

1. Sorghum Genetic Resources Management

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Executive summary

The National Research Centre for Sorghum (NRCS) is one of the National Active Germplasm Sites (NAGS) with the responsibility to collect, conserve, evaluate, document, and distribute the sorghum germplasm to the bonafied user within the country. During the reporting period for the year 2007 – 08, the following progress has been made.

- ✿ 1188 accessions of sorghum germplasm were received from various national and international centres for utilization in the sorghum improvement programmes.
- ✿ A total of 3 acc. were requested from ICRISAT (IS 40573, IS 18720, and IS 18721)
- ✿ 276 accessions were multiplied and submitted to the National Genebank, NBPGR, New Delhi for long-term storage
- ✿ 59 accessions are being multiplied for utilization, necessary submission to the National Genebank, NBPGR and sending for trials.
- ✿ 1253 accessions were distributed to the sorghum researchers of the country and 330 accessions were supplied for trials
- ✿ 540 acc. of breeding materials exchanged to NRCS and AICSIP scientists
- ✿ Further, we have so far submitted 47 sorghum varieties applications are submitted with the PVPFR Authority
- ✿ Among the 220 SPV lines evaluated, SPV-1290 was better than the check (IS 38551) and SPV 1267, SPV 692, and SPV 824 were on par with the checks for tolerant to shoot fly. 17 entries recorded moderate level of resistance to grain molds as against susceptible check recording 8 on 1-9 scale.
- ✿ From the SPV lines evaluated for the agro-morphological traits, 31 SPVs were identified with < 70 days to 50% flowering, >180 cm plant height and > 60g grain yield at Indore and 27 SPVs were identified with < 60 days to 50% flowering, >180 cm plant height and > 60g grain yield per plant at Udaipur.

1. Sorghum germplasm collection

A total of 84 accessions were collected from Gujarat (38) Tamil Nadu (44) during kharif and late kharif respectively. 1188 accessions received from national and international centres for utilization. The important landraces collected during 2007 – 08 is presented in Table 1.

Table 1: The sorghum landraces collected during the year 2007 – 08

Landraces collected from Gujarat
<i>Deshi</i>
<i>Poru</i>
<i>Sundia</i>
<i>Rajka jowar</i>
<i>Sundi jowar</i>
<i>Char</i>
<i>Waqad</i>
<i>Hundri</i>
Landraces collected from Tamil Nadu
<i>Periya manjal cholam</i>
<i>Vellai cholam</i>
<i>Veetu cholam</i>
<i>Sen cholam</i>
<i>Deshi</i>
<i>Nattu cholam</i>
<i>Kolu mettu cholam</i>
<i>Valapoo sigappu cholam</i>

2. Sorghum germplasm characterization/evaluation

2.1: Kharif

2.1.1: Characterization of new germplasm : A total of 45 new germplasm collected from Maharashtra (24 acc.) and Uttar Pradesh (21 acc.) will be characterized along with CSV-15, and SPV – 462 as checks with an objective to identify the potential germplasm for different traits. The results showed that the stem fresh weight, stem dry weight, plant height and grain yield are most variable characters. The range of stem fresh weight (1250 – 7500 g/5pt), stem dry weight (850 – 4000 g/5pt), grain yield (7 – 118 g/pt), 100-seed weight (0.8 – 3.9 g) and plant height (190 – 422 cm) are most important traits observed. A total of 15 qualitative characters were observed in these new germplasm lines. The very good seedling vigour (35), tan leaf pigmentation (46), dark green leaf (34), drooping leaves (37), white midrib colour (31), semi compact (20), elliptical earhead shape (20), straw glume colour (27), short glume coverage (18), absence of awns (33), bold seed size (25), pearly white seed (21), non-senescence leaves (33), durra race (25) and non-lustrus seed (62) were found most frequent.

The promising accessions identified for various agro-morphological traits are presented in Table 9. The accession ELG – 20 was identified with longer leaves, tall, high biomass and dry matter yield. The accession ELG – 19 was identified is with longer earhead, high brix and higher yield, the accession ELG – 9 was with wider earhead and higher yield. The accession VKG – 34/53 was with more number of leaves, longer, wider, tall and high biomass. The accession VKG – 34/49 was identified with longer earhead, tall, thick stem and high yielding.

Summary of sorghum germplasm characterization/evaluation during rabi (2007 - 08)

S. No	Project Name	Name of Experiment	Objectives	Materials	Observations	Remark
1	Sorghum Genetic Resources Management	Sweet sorghum progeny (F6) development	Selection and advancing the progenies	A total of 40 F5s were selected from the sweet stalk sorghum and advanced to F6.	1. Pre-harvest data: Time to flower (days), Plant height (cm), Number of leaves (fully vegetative stage). 2. Post-harvest data: Brix (%), Stem fresh weight (g/plant), Stem dry weight (g/plant), Time to maturity (days), Earhead compactness, Earhead length (cm), Earhead width (cm), Grain yield (g)	1. Data on days to 50 % flowering, number of leaves, plant height taken 2. 70 crosses were attempted with 5 A lines for sweet sorghum hybrid development

