

Supplementary Table 1 Pedigree and source of procurement of sixty-two oat genotypes

Genotypes	Pedigree	Source	Sr. No.	Genotypes	Pedigree	Source
GP 65	HJ 8 x HFO 267	CCS HAU, Hisar	32	HFO 1109	OS 346 x Kent	CCS HAU, Hisar
GP 68	Selection from HFO 114	CCS HAU, Hisar	33	HFO 1111	Kent x SKO 148	CCS HAU, Hisar
GP 158	OS 6 x UPO 212	CCS HAU, Hisar	34	HFO 1112	HFO 114 x Kent	CCS HAU, Hisar
GP 192	Selection from HJ 8	CCS HAU, Hisar	35	HFO 1113	UPO 212 x SKO 148	CCS HAU, Hisar
GP 298	Kent x OS 6	CCS HAU, Hisar	36	HFO 1114	HFO 878 x OS 6	CCS HAU, Hisar
GP 492	HJ 8 x Kent	CCS HAU, Hisar	37	HFO 1115	HJ 8 x HFO 58	CCS HAU, Hisar
GP 580	Selection from OS 7	CCS HAU, Hisar	38	HFO 1116	OS 403 x OS 377	CCS HAU, Hisar
GP 781	OS 6 x JHO 851	CCS HAU, Hisar	39	HFO 1117	HJ 8 x OS 346	CCS HAU, Hisar
GP 875	Dulo, Introduction from Bulgaria	Bulgaria	40	HFO 1118	HJ 8 x JHO 822	CCS HAU, Hisar
HFO 424	HJ 8 x Kent	CCS HAU, Hisar	41	HFO 1121	FOS 1/29 x HJ 8	CCS HAU, Hisar
HFO 529	OS 6 x Kent	CCS HAU, Hisar	42	HFO 1122	OS 377 x HJ 8	CCS HAU, Hisar
HFO 607	HJ 8 x UPO-04-1	CCS HAU, Hisar	43	HFO 1123	OS 346 x OS 403	CCS HAU, Hisar
HFO 611	HJ 8 x UPO 212	CCS HAU, Hisar	44	HJ 8	OS 7 x S3021	CCS HAU, Hisar
HFO 707	JHO 822 x NGB 7021	CCS HAU, Hisar	45	OS 403	HJ 8 x Algerian	CCS HAU, Hisar
HFO 806	OL 125 x UPO 212	CCS HAU, Hisar	46	OL 125	Appler x IPC-63	PAU, Ludhiana
HFO 818	JO 1 x HFO 267	CCS HAU, Hisar	47	OL 1861	HJ 8 x OL 1610	PAU, Ludhiana
HFO 901	UPO 212 x Kent	CCS HAU, Hisar	48	OL 1869-1	OL 9 x OL 125	PAU, Ludhiana
HFO 902	JHO 822 x NGB 6370	CCS HAU, Hisar	49	OL 1766-2	Advance breeding line	PAU, Ludhiana
HFO 903	OL 125 x OS 346	CCS HAU, Hisar	50	OL 1874-2	Advance breeding line	PAU, Ludhiana
HFO 915	UPO 212 x OS 346	CCS HAU, Hisar	51	Kent	Introduction	USA
HFO 917	NGB 6370 x NGB 4871	CCS HAU, Hisar	52	RO 11-2-2	Advance breeding line	MPKV, Rahuri
HFO 1003	HFO 878 x OS 6	CCS HAU,	53	RO 11-2-6	Advance breeding	MPKV, Rahuri

		Hisar			line	
HFO 1005	JHO 822 x NGB 7021	CCS HAU, Hisar	54	JHO 822	IGO 4268 x Indio-6- 5-1	IGFRI, Jhansi
HFO 1013	UPO 212 x OS 6	CCS HAU, Hisar	55	JHO 99-1	OS 7 x IGO-320- 1139-19	IGFRI, Jhansi
HFO 1016	UPO 212 x SKO 96	CCS HAU, Hisar	56	JHO 2006-1	Advance breeding line	IGFRI, Jhansi
HFO 1101	JHO 2006-1 x HJ 8	CCS HAU, Hisar	57	JO 1	Kent x UPO 50	JNKVV, Jabalpur
HFO 1104	HFO 878 x UPO 212	CCS HAU, Hisar	58	NDO 1	Local collection	NDUA&T, Faizabad
HFO 1105	UPO 212 x OS 6	CCS HAU, Hisar	59	PLP 1	Selection from Algerian material	CSKHPKV, Palampur
HFO 1106	Algerian x OS 6	CCS HAU, Hisar	60	OS 6 (C ₁) *	HFO 10 x HFO 55	CCSHAU, Hisar
HFO 1107	HJ 8 x OS 6	CCS HAU, Hisar	61	JHO 851 (C ₂)	Selection from Huga Kairyokuro	Introduction from Japan
HFO 1108	HFO 878 x OS 6	CCS HAU, Hisar	62	UPO 212 (C ₃)	VS 1492 x Kent	GBPUAT, Pantnagar

