

SUPPLEMENTARY TABLES

Table S1: List of source germplasm evaluated in present study.

S.No.	Genotype	Origin	S.No.	Genotype	Origin	S.No.	Genotype	Origin	S.No.	Genotype	Origin
1	OL 1542	Ludhiana	25	OL 1714	Ludhiana	49	EC 209307	Exotic collection	73	JO 03-307	Jabalpur
2	OL 1611	Ludhiana	26	OL 1720	Ludhiana	50	EC 209675	Exotic collection	74	JO 03-95	Jabalpur
3	OL 1612	Ludhiana	27	OL 1722	Ludhiana	51	EC 209547	Exotic collection	75	OS 376	Hisar
4	OL 1615	Ludhiana	28	JHO-2009-1	Jhansi	52	SKO 109	J&K	76	OS 6	Hisar
5	OL 1624	Ludhiana	29	JHO-2001-1	Jhansi	53	SKO 10	J&K	77	OS 363	Hisar
6	OL 1625	Ludhiana	30	JHO-99-2	Jhansi	54	SKO 105	J&K	78	OS 7	Hisar
7	OL 1680	Ludhiana	31	JHO-322	Jhansi	55	SKO 16	J&K	79	UPO 032	Pantnagar
8	OL 1682	Ludhiana	32	JHO-2009-3	Jhansi	56	SKO 117	J&K	80	UPO 276	Pantnagar
9	OL 1684	Ludhiana	33	OL 1636	Ludhiana	57	SKO 12	J&K	81	UPO 033	Pantnagar
10	OL 1685	Ludhiana	34	OL 1635	Ludhiana	58	SKO 321	J&K	82	UPO 093	Pantnagar
11	OL 1606	Ludhiana	35	JHO 851	Jhansi	59	SKO 314	J&K	83	HJ 8	Hisar
12	OL 1687	Ludhiana	36	EC 605839	Exotic collection	60	SKO 320	J&K	84	HJ 114	Hisar
13	OL 1688	Ludhiana	37	EC 605833	Exotic collection	61	SKO 315	J&K	85	NDO 603	Faizabad
14	OL 1690	Ludhiana	38	EC 605829	Exotic collection	62	SKO 313	J&K	86	NDO 609	Faizabad
15	OL 1692	Ludhiana	39	EC 209750	Exotic collection	63	SKO 312	J&K	87	OS 329	Hisar
16	OL 1694	Ludhiana	40	EC 209472	Exotic collection	64	SKO 316	J&K	88	<i>A. vavilioviana</i>	Wild
17	OL 1837	Ludhiana	41	EC 209616	Exotic collection	65	SKO 323	J&K	89	<i>A. maroccana</i>	Wild
18	OL 1842	Ludhiana	42	EC 209408	Exotic collection	66	SKO 27	J&K	90	<i>A. sterilis</i>	Wild
19	OL 1702	Ludhiana	43	EC 209402	Exotic collection	67	SKO 163	J&K	91	<i>Guinea oats</i>	Wild
20	OL 1705	Ludhiana	44	OS 374	Hisar	68	SKO 25	J&K	92	OMS 7	Hisar

21	OL 1706	Ludhiana	45	EC 209585	Exotic collection	69	RO 2001-1	Rahori	93	JGO 3	Jabalpur
22	OL 1708	Ludhiana	46	EC 605835	Exotic collection	70	RO 19	Rahori	94	OL 10	Ludhiana
23	OL 1710	Ludhiana	47	EC 18850	Exotic collection	71	RFO 5-71	Rahori	95	Kent	Ludhiana
24	OL 1711	Ludhiana	48	EC 209684	Exotic collection	72	JO 03-93	Jabalpur	96	OL-125	Ludhiana

Table S2: Stock and final concentration of different components used in PCR

Components	Stock Conc	Volume (μ l)	Final Conc
Water	---	6.6	---
PCR buffer	10X*	2.0	1X
MgCl ₂	25mM	1.2	1.5mM
dNTPs	1mM	4.0	200 μ M
Primer Forward	5 μ M	2.0	0.5 μ M
Primer Reverse	5 μ M	2.0	0.5 μ M
Taq Polymerase	5U/ μ l	0.2	1Unit
DNA template	25ng/ μ l	2	50ng
Total		20	