S. No	Project Name	Name of Experiment	Objectives	Materials	Observations	Remark
2	Sorghum Genetic Resources Management	Sweet sorghum and high brix segregating materials (F3) development	Selection and advancing the progenies	A total of 114 F2s were selected from the high brix and sweet stalk sorghum and advanced to F3.	1. Pre-harvest data: Time to flower (days), Plant height (cm), Number of leaves (fully vegetative stage). 2. Post-harvest data: Brix (%), Stem fresh weight (g/plant), Stem dry weight (g/plant), Time to maturity (days), Earhead compactness, Earhead length (cm), Earhead width (cm), Grain yield (g)	Data on days to 50 % flowering taken
3	Sorghum Genetic Resources Management	Dual-purpose, single cut, multi-cut forage sorghum segregating materials (F3) development	Selection and advancing the progenies	6 early flowering, 27 high biomass and 15 high yielding F2s were selected and advanced to F3s	1. Pre-harvest data: Time to flower (days), Plant height (cm), Number of leaves (fully vegetative stage). 2. Post-harvest data: Stem fresh weight (g/plant), Stem dry weight (g/plant), Time to maturity (days), Earhead compactness, Earhead length (cm), Earhead width (cm), Grain yield (g)	Data on days to 50 % flowering taken
4	Sorghum Genetic Resources Management	Genetic enhancement of rabi sorghum	To utilize the landraces for rabi sorghum improvement	235 F1 hand-cross materials made from the rabi sorghum landraces were planted to make selections	1. Pre-harvest data: Time to flower (days), Plant height (cm), Number of leaves (fully vegetative stage). 2. Post-harvest data : Stem fresh weight (g/plant), Stem dry weight (g/plant), Time to maturity (days), Earhead compactness, Earhead length (cm), Earhead width (cm), Grain yield (g)	Data on days to 50 % flowering taken
5	Sorghum Genetic Resources Management	Multiplication of potential germplasm	Pre-breeding for shootfly resistant with shootfly resistance germplasm lines and multiplication	22 shootfly resistant lines, one shootfly susceptible line and 38 Gujarat germplasm	1. Pre-harvest data: Time to flower (days), Plant height (cm), 2. Post-harvest data : Time to maturity (days), Grain yield (g)	40 hand-crosses were attempted with resistant to resistant and resistant to high yielding landraces

3. Sorghum germplasm multiplication

A total of 59 accessoin viz., shoot fly resistant germplasm (21 acc.) and Gujarat germplasm collections (38 acc.) are being multiplied during rabi (2007 – 08).

4. Status of sorghum genetic resources at NRCS

The status of sorghum genetic resources in the medium-term storage at NRCS was updated during February 2008. A total of 22,022 accessions are being conserved which includes 1,280 accessions as duplicate samples. The maximum contribution was from repatriation material (11,113 accessions). The detailed status of sorghum genetic resources in the MTS at NRCS is presented in Table 2.

Table 2: Status of sorghum germplasm in the MTS at NRCS (as on March 2008)

S No	Genetic Stock	No. of accession			Duplicates /Bulk
		31st March 2007	Additions during 2007-08	Total	
1	A – line	287		287	4
2	B – line	317		317	7
3	R – line	163		163	1
4	Breeders line	63	933	996	5
5	National Released Varieties	13		13	6
6	State Released Varieties	106		106	49
7	Sorghum Project Varieties (SPV)	386		386	75
8	Hybrids	33		33	17
9	Sorghum Project Hybrids (SPH)	90		90	
10	Exotic collections	466		466	264
11	IS lines (germplasm)	3440	39	3479	0
12	Kharif core collection (IS lines)	498		498	0
13	Local germplasm	3436	211	3647	1016
14	Repatriation material (IS lines)	11113		11113	0
15	Special types	4		4	0
16	Others	424		424	0
	Total	20839	1183	22022	1280

5. Appendix

5.1: Germplasm collection

SN	Mission Number	No. of accessions	State	Team Leader	Organisation	Associates
1	20/2007/01	38	Gujarat	Dr M. Elangovan	NRCS - Hyderabad	AICSIP - Surat
2	21/2008/01	44	Tamil Nadu	Dr M. Elangovan	NRCS - Hyderabad	AICSIP - Coimbatore
	Total	82				

5.2: Germplasm received from other sources

SN	Institute/Division	No. of accession	Date	Passport data	Remarks	Status
1	AICSIP - Deesa	4	20-Apr-07	Yes	Local landraces	MTS
2	AICSIP - Palem	19	23-Apr-07	No	Local landraces	MTS
3	AICSIP - Coimbatore	5	30-Apr-07	Yes	Intergeneric crosses (Sorghum x Sugarcane)	Supplied to Dr SV Rao
4	Dr AV Umakanth	179	1-May07	Yes	AB & Rlines developed under NATP projects	MTS
5	Ganga Kaveri Seed	1	23-May07	Yes	IS - 84 multiplied seed from Dr UR Murty	MTS
6	Dr S Audilakshmi	13	24-May07	Yes	13 Advanced generation material	MTS
7	Dr S Audilakshmi	212	24-May07	Yes	RILs of 296B x B 58586	MTS
8	Dr Aruna	427	26-May07	Yes	RILs of 27B x IS 2122	MTS
9	ICRISAT - Patencheru	10	8-Jun-07	Yes	Acid soil tolerant sorghum lines	MTS
10	Jhansi & Indore	3	11-Jun-07	Yes	Local and Bundela	MTS
11	Dr AV Umakanth	102	13-Jun-07	Yes	F7s of drought and dual progenies	MTS III
12	ICRISAT - Patencheru	2	16-Jun-07	Yes	Acid soil tolerant & susceptible sorghum lines	MTS
13	AICSIP - Dharwad	44	16-Jun-07	Yes	Rabi & Kharif landraces maintained at Dharwad	MTS
14	ICRISAT - Patencheru	93	20-Jun-07	Yes	Sudan grass lines for DM screening	MTS
15	ICRISAT - Patencheru	26	20-Jun-07	Yes	Striga tolerant - B line, variety & Biomass/forage	MTS
16	AICSIP - Dharwad	48	30-Jun-07	Yes	Rabi & Kharif landraces maintained at Dharwad	MTS
	TOTAL	1188				

