

**SUPLIMENTARY DATA****Table 1. List of sunflower germplasm used in the present investigation.**

Sl. No.	Germplasm	Sl. No.	Germplasm
1	CB-CSFI 5133	16	CB-CSFI 5205
2	CB-CSFI 5239	17	CB-CSFI 5232
3	CB-CSFI 5377	18	CB-CSFI 5331
4	CB-RHA 274-2	19	CB-RHA 83R6
5	CB-IHE 250-1	20	CB-RCB-GP 38
6	CB-EC 421078-1	21	CB-GP 60-2
7	CB-NO.179/6-1	22	CB-GP 145-1
8	CB-CSFI 5077	23	CB-GP 151-1
9	CB-GMU 300	24	CB-ACC 216
10	CB-GMU 1032	25	CB-NW 28
11	CB-GP 85	26	CB-GMU 320
12	CB-GP 271	27	CB-GMU 423
13	CB-CO 1/10	28	CB-GP 103-1
14	CB-TNAUSUF 6/7-2	29	CB-GP 280-1
15	CB-ACC 142-1	30	CB-NW 34-2
31	CB-1149-2-1	66	CB-GMU-1074
32	CB-CSFI 5082	67	CB-IB-61
33	CB-CSFI 5090	68	CB-NO.88-8
34	CB-CSFI 5125	69	CB-IHE 269-1
35	CB-CSFI 5280	70	CB-IB 119
36	CB-CSFI 5295	71	CB-LDM-2
37	CB-RCB-GP 104	72	CB-TX16R
38	CB-GP 11-1	73	CB-GMU-322
39	CB-GP 13	74	CB-GMU-386
40	CB-GP 155-2	75	CB-GMU-470
41	CB-AHM 10-2	76	CB-GMU-1120
42	CB-IHE 269-1	77	CB-ID-4093-1
43	CB-ACC 230-3	78	CB-GMU-301

44	CB-GMU 463	79	CB-GMU-429
45	CB-GMU 1130	80	CB-GMU-451
46	CB-PS 1049-1	81	CB-GMU-479
47	CB-CSFI 5095	82	CB-GMU-487
48	CB-CSFI 5121	83	CB-GMU-488
49	CB-CSFI 5281	84	CB-GMU-558
50	CB-CSFI 5334	85	CB-ID-2033
51	CB-GP 118-1	86	CB-ID-5004-3
52	CB-GP 145-2	87	CB-IB-03
53	CB-GP 155-1	88	CB-IR-1-1
54	CB-ACC 99-1	89	CB-GMU-400
55	CB-NW 20-1	90	CB-GMU-401
56	CB-IV 55 NB2	91	CB-GMU-430
57	CB-GMU 360	92	CB-GMU-433
58	CB-GMU 434	93	CB-GMU-475
59	CB-GMU 438	94	CB-GMU-568
60	CB-GMU 1058	95	CB-GMU-1025
61	CB-GMU 1189	96	CB-ID-4036
62	CB-GMU-452	97	CB-ID-5021
63	CB-GMU-498	98	CB-IB-07
64	CB-GMU-517	99	CB-IB-18
65	CB-GMU-1019	100	CB-IB-62

**Table 2. PCA scores of sunflower genotypes for yield and yield component traits**

Sl. No.	Genotypes	PCA I	PCA II	PCA III
		X Vector	Y Vector	Z Vector
1	CB-CSF15133	88.033	90.341	36.791
2	CB-CSF15239	85.107	82.875	18.04
3	CB-CSF15377	89.804	87.053	25.592
4	CB-RHA274-2	92.498	89.708	34.387
5	CB-IHE250-1	75.038	87.347	22.739
6	CB-EC421078-1	56.047	83.962	13.103
7	CB-NO.179/6-1	81.327	86.436	19.242
8	CB-CSF15077	85.825	87.282	32.181
9	CB-GMU300	109.605	85.885	32.761
10	CB-GMU1032	102.972	85.201	38.474
11	CB-GP85	76.816	88.496	18.171
12	CB-CO1/10	97.856	87.972	16.452
13	CB-TNAUSUF6/7-2	94.129	86.819	20.131
14	CB-ACC142-1	85.317	85.645	30.711
15	CSF15205	101.868	85.66	31.852
16	CB-CSF15232	98.492	86.301	42.841
17	CB-CSF15231	58.896	83.295	20.353
18	CB-RHA83R6	100.852	84.198	27.862
19	CB-RCB-GP38	84.315	84.486	36.137
20	CB-GP60-2	80.595	82.611	26.239
21	CB-GP145-1	95.268	86.686	14.315
22	CB-GP151-1	75.505	88.477	32.519
23	CB-ACC216	93.704	81.323	7.95
24	CB-NW34-2	67.715	82.692	23.208
25	CB-1149-2-1	85.036	79.712	35.55
26	CB-CSF15082	90.932	88.439	11.682
27	CB-CSF15090	97.093	79.622	18.82
28	CB-CSF15125	82.184	81.465	14.786