*10X PCR buffer: 10mM TrisHCl, pH 8.3, 50mM KCl, 1.5mM MgCl₂, 0.01 % Gelatin

Table S3: Temperature profile used in PCR

Step	Temperature ($^{\circ}$ C)	Time (minutes)	No. of cycles
Initial denaturation	94	4	1
Denaturation	94	1	40
Annealing	52-62	1	
Elongation	72	1	

Final Extension	72	10	1
Hold	4	-	-

Table S4: ANOVA for an augmented block design

Source of Variation	d.f.	Sum of squares	Mean squares
Total	bc-1	SST	MST
Blocks	b-1	SSB	MSB
Checks	c-1	SSC	MSC
Error	(b-1)(c-1)	SSE	MSE

Where, $SST = \sum_{i=1}^c \sum_{j=1}^b x_{ij}^2 - \frac{G^2}{bc}$

$$SSB = \left(\frac{1}{c}\right) \sum_{j=1}^b B^2 \cdot j - \frac{G^2}{bc}$$

$$SSC = \left(\frac{1}{b}\right) \sum_{i=1}^c C^2 \cdot i - \frac{G^2}{bc}$$

$$SSE = SST - (SSB + SSC)$$

$$MSE = SSE / (b-1)(c-1)$$

Where, C_1, C_2 and C_3 stand for OL 10, Kent and OL 125 respectively, X_{ij} = character value of i th check in j th block, B_j = sum over checks in j th block, C_i = sum of i th check over all the blocks, G = grand total of all checks, \bar{X}_i = mean of the i th check, M = sum of all check means, b = number of blocks, c = number of checks

Table S5: Total variance explained by different principal components and factor loading of different characters for fodder traits in 96 germplasm accessions of oats.

PC	Eigen Value	Variation Explained %	Cumulative variation Explained %	PH	LL	LW	NOT	DMY	ADF	NDF	CP	IVDMD	GFY
1	2.26	22.61	22.61	0.52	0.52	0.05	0.23	0.43	0.4	-0.23	-0.1	0.04	-0.02
2	1.84	18.47	41.09	-0.37	-0.38	0.08	0.28	0.42	0.44	0.08	0.05	-0.39	-0.32
3	1.31	13.11	54.21	0.03	0.01	0.68	-0.02	-0.04	-0.05	0.16	-0.46	-0.38	0.39
4	1.08	10.88	65.1	-0.14	0.03	0.07	-0.45	0.02	-0.11	-0.66	-0.35	-0.15	-0.43
5	0.94	9.49	74.59	0.13	0.03	-0.39	0.59	-0.29	-0.27	0	-0.43	-0.33	-0.2
6	0.86	8.63	83.22	-0.06	-0.01	-0.08	-0.18	0.15	0.11	0.5	-0.6	0.48	-0.29
7	0.69	6.97	90.2	0.25	0.25	0.33	-0.11	-0.18	-0.15	0.38	0.32	-0.22	-0.63
8	0.59	5.96	96.16	0.1	0.14	-0.5	-0.52	-0.03	0.27	0.26	-0.05	-0.53	0.18
9	0.28	2.8	98.97	-0.14	0.2	-0.11	-0.03	0.68	-0.65	0.13	0.05	-0.13	0.07
10	0.1	1.02	100	-0.68	0.68	0.02	0.13	-0.2	0.15	0.03	0.02	0.02	0.03

Table S6: Total variance explained by different principal components and factor loading of different characters for grain traits in 96 germplasm accessions of oats.