5.3: Germplasm requested

1	R Madhusudhana	MAS	IS lines	Dr HD Upadhyaya, ICRISAT	28-Jan-08	3	Not received
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5.4: Germplasm characterization & evaluation

Expe. No.	Experimental name	Objectives in brief	Plot size	Replication	Checks	Entries
Kharif 2007						
1	Sweet sorghum progeny (F5) development	Selection and advancing the progenies	4 x 4m x 0.75 m	1	2	86 + 2
2	Sweet sorghum and high brix segregating materials (F2) development	Selection and advancing the progenies	4 x 4m x 0.75 m	1	28	86 + 28
3	Dual-purpose, single cut multi-cut forage sorghum segregating materials (F2) development	Selection and advancing the progenies	4 x 4m x 0.75 m	1	CSV-15, SSV-84, SSG 59-3, & SPV-1022	71 + 5
4	Characterization of new germplasm	Identification of potential germplasm for different traits	1 x 4m x 0.75 m	1	CSV-15 & SPV 1616	45 + 4
1	Sweet sorghum progeny (F6) development	Selection and advancing the progenies	1 x 4m x 0.60 m	1	2 (SSV-84 and RSSV-9)	A total of 40 F5s were selected from the sweet stalk sorghum and advanced to F6.
	Sweet sorghum and high brix segregating materials (F3) development	Selection and advancing the progenies	1 x 4m x 0.60 m	1	14 (parents)	A total of 114 F2s were selected from the high brix and sweet stalk sorghum and advanced to F3.
	Dual-purpose, single cut, multi-cut forage sorghum segregating materials (F3) development	Selection and advancing the progenies	1 x 4m x 0.60 m	1	CSV-15, Pant Chari 3 and SPV-1022)	6 early flowering, 27 high biomass and 15 high yielding F2s were selected and advanced to F3s

Expe. No.	Experimental name	Objectives in brief	Plot size	Replication	Checks	Entries
	Genetic enhancement of rabi sorghum	To utilize the landraces for rabi sorghum improvement	1 x 4m x 0.60 m	1	Nil	235 F1 hand-cross materials made from the rabi sorghum landraces were planted to make selections
	Multiplication of potential germplasm	Pre-breeding for shootfly resistant with shootfly resistance germplasm lines and multiplication	4m x 0.60 m	1	Nil	22 shootfly resistant lines, one shootfly susceptible line and 38 Gujarat germplasm

5.5: Germplasm multiplication

SN	Material	Source	Season	Location	No. of acc.	Remarks
1	Shoot fly resistant germplasm lines	NRCS	Rabi	Hyderabad	21	In the field
2	Gujarat germplasm collections	NRCS	Rabi	Hyderabad	38	In the field
				Total	59	

5.6: Germplasm trials

SN	Trial	Source	Season	Location	No. acc.	Genetic stock	Purpose	Scientist/status
1	Characterization of new germplasm	NRCS	K	Akola	25	25	Identification of potential germplasm for different traits	Dr M Elangovan & Dr RB Ghorade
2	Sorghum Project Varieties	NRCS	K	Udaipur, Indore, Hyderabad	219	219	Multiplication & yield evaluation, Screening for SF & GM	Dr Vittal Sharma, Dr Usha Saxena, Dr Vr Bhagwat, Dr TGN Rao
3	Screening for SF & SB	NRCS	K	Hyderabad	86	86	Screening for SF & SB	Dr PG Padmaja & Dr M Elangovan
					Total	330		

5.7: Germplasm submitted to National Genebank, NBGR for long-term storage

SN	Date	Acc. code	No. of accessions
1	30-Jun-07	Tamil Nadu collections	34
2	30-Jun-07	Andhra Pradesh collections	34
3	30-Jun-07	Uttar Pradesh collections	21
4	30-Jun-07	Jammu & Kashmir collections	6
5	30-Jun-07	Exotic Collections (from USA)	7
6	30-Jun-07	A/B & R lines	174
		TOTAL	276

