

Supplementary Materials

Table S1. Detailed biophysical and socio-economic characteristics of field sites (FGD – Focus Groups Discussions; HHS – Household Surveys)

Name of douar/ hamlet (Hub)	FAO Agro- ecological Zone ¹	Amazigh Tribe ²	Nº FGD	Nº HHS	Eleva- tion ³ (m)	Rain- fall ⁴ (mm)	Tempe- rature ⁴ (°C)	Climate ⁵	Soil type ⁶	Accessi- bility by road ⁷	Distanc- e local market ⁷	Size nearest market ⁷	Main economic activities ⁷	Economic conditions ⁷	Surface of plots ⁷	Water availa- bility ⁷
Asni* (Al Haouz)	Sub-tropics, mod. cool; semi-arid, no soil/terrain limitations	Rhirhaya	0	45	1183	453	15	Long cold winter, short dry summer	Calcic Xerosols	Mediu m	Mediu m	Big	Tourism, agriculture, livestock, trade	Good	High	Medium
Talat N'Yaaqoub* (Al Haouz)	Sub-tropics, mod. cool; semi-arid, with soil/terrain limitations	Goundafa	0	15	1186	438	15	Long cold winter, short dry summer	Lithosols	Low	Near	Small	Agriculture, livestock	Low	Medium	Medium
Oukaimeden (Al Haouz)	Sub-tropics, cool; semi- arid, with soil/terrain limitations	Rhirhaya	1	0	2599	581	9	Very cold winter, mild summer	Lithosols	Mediu m	Far	Small	Tourism, livestock, agriculture	Medium	Low	High
Amizmiz (Al Haouz)	Sub-tropics, mod. cool; semi-arid, no soil/terrain limitations	Kdamoute	0	5	931	438	16	Short cold winter, long hot dry summer	Calcic Xerosols	High	Near	Big	Trade, agriculture, livestock	Good	High	Low
Anamer- Taourirt (Al Haouz)	Land with severe soil/terrain limitations	Goundafa	2	90	1633	509	12	Long cold winter, short dry summer	Lithosols	Low	Far	Small	Agriculture, livestock	Low	Low	Medium

Ighrem (Al Haouz)	Land with severe soil/terrain limitations	Goundafa	0	5	1057	442	15	Long cold winter, short dry summer	Lithosols	Low	Far	Small	Agriculture, livestock	Low	Low	Medium
Aagrab - Tnin Ourika* (Al Haouz)	Sub- tropics, mod. cool; semi-arid, no soil/terrain limitations	Ourika	0	35	850	365	17	Short cold winter, long hot dry summer	Calcic Xerosols	High	Near	Big	Tourism, agriculture, trade, livestock	Good	Medium	High
Ait Lkak (Al Haouz)	Land with severe soil/terrain limitations	Ourika	0	65	1901	543	11	Very cold winter, mild summer	Lithosols	Mediu m	Far	Small	Agriculture, livestock	Medium	Low	High
Tahannaout (Al Haouz)	Sub- tropics, mod. cool; semi-arid, no soil/terrain limitations	Rhirhaya	0	25	935	400	17	Short cold winter, long hot dry summer	Calcic Xerosols	High	Near	Big	Trade, tourism, agriculture, livestock	Good	High	Low
Tabant* (Demnate)	Sub- tropics, cool; semi- arid, with soil/terrain limitations	Ait Bougmez	2	70	1860	334	12	Cold winter, mild summer	Rendzinas	Mediu m	Near	Big	Trade, tourism, agriculture, livestock	Good	Medium	High
Ait Abbas (Demnate)	Sub- tropics, mod. cool; sub- humid, with soil/terrain limitations	Ait Abbas	0	85	1464	369	14	Cold winter, mild summer	Rendzinas	Low	Mediu m	Mediu m	Agriculture, livestock	Medium	Medium	Medium
Iminifri (Demnate)	Sub- tropics, mod. cool; sub- humid, with	Oultana	2	55	1005	474	16	Cold winter, dry summer	Calcic Xerosols	High	Near	Big	Tourism, agriculture	Good	Low	Medium