PC	Eigen Value	Variation Explained %	Cumulative variation Explained %	PL	GL	GW	SNPP	GNPP	1000GW	β -G	GY
1	1.63	20.32	20.32	-0.66	0.14	-0.14	-0.65	-0.21	0.07	0.15	0.17
2	1.32	16.54	36.85	0.18	0.23	-0.41	0.26	-0.53	0.33	0.54	-0.07

3	1.15	14.36	51.21	-0.09	0.67	0.47	0.01	0.21	0.36	0.02	-0.37
4	1.1	13.7	64.91	0.21	-0.05	0.17	-0.06	0.06	0.63	-0.12	0.71
5	0.87	10.92	75.83	-0.07	0.42	-0.18	0.2	-0.44	-0.13	-0.72	0.14
6	0.83	10.32	86.15	-0.12	-0.31	0.7	0.1	-0.62	-0.05	0.07	-0.04
7	0.74	9.22	95.37	-0.08	-0.43	-0.21	-0.1	-0.07	0.57	-0.38	-0.53
8	0.37	4.63	100	0.67	0.12	0.05	-0.67	-0.22	-0.12	-0.07	-0.15

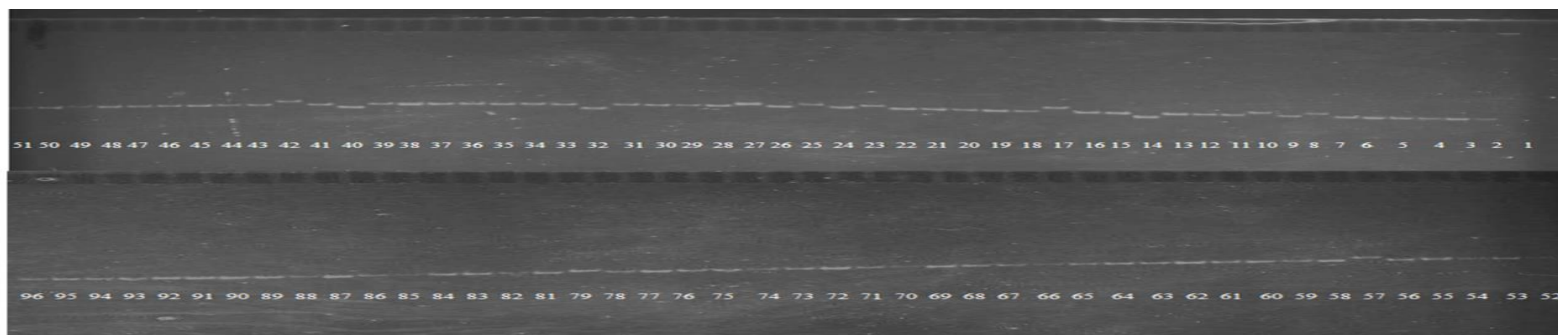
Table S7: Cluster analysis in 96 germplasm accessions based on SSR data.

Major cluster	Sub-cluster	No. genotypes held	Genotypes
A		4	<i>A.vavilioviana</i> , <i>Guiena oats</i> , <i>A.maroccana</i> , <i>A .sterlis</i>
B	B1	9	SKO 12,SKO 321,SKO 314,SKO 320,SKO 313,SKO 312,SKO 323,SKO 315,SKO 316
	B2	12	OL 1837,OL 1842,OL 1702,OL 1705,OL 1706,OL 1708,JHO-2001-1,OL 1710,OL 1714,OL 1722,OL 1720,OL 1711
	B3	19	SKO 109,SKO 10,SKO 105,SKO 16,SKO 117,OS 374,EC 209585,EC 209684,RFO 5-71,JO 03-93,OS 376,OS 363,EC 605833,UPO 033,JHO-99-2,JHO 851,JHO-2009-3,EC 209307,EC 209547
	B4	7	EC 605829,EC 209750,EC 209472,EC 209616,EC 209408,EC 209402,UPO 276
	B5	45	OL 1542,OL 1611,OL 1612,OL 10,OL 1615,OL 1624,OL 1625,KENT,OL 1680,OL 1682,OL 1636,OL 1635,OL 1686,OL 1694,OL 1690,HJ 114,OL 1684,OL 1688,HJ 8,OL 1687,OL 1692,OL 1685,OL-125,OS 7,JHO-2009-1,EC