5.8: Germplasm distributed to researchers

SN	No. of accession	Division/Institute	Date	Purpose	Received by
1	9	NGB, NBGR, New Delhi	4-May-07	Released varieties	Dr AK Singh
2	58	AICSIP - Pantnagar	9-May-07	Forage germplasm	Dr Shrotria
3	4	AICSIP - Pantnagar	9-May-07	Brown midrib lines	Dr Shrotria
4	22	AICSIP - Indore	9-May-07	Shoot fly resistant germplasm	Dr VP Kataria
5	58	AICSIP - Deesa	9-May-07	Forage germplasm	Dr HR Mahla
6	28	AICSIP - Deesa	9-May-07	Dual-purpose germplasm	Dr HR Mahla
7	7	NARI - Phaltan	28-May-07	Released varieties	Dr Vrijendra Singh
8	19	Plant Entomology - NRCS	5-Jun-07	Potential shoot fly resistant germplasm	Dr PG Padmaja
9	24	Plant Entomology - NRCS	5-Jun-07	Germplasm collection from Melghat	Dr PG Padmaja
10	87	Plant Entomology - NRCS	5-Jun-07	Sweet sorghum - F5 material	Dr PG Padmaja
11	1	Krishna Seeds Pvt Ltd, Agra	6-Jun-07	SPV - 1616	
12	19	Plant Breeding - NRCS	7-Jun-07	Sweet sorghum germplasm	Dr S Audilakshmi
13	49	Plant Physiology & Sweet sorghum - NRCS	7-Jun-07	Sweet sorghum germplasm	Dr SS Rao
14	1	Plant Entomology - NRCS	9-Jun-07	Entomology trial at Parbhani	Dr VR Bhagwat
15	24	AICSIP - Akola	11-Jun-07	Germplasm collection from Melghat	Dr Ghorade

SN	No. of accession	Division/Institute	Date	Purpose	Received by
16	219	Plant Entomology & Plant Pathology -NRCS	13-Jun-07	SPV Nos Screen for pests and diseases	Drs VR Bhagwat & TGN Rao
17	219	AICSIP - Udaipur & Indore	19-Jun-07	SPV Nos - Identification of potential traits	Drs Vittal Sharma & Upadhyay
18	11	SK University of AST-J, Jammu	19-Jun-07	AVT material for test evaluation at Jammu (Z III)	Dr. AK Bakhshi
19	11	Birsa Agricultural University, Kante, Ranchi	19-Jun-07	AVT material for test evaluation at Ranchi (Z I)	Dr J Ghosh
20	4	Plant Breeding - NRCS	20-Jun-07	Germplasm & breeding stocks	Dr Aruna
21	1	Extension & Plant Entomology	21-Jun-07	CSV - 15	Dr Chari & Bhagwat
22	32	AICSIP - Palem	2-Jul-07	Promising germplasm and resistant sources	Dr Pooran Chand
23	15	Forage breeding - NRCS	10-Jul-07	Forage, apomix lines	Dr Venkatesh Bhat
24	2	ARS, Tandur	27-Jul-08	Released varieties	Dr CV Sameer Kumar
25	5	Cultivar development - NRCS	3-Sep-07	Varietal improvement	Dr Venkatesh Bhat
26	50	Seed Technology - Kannababu	12-Nov-07	Seed longevity studies	Dr N Kannababu
27	5	Seed Technology - Tonapi	20-Nov-07	Multiplication for sub, to PVP authority	Dr Vilas A Tonapi
28	13	Plant Entomology - NRCS	20-Nov-07	Pre-breeding	Dr Shyam Prasad
29	126	Sweet sorghum - SS Rao	12-Dec-07	Sweet sorghum germplasm	Dr SS Rao
30	4	Dept of Bot, St Peters Col, Chennai	7-Dec-07	M35-1, Swati, CSV 14R and CSV 216R	Dr S Antony Ceaser
31	1	Biotechnology	25-Dec-07	SSG 59-3	Dr SV Rao
32	5	Plant Breeding - NRCS	28-Dec-07	Grain mold resistant IS lines	Dr S Audilakshmi
33	68	Alternate uses - NRCS	29-Dec-12	Sorghum rabi landraces	Dr CV Ratnavathi
34	52	Plant Entomology - NRCS	18-Feb-08	Screening for pest resistance	Dr PG Padmaja
	1253				

5.10. Breeding material exchanged

SN	No. of accession	Division/Institute	Date	Purpose	Exchanged by	Received by
1	517	UAS - Bangalore	19-Jun-07		Dr R Madhusudhana	Dr HE Shashidhar
2	12	AICSIP - Pantnagar	20-Jun-07	AB lines suitable for forage	Dr S Audilakshmi	Dr PK Shrotria
3	2	AICSIP - Indore	28-Apr-07	IVT (Dual-purpose)	Dr VP Kataria	Dr Vilas A Tonapi
4	4	Plant Breeding - NRCS	23-Jun-07	MS lines for evaluation	Dr S Audilakshmi	Dr AV Umakanth
5	5	Plant Breeding - NRCS	23-Jun-07	MS lines for evaluation	Dr S Audilakshmi	Dr HS Talwar
	540					

6. Sorghum genetic resources evaluated in the AICSIP centres

6.1: Evaluation of Sorghum Project Variety (SPVs) for shoot fly (*A. soccata*) resistance

Objectives: To identify new source of SPV lines for shoot fly in breeding program.

