1251-ABL-0TR-3AP-0AP-5AP-0AP
Historicalset-008	All	1988	1984-1993	Gerboy	GdoVZ512/Cit//Ruff/Fg/3/Gr/Boy	ICD88-1324-ABL-6AP-0AP-1AP-0AP
Historicalset-009	All	1990	1984-1993	Gidara2	Stj/Mrb3	ICD90-0179-ABL-0AP-2AP-0AP-3AP-0AP
Historicalset-010	All	1992	1984-1993	Terbol975	Bcr/3/Ch1//Gta/Stk/4/Bcr/Lks4	ICD92-0150-CABL-11AP-0AP-8AP-0TR-4AP-0AP
Historicalset-011	All	1992	1984-1993	Azeghar1	20048Traikia(Mor)/Mrb5//Stj3	ICD92-0511-MABL-0AP-16AP-0TR-9AP-0AP
Historicalset-012	All	1994	1994-2003	Yousef1	Chst//H.mouline/Chah88	ICD94-0674-T-0AP-14AP-0AP
Historicalset-013	All	1994	1994-2003	Ammar8	Lgt3/Bicrecham1	ICD94-0918-C-12AP-0AP-6AP-0AP-2AP-0AP
Historicalset-014	All	1996	1994-2003	Amedakul1	PI321644/M8//Marazk/4/Bcr/3/Ch1//Gta/Stk	ICD96-0242-T-2AP-0AP-1AP-0AP
Historicalset-015	All	1996	1994-2003	IcalmorH571	F413/3/Arthur71/Lahn//Blk2/Lahn/4/Quarmal	ICD96-0334-T-2AP-0AP-13AP-0AP-4AP-0AP
Historicalset-016	All	1998	1994-2003	Aghram	Mgnl3/Ainzen1	ICD98-0043-C-4AP-0AP-26AP-0AP-12AP-0AP
Historicalset-017	All	2000	1994-2003	IcasmorB19	Ossl1/Stj5/5/Bidra1/4/BezaizSHF//SD19539/Waha/3/Stj/Mrb3	ICD00-0393-T-9AP-0AP
Historicalset-018	All	2000	1994-2003	IcaAsbati1	Aghrass1/3/HFN94N8/Mrb5//Zna1	ICD00-1085-T-1AP-0AP-0AP

Historicalset-019	All	2002	1994-2003	IcaJoudy1	Atlast1/961081//Icasyr1	ICD02-0494-T-11AP-0TR-6AP-0AP-2AP-0AP
Historicalset-020	All	2002	1994-2003	Zagharin1	Icasyr1/3/Gcn//Stj/Mrb3	ICD02-1016-C-6AP-0TR-1AP-0AP-5AP-0AP
Historicalset-021	All	2002	1994-2003	Zagharin2	Icasyr1/3/Gcn//Stj/Mrb3	ICD02-1016-C-6AP-0TR-1AP-0AP-7AP-0AP-3AP-0AP-0TR
Historicalset-022	All	2003	1994-2003	Ouassara1	Ouasloukos1/5/Azn1/4/BEZAIZSHF//SD19539/Waha/3/Gdr2	ICD03-0342-BLMSD-0AP-1AP-0Tr-3AP-0Tr-4AP-0Tr-5AP-0THT-0AP-0TR
IDYT39-01	16	2004	2004-2011	Icamoram7	ICAMORTA0472/Ammar7	ICD04-0404-TA-9AP-0AP-1AP-0AP
IDYT39-02	16	2004	2004-2011	Icakassem2	Geromtel1/Icasyr1	ICD04-1101-TA-0AP-3AP-0AP-4AP-0AP
IDYT39-03	16	2006	2004-2011	Margherita	Terbol975/Geruftel2	ICD06-1790-0AP-4AP-0AP-4AP-0THTD-0TR
IDYT39-04	16	2006	2004-2011	Icaverve	Azeghar1/4/IcamorTA0462/3/Maamouri3//Vitron/Bidra1/5/Mgnl3/Ainzen1	ICD06-0230-BLMSD-0AP-12AP-0Tr-3AP-0Tr-11AP-0THT-0AP-0TR
IDYT39-05	16	2006	2004-2011	Icacube	Mgnl3/Ainzen1//Mgnl3/Ainzen1	ICD06-1247-0AP-8AP-0AP-4AP-0THTD-0TR