	soil/terrain limitations															
Ait Boualli (Demnate)	Sub- tropics, cool; semi- arid, with soil/terrain limitations	Ftouaka	0	15	1685	364	12	Cold winter, mild summer	Rendzinas	Low	Far	Small	Livestock, agriculture, tourism	Low	Low	High
Ait Oumdiss (Demnate)	Sub- tropics, mod. cool; semi-arid, with soil/terrain limitations	Ftouaka	0	39	1286	437	16	Cold winter, mild summer	Lithosols	Low	Far	Big	Agriculture, livestock	Low	Medium	High
Zaouiat Ahansal* (Azilal)	Sub- tropics, mod. cool; semi-arid, with soil/terrain limitations	Ihanesale n	0	55	1563	309	12	long cold winter, mild summer	Rendzinas	Mediu m	Mediu m	Low	Tourism, livestock	Low	Low	High
Bernat (Azilal)	Sub- tropics, mod. cool; sub- humid, with soil/terrain limitations	Ait Messat & Ait Attab	0	60	1651	406	13	long cold winter, mild summer	Rendzinas	High	Near	Big	Agriculture, livestock	Medium	Medium	High
Tamda Noumercid (Azilal)	Sub- tropics, mod. cool; semi-arid, no soil/terrain limitations	Ait Messat & Ait Attab	2	35	1279	468	15	Short cold winter, long hot summer	Rendzinas	High	Near	Big	Agriculture, livestock, trade	Medium	High	Low
Ait M'hamed* (Azilal)	Sub- tropics, mod. cool; sub- humid, with	Ait Messat & Ait Attab	2	0	1704	401	13	long cold winter, hot summer	Rendzinas	High	Near	Big	Agriculture, livestock,tra de	Good	High	High

Wabzaza (Azilal)	soil/terrain limitations	Dominantl	Ait	Messat & Ait Attab	0	30	1599	390	14	long cold winter, hot summer	Rendzinias	Low	Far	Big	Livestock	Low	High	Low
Talha (Azilal)	Sub-tropics, mod. cool; semi-arid, with soil/terrain limitations	Ait	Messat & Ait Attab	0	50	1272	470	16	Short cold winter, long hot summer	Rendzinias	High	Near	Big	Agriculture, livestock, trade	Medium	High	Low	
Tissa (Azilal)	Sub-tropics, mod. cool; sub-humid, with soil/terrain limitations	Ait	Messat & Ait Attab	0	25	1598	440	13	Short cold winter, long hot summer	Rendzinias	Mediu m	Mediu m	Big	Agriculture, livestock	Good	High	Medium	

¹ Agroecological Zone description based on FAO's Global Agro-Ecological Zones v4 – Model documentation [19]; ² Amazigh tribes taken from the portal "Tribus du Maroc" (<http://tribusdumaroc.free.fr/>); ³ Elevation values were extracted from the SRTM DEM available through NASA Earthdata at the address (<https://dwtkns.com/srtm30m/>); ⁴ Rainfall and Average Yearly Temperature data have been extracted from the WordClim historical datasets (period 1970-2000) (www.worldclim.org); ⁵ Climate conditions descriptions are expressed in Koppen-Geiger climatic classification [18] (<http://www.globo2o.org/koppen/>); ⁶ Soil types refer to the FAO Digital Soil Map of the World Version 3.6, January 2003; ⁷ Digital maps and community researchers and farmers expertise; * Indicates location where local market (souk) inventories were carried out. Souks occur on a weekly basis at each of the 6 locations.

Table S2. Amazigh nouns and modifiers used to describe the observed diversity of the 5 species collected in local markets, focus group discussions and household surveys.

Transliteration in Tamazight*	Description	Transliteration in Darija
Species names		
Timzt/Tomzin (Timzin)	Barley (<i>Hordeum vulgare</i>). Usually used for non-modern varieties.	Chaiir
Tachairine	Barley (of small sized grains), locally considered as ancient.	Chaiir nabii
Rwiza	Modern varieties of barley.	Rwiza
Irdan	Durum wheat (<i>Triticum durum</i>). Without singular form. May refer to wheat in general (<i>Triticum</i> spp.) although <i>Triticum aestivum</i> is usually called Gemh farina.	Gemh farina
Abaw / Ibawn	Fava bean.	Foul
Tibawin	Fava bean with small sized seeds (<i>Vicia faba</i>)	Fwiliya
Tanift / Tinifin/ Tinfin	Pea with small round seeds (<i>Pisum sativum</i>). Usually used for non-modern varieties.	Jelbana Beldi
Jelbana	Pea (<i>Pisum sativum</i>).	Jelbana
Fessa / Lfest	Alfalfa (<i>Medicago sativa</i>). Literally means forage. The existing Tamazight terms for this species ikffis and tilfzt were not recorded.	Lfessa
Fessa nsif/ Bersim	Summer forage (refers to <i>Trifolium alexandrinum</i>). Although information was collected for this ethnotaxon, we did not include it in the analysis for not belonging to the 5 selected species.	Lfessa d sif/ Bersim
Modifiers		
Perceived indigeneity/foreignity		
Beldi	Traditional /old variety.	Beldi
Roumi	Modern or creole. Referring to Rome as an indication of foreignness.	Roumi
Perceived historical antiquity		
Aqdim / Taqdimt / Iqdimen / Tiqdimin	Old/ancestral seeds.	Qdim
Akhatar / Takhatart / Ikhatar / Tikhatarin	Can refer to both old and large seeds.	Qdim/Kbir
Preferred location		
Nodrar, N'adrar	From the mountains.	Djbel
N'azaghar	From the plains.	Lota
Preferred irrigation conditions		
Bour	From non-irrigated areas.	Bour
Sagya	From irrigated areas.	Sagya
Preferred uses		
Laalf	For forage use.	Laalf
Characteristics of the plant (size, life cycle)		
Igzuel / Tgzuel / Gzulen =		
Iguezalen / Gzulent =	Short.	Qsir
Tiguezalin		
Ighzif / Aghzaf / Ighzafen / Tighzafin	Tall.	Twil
Zerbana	Early and fast growing variety.	Zerbana
Characteristics of seeds (size, productivity)		