Location: NRCS, Arboretum D-3

Design: RBD

No. of entries: 220 (216 SPVs + 3 Resistant + 1 susceptible)

No. of rows: 1 row

No. of replications: 2

Date of sowing: 4 August, 2007

Materials and Methods: Two hundred and twenty SPV lines were planted along with resistant (IS 2312, IS 2205, IS 18551) and susceptible (DJ 6514). Uniform infestation of shoot fly was ensured in experimental plot by baiting with moist fishmeal at 10 DAE of seedlings. The data on eggs / 5 plants, per cent dead heart caused by shoot fly was recorded at weekly intervals viz., 14, 21 and 28 DAE. The data could be collected from only 60 entries due to poor germination in rest of the entries.

Highlight of Results: Sixty SPV lines were survived for their tolerance to shoot fly. The lines which have shown <50% DH are given in Table 1 at 28 DAE. There was no significant difference between entries at 14 and 21 DAE, however at 28 DAE, there were differences. The lines SPV-1290 (33.5%), SPV-1267 (44.1%), SPV (44.4 %) and SPV (45.9 %) recorded low dead hearts at 28 DAE and were on par to resistant checks (IS 2312, IS 18551 and ICSV 705) (Table 1). The mean deadhearts % for experiment was 66.2%. Rests of entries were susceptible to shoot fly.

Conclusions: Among the lines evaluated SPV -1290 was better than the check (IS 38551) and SPV-1267, SPV 692, and SPV 824 were on par with the checks for tolerant to shoot fly.

Looking Ahead: The above four sources for shoot fly resistance will be utilized in breeding for shoot fly resistance program.

Table 1: Evaluations of SPV lines for shoot fly resistant at NRCS Kharif 2007

SPV lines	Glossiness (1-9)	Vigour (1-9)	Eggs/5 pts at 14 DAE	SFDH% at 14 DAE	SFDH% at 21 DAE	SFDH% at 28 DAE
SPV - 459	4.95	4.50	9.00	37.73	42.41	50.23
SPV - 600	2.93	3.38	4.50	26.67	41.67	46.67
SPV - 692	4.95	5.63	3.00	14.52	17.74	44.36
SPV - 778	5.63	6.30	6.00	35.42	48.21	50.06
SPV - 824	2.70	3.60	6.00	32.57	38.92	45.99
SPV - 1253	4.95	4.95	4.50	38.20	47.92	50.00
SPV - 1267	3.96	4.41	5.50	23.29	32.16	44.02
SPV - 1290	4.95	4.95	4.00	21.02	30.41	33.50
SPV - 1332	4.28	4.05	6.00	41.35	43.27	49.04
SPV - 1343	5.85	5.85	5.00	15.79	43.42	48.69
SPV - 1387	4.95	4.95	5.00	42.08	45.73	48.17
SPV - 1750	5.85	5.85	5.50	47.00	48.00	50.00
IS 2312 (R)	3.60	3.38	2.50	12.24	20.63	37.41
IS 18551(R)	4.95	4.50	3.50	22.18	29.29	35.42
DJ 6514 (S)	8.55	8.10	4.00	12.50	22.22	87.50
ICSV 705 (R)	4.95	4.95	8.00	22.22	33.33	41.67
Mean	6.53	6.49	6.67	37.13	51.45	66.20
CV (%)	16.56	14.51	41.98	47.18	35.78	26.39
CD (0.05)	2.16	1.88	NS	35.05	NS	34.96
CD(0.01)	2.88	2.51	NS	NS	NS	46.51

Feedback from Dr VR Bhagwat

6.2: Evaluation of Sorghum Project Varieties (SPV) entries for their reaction to diseases during Kharif 2007: Two hundred twenty SPV lines were evaluated along with resistant (B58586, IS 14332 and IS 14338) and susceptible checks (BulkY) for their reaction to grain molds and foliar diseases during Kharif 2007 at New area farm of NRCS, Hyderabad. Of the 220 entries sown, 87 entries could flower and give grains which were scored for incidence of grain molds on 1-9 scale where 1= no incidence of molds, while 9 = more than 75% of the panicle is infected with molds. Of the 87 entries scored, 44 possessed high level of resistance with a mold score of 2 on 1-9 scale, while 17 entries recorded moderate level of resistance to grain molds as against susceptible check recording 8 on 1-9 scale. These lines can be utilized in the breeding programme for improving the levels of resistance. Among foliar diseases, rust was serious during this year and only one entry viz., SPV 1264 recorded high level of resistance (3 grade on 1-9 scale).

Feedback from Dr TG Nageswara Rao

6.3: Evaluation of Sorghum Project Varieties (SPV) entries for agronomic traits during K 2007: A total of 219 SPV entries were evaluated for days to 50% flowering, plant height and grain yield (Table 2). 31 SPVs were identified with < 70 days to 50% flowering, >180 cm plant height and > 60g grain yield.