IDYT39-06	16	2006	2004-2011	Aghramatlas	Mgnl3/Ainzen1//Mgnl3/Aghrass2	ICD06-1614-0AP-4AP-0AP-5AP-0THTD-0TR
IDYT39-07	16	2007	2004-2011	Derazejihann	Bicrederaa1/Azeghar2//Icajihann25	ICD07-192-BLMSD-0AP-0Tr-2AP-0Tr-3AP-0THT-0AP-0TR
IDYT39-08	16	2007	2004-2011	Icavert	Ter1/3/Stj3//Bcr/Lks4/4/Aghrass1/3/Mrf1//Mrb16/Ru	ICD07-324-BLMSD-0AP-0Tr-3AP-0Tr-4AP-0THT-0AP-0TR
IDYT39-09	16	2006	2004-2011	Icadezful	Geromtel1/IRANYT053//Mgnl3/Ainzen1	ICD06-0048-BLMSD-0AP-6AP-0Tr-6AP-0Tr-5AP-0THT-0AP-0TR
IDYT39-10	16	2006	2004-2011	Icaghram	IcamorTA0471//IcamorTA0459/Waha/3/Mgnl3/Ainzen1	ICD06-0174-BLMSD-0AP-9AP-0Tr-5AP-0Tr-3AP-0THT-0AP-0TR
IDYT39-11	16	2006	2004-2011	Icarukus	Maamouri1/5/IcamorTA0462/4/Stj3//Bcr/Lks4/3/Icamor/6/Mgnl3/Ainzen1	ICD06-0367-BLMSD-0AP-2AP-0Tr-2AP-0Tr-2AP-0THT-0AP-0TR
IDYT40-03	17	2006	2004-2011	Icaqinzen	IcamorTA0472//Quarmal/Gbch2/3/Mgnl3/Ainzen1	ICD06-0965-BLMSD-0AP-2AP-0T-1AP-0T-3AP-0APT-1BR-0AP-0AN-0MCH[TIMS]GAA[MTr]Ts]-0AUB
IDYT40-04	17	2010	2004-2011	Chicca	CandocrossH25/3/Mrf2/NormalHamari//Bcr/Lks4/4/Berghouata1	ICD10-134-BLMSD-0AP-2AP-0TR-6STR-0TR-0AUB-0AUB
IDYT40-05	17	2010	2004-2011	Mammachann	Icamilmus2/Ammar8/3/Marsyr3//Saadi1989/Chan	ICD10-058-BLMSD-0AP-1AP-0TR-2STR-0TR-0AUB-0AUB

IDYT40-06	17	2006	2004-2011	Zeina	IcamorTA0471//IcamorTA0459/Ammar8/4/Stj3//Dra2/Bcr/3/Ter3	ICD06-0172-BLMSD-0AP-3AP-0T-1AP-0T-7AP-0APT-1BR-0AP-0AN-0MCH[TIMS]GAA][MTr]Ts]-0AUB
IDYT40-07	17	2009	2004-2011	Sahi	Icasyr1/3/Bcr/Sbl5//Turartu/4/13376/Bcrch1//Ossl1/Stj5	ICD09-0174-BLMSD-0AP-4AP-0AP-3AP-0TR-4STR-0TR-0AUB
IDYT40-08	17	2006	2004-2011	Ouassheca	Ossl1/Stj5/5/Bicrederaa1/4/BEZAIZSHF//SD19539/Waha/3/Stj/Mrb3/6/Stk/Hau//Heca1	ICD06-1529-BLMSD-0AP-5AP-0T-2AP-0T-2AP-0APT-1AP-0AP-0AN-0MCH[TIMS]GAA]-0AUB[MTr]Ts]-0AUB
IDYT40-09	17	2010	2004-2011	Mikikassem	Icamilmus5/Miki2//Geromtel1/Icasyr1	ICD10-099-BLMSD-0AP-3AP-0TR-2STR-0TR-0AUB-0AUB
IDYT40-10	17	2006	2004-2011	Hessept2	IcamorTA0462/4/Gdr2//SwAlg/Gdr143/3/IcamorTA0463/5/Ter1//Mrf1/Stj2	ICD06-0112-BLMSD-0AP-6AP-0T-2AP-0T-9AP-0APT-1AP-0AP-0AN-0MCH[TIMS]GAA][MTr]Ts]-0AUB
IDYT40-12	17	2006	2004-2011	Quamagost	Quabrach1/4/IcamorTA0462/3/Maamouri3//Vitron/Bidra1/5/Murlagost2	ICD06-0303-BLMSD-0AP-1AP-0T-3AP-0T-4AP-0APT-1AP-0AP-0AN-0MCH[TIMS]GAA][MTr]Ts]-0AUB
IDYT40-13	17	2004	2004-2011	Magrouer	Amedakul1/TdicoSyrCol//Cham1	ICDJMC04-005-BThL(Bulksel)-0sTh-0wTh-0sTh-18wTh-0sTh-0MCH-0MCH[MtA]DSZ][MMk]T]-0AUB