Transliteration in Tamazight*	Description	Transliteration in Darija
Isdid / Tsdid / Isdidn / Tosdadin = Tisdidin	Thin seeds.	Rqiq
Ghilid / Ghilda / Ghlad / Ghladat	Thick seeds.	Ghid
Mazozia	Can refer to either small grains or seeds planted at the end of the agricultural season in the summer to be harvested in the winter. Could Mazozia refer to a commercial variety.	
Color of seeds		
Omlil = Amlal / Tomlilt = Tamllalt Omliln = Imllaln / Tomlilin = Timllalin	White.	Byed
Awragh / Tawraght Iwraghn / Tiwraghin	Yellow.	Sfer
Wrdi (Ouardi) / Wrdiya Wrdiyin / Wrdiyat	Pink.	Wrdi
Azgagh / Tazgagh Izgaghn / Tizgaghin	Red.	Hmr
Azgzaw / Tazgzawt Izgzawn / Tizgzawin	Green.	Khder
Aqhwi / Taqhwit Iqhwayn / Tiqhwiyn	Maroon.	Qhwi
Ongal = Idili = Oghmi / Tongalt = Tididlit = Toghmit Ongaln = Idalan = Oghman / Tongalin = Tidalatin = Toghmiyin	Dark.	K'hel/ghameq
K'hel = Asgane = Afkhan / K'hla = Tasgant = Tafkhant K'helin = Isgane = Ifkhan / K'halat = Tisganin = Tifkhanin	Black.	K'hel
Imoche / Tamocht Imochen / Timochin	With dark spots.	Mnqtin /mkhltin
Geographical origin (national toponym)		
Lmllalia	From Beni Mellal (Beni Mellal).	Lmllalia
El Attaouia	From El Attaouia (El Kelâa des Sraghna).	El Attaouia
Asni	From Asni (Al Haouz).	Asni
Onayn (Ouneine)	Valley in Taroudant, Souss-Massa.	Onayn
Geographical origin (international toponym)		
Italien	From Italy.	Italien
Americain	From USA.	Americain
Canada	From Canada.	Canada
Australia	From Australia.	Australia
Commercial names		
Sonacos	Moroccan seed commercialization society.	Sonacos
Vita	Commercial variety of pea.	Vita

Transliteration in Tamazight*	Description	Transliteration in Darija
Lincoln	English heirloom of pea (very sweet).	Lincoln
Karim	High yield potential hard wheat cultivar. Registered in 1985.	Karim
Marzaq	High yield potential hard wheat cultivar. Registered in 1984.	Marzaq
Anthroponyms		
Moha w Said	Historical figure.	Moha w Said
Other		
N'igdad	Literally meaning "of birds".	Dyal tyor
Adkoy	Two names have been reported for <i>Avena sativa</i> , one of them being termed Khrtal	
Irdn ifkhan	identically as the black durum wheat variety (irdn ifkhan).	Gemh k'hel
Morgh	Unknown.	Morgh

*For some Amazigh modifiers the masculine singular, feminine singular, masculine plural and feminine plural forms are provided, as well as their variations. Amazigh terms in italics correspond to those borrowed from Darija.