29	CB-CSF15280	88.309	88.746	23.011
30	CB-GP271	94.276	86.537	13.202
31	CB-NW28	98.275	90.483	27.265
32	CB-GMU320	105.628	82.521	20.524
33	CB-GMU423	66.789	81.415	4.882
34	CB-GP103-1	90.494	86.735	29.488
35	CB-GP280-1	84.699	93.134	29.233
36	CB-CSF15295	89.048	86.72	26.933
37	CB-RCB-GP104	69.232	80.159	22.282
38	CB-GP11-1	92.993	79.145	14.523
39	CB-GP13	84.506	79.693	27.108
40	CB-GP155	77.335	80.975	28.218
41	CB-AHM10-2	88.107	83.446	20.723
42	CB-IHE269-1	65.434	79.143	20.505
43	CB-ACC230-3	62.783	89.993	21.606
44	CB-GMU463	87.756	81.289	32.668
45	CB-GMU1130	98.507	89.378	9.986
46	CB-PS1049-1	91.285	89.505	10.614
47	CB-CSF15095	72.73	89.68	23.131
48	CB-CSF15121	93.986	86.09	18.741
49	CB-CSF15281	90.366	82.434	24.883
50	CB-CSF15334	82.95	83.28	24.733
51	CB-GP118-1	80.628	85.786	30.294
52	CB-GP145-2	89.007	83.937	21.533
53	CB-GP155-1	71.068	84.487	17.272
54	CB-ACC99-1	90.84	92.543	20.218
55	CB-NW20-	83.769	91.692	32.362
56	CB-IV55NB2	72.552	89.466	17.297
57	CB-GMU360	90.454	95.281	24.739
58	CB-GMU434	84.961	89.086	31.392
59	CB-GMU438	110.55	93.488	18.156

60	CB-GMU1058	104.273	91.086	23.903
61	CB-GMU1189	128.044	92.656	21.764
62	CB-GMU-452	108.422	93.044	14.22
63	CB-GMU-498	109.617	88.226	26.383
64	CB-GMU-517	112.989	86.337	28.563
65	CB-GMU-1019	86.873	93.885	27.578
66	CB-GMU-1074	73.778	79.035	7.731
67	CB-IB-61	85.138	79.055	31.664
68	CB-NO.88-8	116.621	80.115	15.767
69	CB-IHE269-1	101.321	82.508	5.81
70	CB-IB119	82.516	90.957	26.635
71	CB-LDM-2	70.094	80.703	14.071
72	CB-TX16R	70.935	86.218	14.368
73	CB-GMU-322	85.66	94.656	22.639
74	CB-GMU-386	93.441	90.275	39.275
75	CB-GMU-470	108.039	83.348	21.684
76	CB-GMU-1120	75.034	79.844	17.53
77	CB-ID-4093-1	79.367	81.174	19.695
78	CB-GMU-301	96.833	89.362	26.942
79	CB-GMU-429	101.65	84.254	23.22
80	CB-GMU-451	91.52	89.145	8.097
81	CB-GMU-479	73.932	80.539	25.346
82	CB-GMU-487	94.684	95.402	21.16
83	CB-GMU-488	96.307	90.545	12.012
84	CB-GMU-558	100.724	85.239	29.41
85	CB-ID-2033	83.766	85.094	26.849
86	CB-ID-5004-3	103.031	85.244	37.277
87	CB-IB-03	81.044	94.084	15.55
88	CB-IR-1-1	76.877	90.345	22.21
89	CB-GMU-400	114.45	93.285	32.725
90	CB-GMU-401	75.605	86.388	30.103

91	CB-GMU-430	87.668	88.808	28.446
92	CB-GMU-433	94.092	90.046	26.644
93	CB-GMU-475	84.528	91.314	21.664
94	CB-GMU-568	75.886	90.624	23.492
95	CB-GMU-1025	85.975	90.844	30.745
96	CB-ID-4036	84.686	94.058	19.355
97	CB-ID-5021	71.328	89.673	12.678
98	CB-IB-07	82.441	88.149	19.311
99	CB-IB-18	98.768	81.741	20.414
100	CB-IB-62	111.086	91.538	30.736
101	IR6	94.248	85.199	27.23
102	PM81	81.364	84.455	22.621
103	COSF10B	86.45	79.417	21.292
104	COSF15B	95.119	86.624	18.712
105	CSFI99	124.131	73.68	19.58