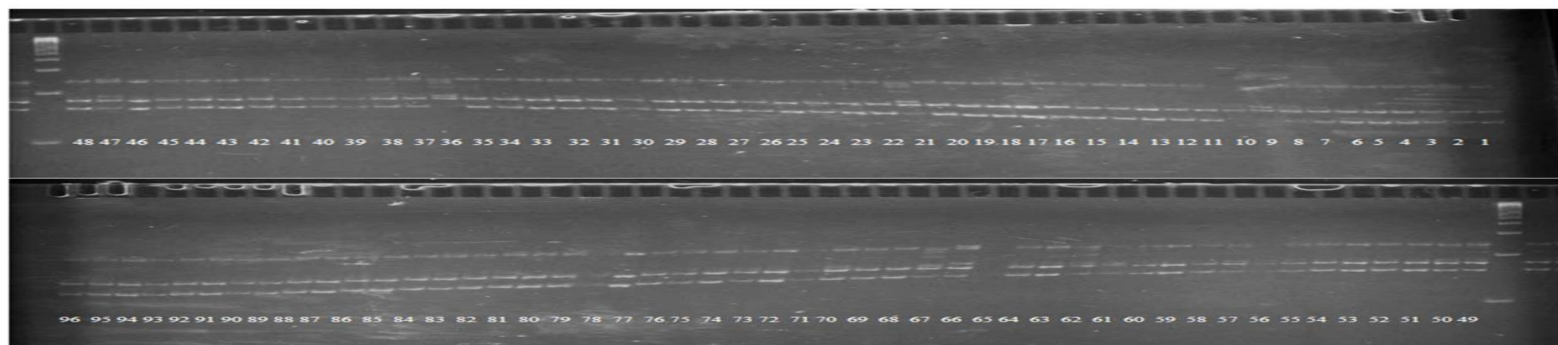
		605835,EC 18850,EC 209675,JO 03-95,JO 03-307,OS 329,NDO 609,UPO 032,UPO 093,NDO 603,OMS 7,JGO 3,JHO-322,EC 605839,RO 19,SKO 27,SKO 25,SKO 163,RO 2001-1,OS 6
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SUPPLEMENTARY FIGURES

Fig. S1: Polymorphism pattern from amplification of genomic DNA of 96 test genotypes with SSR primer cAM03 (a) and cAM10 (b).



a. PAGE gel image by SSR primer cAM03



b. PAGE gel image by SSR primer cAM10

1-48: OL 1542, OL 1680, OL 1611, OL 1682, OL 1612, OL 1684, OL 10, OL 1685, OL 1615, OL 1686, OL 1624, OL 1687, OL 1625, OL 1688, Kent, OL 1690, OL 1692, OL 1710, OL 1694, OL 1711, OL 1837, OL 1714, OL 1842, OL 1720, OL 1702, OL 1722, OL 1705, JHO-2009-1, OL 1706, JHO-2001-1, OL 1708, JHO-99-2, JHO-322, EC 605829, JHO-2009-3, EC 209750, OL 1636, EC 209472, OL 1635, EC 209616, JHO 851, EC 209408, EC 605839, EC 209402, EC 605833, OS 374, OL 125, EC 209585 **49-96:** EC 605835, SKO 105, EC 18850, SKO 16, EC 209684, SKO 117, EC 209307, SKO 12, EC 209675, SKO 321, EC 209547, SKO 314, SKO 109, SKO 320, SKO 10, SKO 315, SKO 313, RO 19, SKO 312, RFO 5-71, SKO 316, JO 03-93, SKO 323, JO 03-307, SKO 27, JO 03-95, SKO 163, OS 376, SKO 25, OS 6, RO 2001-1, OS 363, OS 7, NDO 609, UPO 32, OS 329, UPO 276, *A. vavilioviana*, , UPO 033, *A. maroccana*, UPO 093, *A. sterilis*, HJ 8, *Guinea oats*, HJ 114, OMS 7, NDO 603, JGO 3.