Table 2: Evaluation of Sorghum Project Varieties for agronomic traits at AICSIP – Indore

SN	SPV No.	Day to 50% flowering	Plant height (cm)	Grain yield plant (g)
1	SPV 37	73	230	20
2	SPV 65	91	100	65
3	SPV 96	74	200	70
4	SPV 446	75	140	42
5	SPV 459	73	240	42
6	SPV 590	80	180	45
7	SPV 593	70	190	61
8	SPV 600	70	180	40
9	SPV 602	73	200	67
10	SPV 605	73	300	56
11	SPV 621	69	100	36
12	SPV 622	75	200	50
13	SPV 679	91	360	57
14	SPV 711	73	220	98
15	SPV 750	73	200	72
16	SPV 772	74	190	73
17	SPV 839	73	220	31
18	SPV 933	70	180	43

SN	SPV No.	Day to 50 % flowering	Plant height (cm)	Grain yield plant (g)
19	SPV 981	74	240	51
20	SPV 1025	74	260	115
21	SPV 1054	73	210	81
22	SPV 1155	73	220	26
23	SPV 1167	70	240	43
24	SPV 1198	73	250	87
25	SPV 1244	73	220	106
26	SPV 1246	80	160	45
27	SPV 1247	73	260	96
28	SPV 1248	73	300	127
29	SPV 1249	73	270	107
30	SPV 1253	74	300	75
31	SPV 1255	73	240	66
32	SPV 1258	80	280	60
33	SPV 1259	74	270	66
34	SPV 1262	75	260	100
35	SPV 1263	80	270	31
36	SPV 1267	75	220	111
37	SPV 1274	73	220	30
38	SPV 1279	74	220	35
39	SPV 1282	83	190	31
40	SPV 1283	73	200	35
41	SPV 1288	90	190	63
42	SPV 1290	70	250	45
43	SPV 1291	70	200	57
44	SPV 1292	75	280	102
45	SPV 1293	70	270	122
46	SPV 1295	80	200	78
47	SPV 1301	76	190	82
48	SPV 1321	70	270	58
49	SPV 1325	73	270	25
50	SPV 1326	70	260	92
51	SPV 1327	73	220	77
52	SPV 1328	73	280	66
53	SPV 1330	70	260	58
54	SPV 1332	76	270	66
55	SPV 1335	71	210	32
56	SPV 1340	81	220	72
57	SPV 1342	81	290	83
58	SPV 1343	75	240	70
59	SPV 1344	73	210	56
60	SPV 1345	70	230	56
61	SPV 1346	74	210	67
62	SPV 1347	83	160	62
63	SPV 1351	70	200	40
64	SPV 1354	73	260	50
65	SPV 1355	76	230	76
66	SPV 1358	75	190	92
67	SPV 1384	83	170	76
68	SPV 1385	62	60	14
69	SPV 1396	83	150	96
70	SPV 1402	83	270	108
71	SPV 1428	83	210	106
72	SPV 1429	85	300	48
73	SPV 1431	75	170	75
74	SPV 1433	74	260	80
75	SPV 1434	81	200	84
76	SPV 1435	71	240	95
77	SPV 1436	74	270	60
78	SPV 1438	83	230	60
79	SPV 1439	70	190	138
80	SPV 1441	73	220	88
81	SPV 1442	81	230	53
82	SPV 1445	70	260	111
83	SPV 1446	77	220	71
84	SPV 1472	74	170	85
85	SPV 1630	70	260	63
86	SPV 1644	73	260	66
87	SPV 1656	74	270	75
88	SPV 1659	70	240	61
89	SPV 1664	73	260	42

SN	SPV No.	Day to 50 % flowering	Plant height (cm)	Grain yield plant (g)
90	SPV 1685	74	230	52
91	SPV 1687	70	250	82
92	SPV 1689	73	270	119
93	SPV 1695	83	260	62
94	SPV 1696	74	260	67
95	SPV 1697	74	210	58
96	SPV 1698	69	240	58
97	SPV 1699	73	230	110
98	SPV 1700	73	240	76
99	SPV 1701	74	250	88
100	SPV 1702	73	200	37
101	SPV 1732	69	280	94
102	SPV 1734	73	220	67
103	SPV 1735	71	260	80
104	SPV 1339	73	260	106
105	SPV 1736	75	210	59
106	SPV 1737	69	250	77
107	SPV 1741	74	230	52
108	SPV 1742	69	270	72
109	SPV 1743	73	190	79
110	SPV 1744	76	140	65
111	SPV 1745	83	180	40
112	SPV 1747	76	210	75
113	SPV 1748	70	230	74
114	SPV 1749	74	220	56
115	SPV 1750	73	260	70
116	SPV 1752	81	240	73
117	SPV 1753	73	320	116
118	SPV 1754	75	270	98
119	SPV 708	73	280	105
	Mean	74.65	229.08	69.42
	SE	0.44	4.14	2.31
	Variance	4.80	45.19	25.24
	Sample Variance	23.03	2042.36	636.89
	Range	29.00	300.00	124.00
	Minimum	62.00	60.00	14.00
	Maximum	91.00	360.00	138.00
	CD (0.05%)	0.87	8.20	4.58

Feedback from AICSIP – Indore

A total of 219 SPV entries were evaluated for days to 50% flowering, plant height and grain yield (Table 3). 27 SPVs were identified with < 60 days to 50% flowering, >180 cm plant height and > 60g grain yield.