*C₁, Check 1; C₂, Check 2; C₃, Check 3

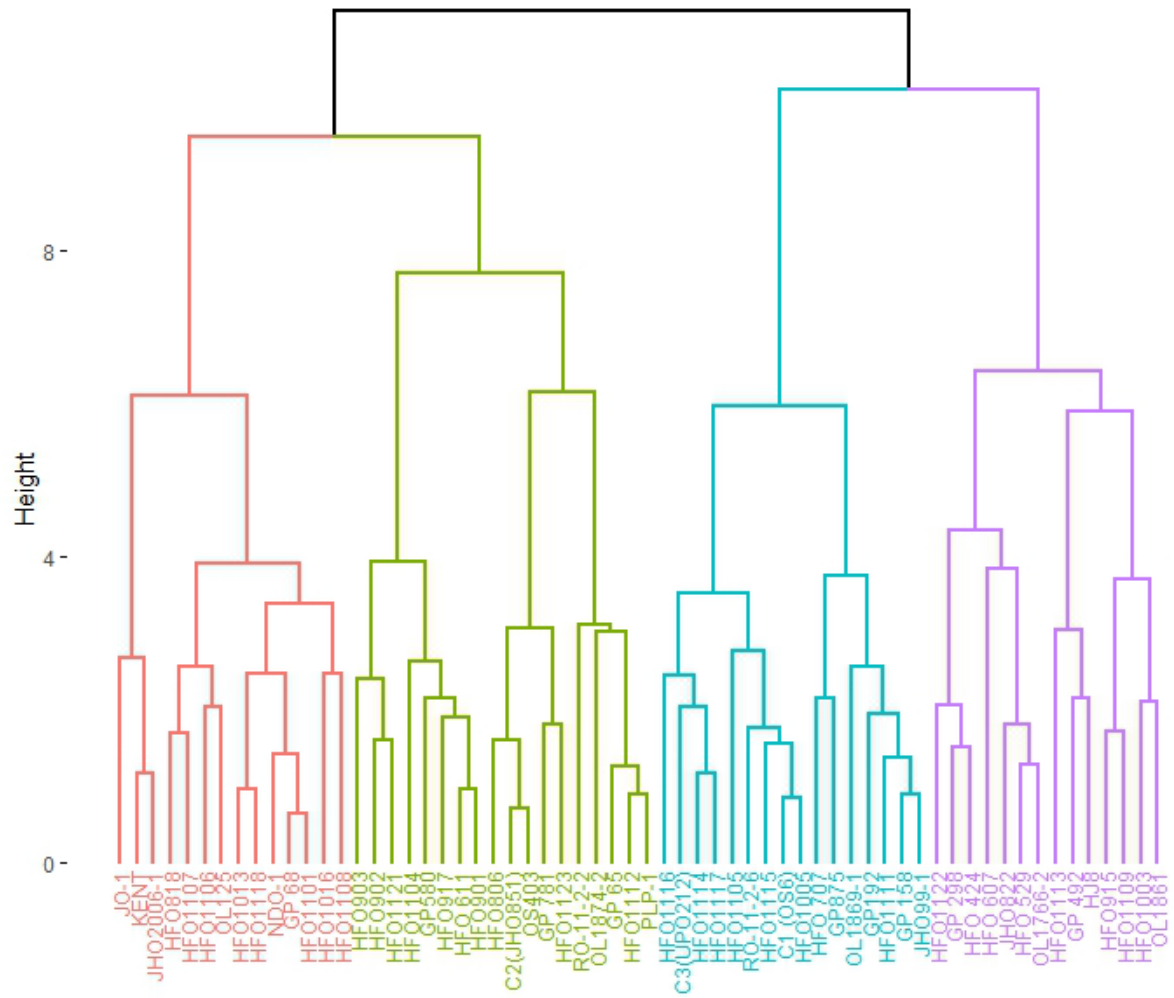
Supplementary Table 2 Hybrid K-means clustering using R software

Clusters	Genotypes	Genotypes
1	16	C1 (OS6), C3 (UPO212), GP 158, GP192, OL1869-1, JHO 99-1, RO-11-2-2, RO-11-2-6, HFO1116, HFO1117, HFO1105, HFO1113, HFO1114, HFO1115, HFO1111, HFO1005
2	18	C2 (JHO851), GP 65, GP580, OL 1874-2, PLP-1, HFO1123, HFO 1112, HFO1107, HFO902, HFO903, HFO917, HFO 611, HFO 707, GP 781, HFO806, GP875, HFO901, OS 403
3	14	GP 68, JHO 2006-1, JO-1, KENT, NDO-1, HFO 1118, OL 125, HFO1108, HFO 1106, HFO 1013, HFO 1016, HFO 1101, HFO 1104, HFO 818
4	14	GP 298, HFO 424, GP 492, OL 1766-2, JHO 822, HFO 1121, HFO1122, HJ8, OL1861, HFO 1109, HFO 915, HFO 1003, HFO 529, HFO 607
C ₁ =Check 1, C ₂ = Check 2, C ₃ = Check 3		

Supplementary Table 3 Inter and intra cluster distances based on complete diameter distance [Diagonal (Bold) values represent intra-cluster distance]

Clusters	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Cluster 1	2.598	3.877	3.712	3.908
Cluster 2		2.837	3.660	3.951
Cluster 3			2.794	4.008
Cluster 4				3.212

Cluster Dendrogram



Supplementary Fig 1 Hierarchical clustering classified 62 oat genotypes into four clusters.