Table S3. Diversity index estimates from HHS. Community richness and evenness, average HH richness and evenness, divergence and number of households surveyed are reported for each crop at each site

CROP	Site	Community Richness	Community Evenness	Divergence	Average HH Richness	Average Hh Evenness
Barley	Ait Abbas	1	0	NA	1	0
Barley	Ait Boualli	1	0	NA	1	0
Barley	Ait Lkak	2	0.392623438429506	0	2	0.392623438429506
Barley	Ait Oumdiss	1	0	NA	1	0
Barley	Amizmiz	1	0	NA	1	0
Barley	Anamer - Taourirt	3	0.576998675772075	0	3	0.576998675772075
Barley	Asni	3	0.473086419753086	0	3	0.473086419753086
Barley	Bernat	1	0	NA	1	0
Barley	Ighrem	1	0	NA	1	0
Barley	Iminifri	1	0	NA	1	0
Barley	Tabant	2	0.00187148931267522	0	2	0.00187148931267522
Barley	Tahannaout	1	0	NA	1	0
Barley	Talat N'Yaaqoub	1	0	NA	1	0
Barley	Talha	1	0	NA	1	0
Barley	Tamda Noumercide	1	0	NA	1	0
Barley	Tissa	1	0	NA	1	0
Barley	Tnin Ourika	2	0.00345124076587666	0	2	0.00345124076587666
Barley	Wabzaza	1	0	NA	1	0
Barley	Zaouiat Ahansal	3	0.0692857142857142	0	3	0.0692857142857142
Wheat	Ait Abbas	3	0.510119375573921	0	3	0.510119375573921
Wheat	Ait Boualli	1	0	NA	1	0
Wheat	Ait Oumdiss	1	0	NA	1	0
Wheat	Asni	3	0.255769395750522	0	3	0.255769395750522
Wheat	Bernat	3	0.540298241716704	0	3	0.540298241716704
Wheat	Iminifri	2	0.47620008849005	0	2	0.47620008849005
Wheat	Tabant	2	0.047590719809637	0	2	0.047590719809637
Wheat	Tahannaout	2	0.380746349378042	0	2	0.380746349378042
Wheat	Talat N'Yaaqoub	1	0	NA	1	0
Wheat	Talha	4	0.409996033447901	0	4	0.409996033447901
Wheat	Tamda Noumercide	4	0.484741498255012	0	4	0.484741498255012
Wheat	Tissa	2	0.33098972417523	0	2	0.33098972417523
Wheat	Tnin Ourika	2	0.249236965084029	0	2	0.249236965084029
Wheat	Wabzaza	2	0.375	0	2	0.375
Wheat	Zaouiat Ahansal	2	0.116507175053938	0	2	0.116507175053938
Fava bean	Ait Lkak	4	0.680941358024691	0	4	0.680941358024691
Fava bean	Anamer - Taourirt	5	0.770763540208486	0	5	0.770763540208486
Fava bean	Asni	6	0.202607165156513	0	6	0.202607165156513
Fava bean	Ighrem	2	0.5	0	2	0.5
Fava bean	Iminifri	1	0	NA	1	0

Fava bean	Tahannaout	3	0.536443148688047	0	3	0.536443148688047
Fava bean	Talat N'Yaaqoub	2	0.357777777777778	0	2	0.357777777777778
Fava bean	Tamda Noumercide	3	0.599647266313933	0	3	0.599647266313933
Fava bean	Tnin Ourika	2	0.244897959183674	0	2	0.244897959183674
Fava bean	Zaouiat Ahansal	1	0	NA	1	0
Pea	Ait Lkak	1	0	NA	1	0
Pea	Anamer - Taourirt	3	0.575309904506571	0	3	0.575309904506571
Pea	Asni	3	0.548571428571429	0	3	0.548571428571429
Pea	Bernat	3	0.0153406860033868	0	3	0.0153406860033868
Pea	Ighrem	2	0.375	0	2	0.375
Pea	Tahannaout	2	0.373132030860359	0	2	0.373132030860359
Pea	Talat N'Yaaqoub	2	0.355029585798817	0	2	0.355029585798817
Pea	Talha	1	0	NA	1	0
Pea	Tamda Noumercide	2	0.281556962262175	0	2	0.281556962262175
Pea	Tnin Ourika	2	0.489795918367347	0	2	0.489795918367347
Pea	Zaouiat Ahansal	1	0	NA	1	0
Alfalfa	Ait Abbas	2	0.31809019904258	0	2	0.31809019904258
Alfalfa	Ait Oumdiss	1	0	NA	1	0
Alfalfa	Amizmiz	1	0	NA	1	0
Alfalfa	Anamer - Taourirt	3	0.120275084994261	0	3	0.120275084994261
Alfalfa	Asni	2	0.496415648613126	0	2	0.496415648613126
Alfalfa	Bernat	2	0.1958	0	2	0.1958
Alfalfa	Iminifri	1	0	NA	1	0
Alfalfa	Tabant	2	0.021418704363975	0	2	0.021418704363975
Alfalfa	Tahannaout	3	0.165408622441573	0	3	0.165408622441573
Alfalfa	Talat N'Yaaqoub	3	0.4224	0	3	0.4224
Alfalfa	Talha	1	0	NA	1	0
Alfalfa	Tamda Noumercide	1	0	NA	1	0
Alfalfa	Tissa	1	0	NA	1	0
Alfalfa	Tnin Ourika	4	0.670413223140496	0	4	0.670413223140496
Alfalfa	Wabzaza	1	0	NA	1	0
Alfalfa	Zaouiat Ahansal	1	0	NA	1	0