Table 3: Evaluation of Sorghum Project Varieties for agronomic traits at AICSIP – Udaipur

SN	SPV No.	Day to 50 % flowering	Day to Maturity	Plant height (cm)	Fresh bio mass/plant (kg)	Grain yield plant (g)
1	SPV37	65	95	325	0.47	137
2	SPV65	64	94	125	0.25	80
3	SPV96	64	93	210	0.27	168
4	SPV446	65	95	240	0.18	102
5	SPV459	64	93	230	0.226	57
6	SPV462	64	94	300	0.376	76
7	SPV541	65	95	280	0.34	110
8	SPV602	64	93	200	0.38	116
9	SPV605	65	95	122	0.056	
10	SPV615	64	93	215	0.36	102
11	SPV618	79	116	360	0.35	52
12	SPV6221	64	93	210	0.376	94
13	SPV679	63	92	147	0.226	60
14	SPV692	63	92	185	0.3	88
15	SPV711	81	118	390	0.466	20
16	SPV750	65	95	225	0.45	134
17	SPV772	64	94	235	0.175	35
18	SPV783	63	92	185	0.32	92
19	SPV933	72	105	310	0.65	55
20	SPV1025	66	97	260	0.4	100
21	SPV1054	64	93	255	0.45	17
22	SPV1122	78	114	220	0.57	80
23	SPV1153	66	96	240	0.33	106

SN	SPV No.	Day to 50 % flowering	Day to Maturity	Plant height (cm)	Fresh bio mass/plant (kg)	Grain yield plant (g)
24	SPV1167	66	96	230	0.35	118
25	SPV1198	77	113	220	0.05	15
26	SPV1246	81	118	310	0.37	22
27	SPV1247	71	104	280	0.47	118
28	SPV1248	67	98	240	0.55	118
29	SPV1249	68	99	165	0.15	52
30	SPV1253	66	97	190	0.25	68
31	SPV1255	72	105	305	0.626	72
32	SPV1256	69	100	245	0.33	98
33	SPV1258	79	116	290	0.3	25
34	SPV1259	74	108	310	0.65	58
35	SPV1262	74	108	340	0.626	54
36	SPV1263	74	108	260	0.36	64
37	SPV1264	81	118	260	0.35	40
38	SPV1267	64	93	210	0.75	100
39	SPV1274	74	108	240	0.25	55
40	SPV1279	66	97	240	0.5	140
41	SPV1280	66	96	210	0.3	94
42	SPV1282	71	103	300	0.4	60
43	SPV1283	65	95	250	0.35	122
44	SPV1288	67	98	202	0.4	88
45	SPV1290	66	96	270	0.3	48
46	SPV1291	67	98	222	0.4	92
47	SPV1293	69	100	300	0.66	77
48	SPV1295	66	97	212	0.446	110
49	SPV1301	66	96	200	0.126	46
50	SPV1321	66	96	290	0.4	90
51	SPV1325	66	97	280	0.25	
52	SPV1326	67	98	235	0.226	43
53	SPV1327	66	96	265	0.35	56
54	SPV1328	65	95	275	0.23	105
55	SPV1330	65	95	245	0.15	70
56	SPV1335	66	96	245	0.138	60
57	SPV1339	65	95	235	0.128	90
58	SPV1340	64	94	250	0.152	67
59	SPV1341	66	97	195	0.12	150
60	SPV1342	65	95	170	0.1	88
61	SPV1343	65	95	245	0.138	58
62	SPV1344	65	95	245	0.15	76
63	SPV1346	65	95	245	0.158	112
64	SPV1347	66	97	250	0.17	43
65	SPV1348	65	95	240	0.156	74
66	SPV1351	68	99	160	0.114	80
67	SPV1383	69	101	115	0.1	
68	SPV1400	65	95	310	0.36	110
69	SPV1332	72	105	220	0.124	
70	SPV1334	68	99	145	0.15	80
71	SPV1335	66	97	280	0.18	60
72	SPV1436	67	98	265	0.16	125
73	SPV1437	67	98	240	0.15	133
74	SPV1438	74	108	190	0.1	
75	SPV1440	71	103	185	0.73	97
76	SPV1442	65	95	240	0.196	
77	SPV1630	69	100	240	0.15	60
78	SPV1643	65	95	300	0.22	64
79	SPV1644	65	95	255	0.146	67
80	SPV1656	64	94	240	0.148	60
81	SPV1659	66	96	240	0.142	52
82	SPV1664	65	95	230	0.14	58
83	SPV1685	66	97	245	0.17	53
84	SPV1686	66	97	240	0.15	25
85	SPV1687	67	98	265	0.186	48
86	SPV1688	65	95	245	0.17	40
87	SPV1689	65	95	250	0.17	50
88	SPV1695	64	94	175	0.114	42
89	SPV1696	65	95	270	0.19	32
90	SPV1697	66	97	175	0.12	54
91	SPV1698	66	97	280	0.19	24
92	SPV1699	66	96	250	0.148	38
93	SPV1700	67	98	220	0.15	25