IDYT40-14	17	2009	2004-2011	Kenzera	Azeghar2/Murlagost2//Bicrederaa1/Azeghar2	ICD09-0196-BLMSD-0AP-2AP-0AP-1AP-0TR-5STR-0TR-0AUB
IDYT40-15	17	2010	2004-2011	Canzone	CandocrossH25/BEZAIZAHF//Adnan2	ICD10-183-BLMSD-0AP-7AP-0TR-2STR-0TR-0AUB
IDYT40-17	17	2004	2004-2011	Jabal	Korifla/AegSpeltoidesSyr//Mrb5	ICDJMC04-032-BThL(Bulksel)-0sTh-0wTh-0sTh-7wTh-0sTh-0MCH-0MCH[MtA]DSZ][MMk]T]-0AUB
IDYT40-18	17	2004	2004-2011	Halab	Mrb5/TdicoAlpCol//Cham1	ICDJMC04-006-BThL(Bulksel)-0sTh-0wTh-0sTh-6wTh-0sTh-0MCH-0MCH[MtA]DSZ][MMk]T]-0AUB
IDYT40-19	17	2008	2004-2011	Sebachan	Sbh/4/D68193A1A//Ruff/Fg/3/Mtl5/5/Marsyr3//Saadi1989/Chan	ICD08-361-BLMSD-0AP-3AP-0APT-2AP-0AP-1AP-0TR-9STR-0TR-0AUB
IDYT40-21	17	2004	2004-2011	Trouvé	Amedakul1/TdicoSyrCol//Loukos	ICDJMC04-001-BThL(Bulksel)-0sTh-0wTh-0sTh-14wTh-0sTh-0MCH-0MCH[MtA]DSZ][MMk]T]-0AUB

IDYT40-22	17	2007	2004-2011	Cucaraja	Tdicocum1/Ch1//IcamorTA0469/3/ IcamorTA0459//CandocrossH25/ Blk204144/4/Mrf1/Stj2//Bcrch1/5/F413/3/ Arthur71/Lahn//Blk2/Lahn/4/Quarmal	ICD07-785-BLMSD-0AP-0T-2AP-0T-7AP- 0APT-1AP-0AP-0AN- 0MCH[TIMS]GAA][MTr]Ts]-0AUB
IDYT40-23	17	2006	2004-2011	Icaverve2	Azeghar1/4/IcamorTA0462/3/ Maamouri3//Vitron/Bidra1/5/Mgnl3/ Ainzen1	ICD06-0230-BLMSD-0AP-12AP-0T-5AP-0T- 4AP-0APT-1AP-0AP-0AN- 0MCH[TIMS]GAA][MTr]Ts]-0AUB
IDYT40-24	17	2009	2004-2011	Zegressl	Zegrenses1/3/13376/Bcrch1//Ossl1/Stj5	ICD09-0174-BLMSD-0AP-4AP-0AP-3AP- 0TR-2STR-0TR-0AUB-0AUB
IDYT41-03	18	2007	2004-2011	Berghisyr	Ter1//Mrf1/Stj2/3/Icasyr1	ICD07-349-BLMSD-0AP-0T-6AP-0T-8AP- 0APT-1AP-0AP-0AN-0MCH[TIMS]GAA]- 0AUB[MTr]Ts]-0AUB-0AUB
IDYT41-04	18	2009	2004-2011	Sahi	Icasyr1/3/Bcr/Sbl5//Turartu/4/13376 /Bcrch1//Ossl1/Stj5	ICD09-0174-BLMSD-0AP-4AP-0AP-3AP- 0TR-4STR-0TR-0AUB-0AUB
IDYT41-05	18	2011	2004-2011	Bekher	Mrb3/Tboeoticum500648/3/ ICAMORTA0462//Hau/Ch13323/4/Bcr/ Gro1//Mgnl1/5/Aghrass1/3/Mrf1//Mrb16/ Ru	ICD11-138-0TR-6STR-0TR-1TR-0STR-5TR- 0STR-0AUB-0AUB
IDYT41-06	18	2006	2004-2011	Icaqinzen	IcamorTA0472//Quarmal/Gbch2/3/Mgnl3 /Ainzen1	ICD06-0965-BLMSD-0AP-2AP-0T-1AP-0T- 3AP-0APT-1BR-0AP-0AN- 0MCH[TIMS]GAA][MTr]Ts]-0AUB-0AUB
IDYT41-07	18	2011	2004-2011	Shabrach Red	Icarasha1//Quabrach3/RedSeedTer109	ICD11-047-0TR-4STR-0TR-1TR-0STR-5TR- 0STR-0AUB-0AUB