Table S4. Scoring from 1 to 4 (higher score for best scenarios) of the different characteristics of sites (Agroecological zones, soil quality, accessibility by road, distance to local market, size of the nearest market, economic situation, water availability for irrigation)

Name	Hub	Agro ecological zone	Soil quality	Accessibility	Distance to local market	Size of nearest market	Economic situation	Water availability (for irrigation)	Index
Aagrab	-	ALH	6	2	3	3	3	3	23
Tnin									
Ourika									
Bernat	AZI	5	3	3	3	3	2	3	22
Amizmiz	ALH	6	2	3	3	3	3	1	21
Tahannaout	ALH	6	2	3	3	3	3	1	21
Tamda	AZI	6	3	3	3	3	2	1	21
Noumercid									
Iminifri	DEM	5	2	3	3	3	3	2	21
Asni	ALH	6	2	2	2	3	3	2	20
Tissa	AZI	5	3	2	2	3	3	2	20
Tabant	DEM	3	3	2	3	3	3	3	20
Talha	AZI	4	3	3	3	3	2	1	19
Ait Abbas	DEM	5	3	1	2	2	2	2	17
Zaouiat Ahansal	AZI	4	3	2	2	1	1	3	16
Ait Oumdiss	DEM	4	1	1	1	3	1	3	14
Talat N'Yaaqoub	ALH	4	1	1	3	1	1	2	13
Ait Boualli	DEM	3	3	1	1	1	1	3	13
Ait Lkak	ALH	2	1	2	1	1	2	3	12
Wabzaza	AZI	1	3	1	1	3	1	1	11
Anamer	-	ALH	2	1	1	1	1	2	9
Taourirt									
Ighrem	ALH	2	1	1	1	1	1	2	9

Table S5. Scores of each hub and varietal richness for each of the target species

Site_Name	HUB	Index	Alfalfa	Barley	Fava bean	Pea	Wheat	TOT
<i>Aagrab -Tnin Ourika</i>	Al Haouz	23	4	2	2	2	2	12
<i>Ait Lkak</i>	Al Haouz	12	0	2	4	1	0	7
<i>Amizmiz</i>	Al Haouz	21	1	1	0	0	0	2
<i>Anamer - Taourirt</i>	Al Haouz	9	2	3	5	3	0	13
<i>Asni</i>	Al Haouz	20	2	3	8	3	3	19
<i>Ighrem</i>	Al Haouz	9	1	1	3	1	0	6
<i>Tahnnaout</i>	Al Haouz	21	3	1	3	2	2	11
<i>Talat N'Yaaqoub</i>	Al Haouz	13	2	1	2	2	1	8
<i>Bernat</i>	Azilal	22	2	1	0	2	4	9
<i>Talha</i>	Azilal	19	1	1	0	1	4	7
<i>Tamda Noumercide</i>	Azilal	21	1	1	3	1	4	10
<i>Tissa</i>	Azilal	20	1	1	0	0	2	4
<i>Wabzaza</i>	Azilal	11	1	1	0	0	2	4
<i>Zaouiat Ahansal</i>	Azilal	16	1	3	1	1	2	8
<i>Ait Abbas</i>	Demnate	17	1	1	0	0	3	5
<i>Ait Boualli</i>	Demnate	13	0	1	0	0	1	2
<i>Ait Oumdiss</i>	Demnate	14	1	1	0	0	1	3
<i>Iminifri</i>	Demnate	21	1	1	2	0	2	6
<i>Tabant</i>	Demnate	20	1	1	0	0	2	4

References

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19. Thomas, M.; Dawson, J.C.; Goldringer, I.; Bonneuil, C. Seed exchanges, a key to analyze crop diversity dynamics in farmer-led on-farm conservation. *Genet. Resour. Crop Evol.* **2011**, *58*, 321–338. <https://doi.org/10.1007/s10722-011-9662-0>.