IDYT41-08	18	2011	2004-2011	Shoukran	Icarasha1/T.Aeg.Crosses	ICD11-045-0TR-1STR-0TR-1TR-0STR-5TR- 0STR-0AUB-0AUB
IDYT41-09	18	2011	2004-2011	Zaghramy	Icasyr1/3/Gcn//Stj/Mrb3/4/Mgnl3/ Ainzen1/3/Bcr/Gro1//Mgnl1	ICD11-064-0TR-8STR-0TR-2TR-0STR-5TR- 0STR-0AUB-0AUB
IDYT41-10	18	2006	2004-2011	Azizeraa	Azeghar1//Blrn/Mrf2/3/Bicrederaa1/ Azeghar2	ICD06-1646-BLMSD-0AP-0T-1AP-0T-4AP- 0T-2AP-0APT-1BR-0AP-0AN- 0MCH[TIMS]GAA]-0AUB[MTr]Ts]-0AUB- 0AUB
IDYT41-12	18	2011	2004-2011	Swaghost	SwAlgia/Gd181//Ch158/3/Marsyr3/ Murlagost2/4/EMN0917/Adnan2	ICD11-247-0TR-3STR-0TR-1TR-0STR-5TR- 0STR-0AUB-0AUB
IDYT41-13	18	2011	2004-2011	Sissem	SwAlgia/Gd181//Ch172/3/Atlas2/4/ EMN0918//Geromtel1/Icasyr1	ICD11-249-0TR-10STR-0TR-3TR-0STR-5TR- 0STR-0AUB-0AUB

IDYT41-14	18	2011	2004-2011	Syryopis	Marsyr3/3/Gcn//Stj/Mrb3/4/T.Aeg.Crosses	ICD11-116-0TR-10STR-0TR-1TR-0STR-5TR-0STR-0AUB-0AUB
IDYT41-15	18	2011	2004-2011	Farkassem	ICAMORTA0469/4/ICAMORTA0463/3/ CandocrossH25//Msbl1/ Quarmal04182/5/Icasyr2/6/Geromtel1/ Icasyr1	ICD11-129-0TR-7STR-0TR-1TR-0STR-5TR-0STR-0AUB-0AUB
IDYT41-17	18	2011	2004-2011	Youssara	Ysf1/Otb6/6/Ouasloukos1/5/Azn1/4/ BEZAIZSHF//SD19539/Waha/3/Gd2	ICD11-016-0TR-10STR-0TR-1TR-0STR-5TR-0STR-0AUB-0AUB
IDYT41-18	18	2004	2004-2011	Wasihun	Korifla/AegSpeltoidesSyr//Amedakul	ICDJMC04-017-BThL(Bulksel)-0sTh-0wTh-0sTh-29wTh-0sTh-0MCH-0MCH[MtAJDSZ]-0AUB[MMkJT]-0AUB-0AUB
IDYT41-19	18	2006	2004-2011	Zina Bzaff	Ossl1/Stj5/5/Bicrederaa1/4/BEZAIZSHF// SD19539/Waha/3/Stj/Mrb3/6/ Stk/Hau//Heca1	ICD06-1529-BLMSD-0AP-5AP-0T-2AP-0T-2AP-0APT-1AP-0AP-0AN-0MCH[TIMS]GAA]-0AUB[MTr]Ts]-0AUB-0AUB
IDYT41-21	18	2006	2004-2011	Icaltagy	IcamorTA041/4/IcamorTA0469/3/Bcr/ Gro1//Mgnl1/5/MIKI2	ICD06-0208-BLMSD-0AP-7AP-0T-2AP-0T-3AP-0APT-2AP-0AP-0AN-0MCH[TIMS]GAA]-0AUB[MTr]Ts]-0AUB-0AUB
IDYT41-22	18	2006	2004-2011	Zeina	IcamorTA0471//IcamorTA0459/Ammar8/ 4/Stj3//Dra2/Bcr/3/Ter3	ICD06-0172-BLMSD-0AP-3AP-0T-1AP-0T-7AP-0APT-1BR-0AP-0AN-0MCH[TIMS]GAA][MTr]Ts]-0AUB-0AUB
IDYT41-23	18	2011	2004-2011	Jigee noudexji (Lady of the River)	Icasyr1//Mrf2/T.dids20123/6/319ADDO/5/ D68193A1A//Ruff/Fg/3/Mtl5/4/ Lahn/7/Ouasloukos1/5/Azn1/4/ BEZAIZSHF//SD19539/Waha/3/Gd2	ICD11-290-0TR-9STR-0TR-1TR-0STR-5TR-0STR-0AUB-0AUB
IDYT41-24	18	2007	2004-2011	Adnham	Adnan1//Mgnl3/Ainzen1	ICD07-646-BLMSD-0AP-4AP-0T-5AP-0APT-2BR-0AP-0AN-0MCH[TIMS]GAA]-0AUB[MTr]Ts]-0AUB-0AUB