SN	SPV No.	Day to 50 % flowering	Day to Maturity	Plant height (cm)	Fresh bio mass/plant (kg)	Grain yield plant (g)
94	SPV1701	66	96	280	0.22	66
95	SPV1702	65	95	270	0.2	28
96	SPV1730	66	96	270	0.22	44
97	SPV1731	65	95	245	0.15	45
98	SPV1732	66	97	155	0.112	30
99	SPV1733	67	98	215	0.05	54
100	SPV1734	67	98	290	0.1	52
101	SPV1735	66	97	240	0.11	42
102	SPV1736	66	96	225	0.05	82
103	SPV1737	67	98	265	0.15	50
104	SPV1738	68	99	210	0.18	78
105	SPV1741	66	96	135	0.2	68
106	SPV1742	65	95	300	0.1	22
107	SPV1743	66	96	275	0.07	13
108	SPV1744	64	94	130	0.1	26
109	SPV1745	75	110	185	0.5	34
110	SPV1746	64	94	310	0.2	52
111	SPV1747	64	94	135	0.07	27
112	SPV1748	65	95	275	0.15	36
113	SPV1749	66	97	300	0.35	60
114	SPV1750	66	96	310	0.2	46
115	SPV1751	66	97	240	0.15	52
116	SPV1752	65	95	250	0.22	78
117	SPV1753	65	95	320	0.254	66
118	SPV1754	65	95	340	0.25	52
	Mean	67.16	98.13	241.69	0.26	68.72
	SE	0.37	0.54	4.78	0.01	3.10
	SD	4.01	5.84	51.89	0.16	32.78
	Range	18.00	26.00	275.00	0.70	155.00
	Minimum	63.00	92.00	115.00	0.05	13.00
	Maximum	81.00	118.00	390.00	0.75	168.00
	CD (0.05%)	0.73	1.07	9.46	0.03	6.14

Feedback from AICSIP - Udiapur

A total of 56 Indian germplasm entries were evaluated for forage traits viz., days to 50% flowering, plant height, number of leaves, leaf length and leaf width (Table 4).

Table 4: Sorghum germplasm evaluated for forage traits

SN	Acc. No.	Indegenous Collection No.	Days to 50 (%) Flowering	Plant Height (cm)	No. of Leaves/ plant	Leaf length (cm)	Leaf width (cm)
1	QH-3	-		315	17	80	8.5
2	E-12	IC - 338977	70	255	11	80	5.5
3	E-13	IC - 338978	71	277	12	85	5.5
4	E-14	IC - 338979	69	280	15	75	6.5
5	E-15	IC - 338980	72	320	16	70	6.9
6	E-2	IC - 338969	71	340	13	75	8
7	E-3	IC - 338970	72	325	14	85	6.5
8	E-4	IC - 338971	65	295	14	65	8
9	E-5	IC - 338972	65	165	15	55	9.5
10	EJ-10	IC - 338990	53	155	14	50	8
11	EJ-15	IC - 338995	52	230	13	70	7.5
12	EJ-16	IC - 338996	52	250	10	30	4.5
13	EJ-17	IC - 338997	56	260	15	60	8
14	EJ-18	IC - 338998	56	270	14	55	5.5
15	EJ-19	IC - 338999	57	275	11	65	5
16	EJ-24	IC - 339004	55	255	12	75	6
17	EJ-25	IC - 339005	54	240	14	70	7
18	EJ-26	IC - 339006	56	255	13	65	6.5
19	EJ-27	IC - 339007	55	275	15	70	8
20	EJ-3	IC - 338983	58	300	16	70	9
21	EJ-30	IC - 339010	57	270	14	65	7.5
22	EJ-33	IC - 339013	53	250	13	70	9
23	EJ-40	IC - 339020	66	300	11	70	5.5
24	EJ-41	IC - 339021	73	340	17	80	5.5
25	EJ-42	IC - 339022	75	350	16	85	5
26	EP-121	IC - 420936	75	295	13	70	5.5
27	EP-122	IC - 420937	73	305	17	85	7
28	EP-124	IC - 420939	60	290	18	85	6.5

SN	Acc. No.	Indegenous Collection No.	Days to 50 (%) Flowering	Plant Height (cm)	No. of Leaves/plant	Leaf length (cm)	Leaf width (cm)
29	EP-125	IC – 420940	82	255	15	65	8.5
30	EP-134	IC – 420949		240	12	75	7
31	EP-136	IC – 420951		255	13	70	6
32	EP-138	IC – 420953		240	16	80	6.5
33	EP-139	IC – 420954	76	235	13	90	6.5
34	EP-140	IC – 420955		245	15	90	7.5
35	EP-141	IC – 420956		165	13	95	8
36	EP-56	IC – 343555	75	260	15	75	6.5
37	EP-58	IC – 343557	72	195	12	80	7
38	EP-59	IC – 343558	76	240	14	70	7.5
39	EP-61	IC – 343560	77	180	13	78	8
40	EP-76	IC – 343575		225	17	90	8
41	RAJ-15		84	210	14	80	6.5
42	RAJ-16			270	15	75	6.5
43	RAJ-19			290	16	85	5.5
44	RAJ-20		79	305	18	85	6.5
45	RAJ-21			315	14	65	5.5
46	RAJ-25			300	17	90	8.5
47	RAJ-29		86	260	17	85	8.5
48	RAJ-30		78	280	15	65	6
49	RAJ-7		77	315	13	70	6
50	RAJ-8			300	18	75	8
51	RAJ-9			230	18	90	8
52	SEVS-1	IC - 347567		270	14	80	5.5
53	SEVS-2	IC – 347568		245	17	90	7
54	SEVS-4	IC – 347570		180	15	85	6
55	SEVS-5	IC – 347571		155	13	95	8.5
56	SEVS-6	IC - 347572		195	16	80	7
		Mean	67.18	260.57	14.48	75.23	6.93
		SD	10.25	47.54	1.99	11.99	1.19
		SE	1.66	6.35	0.27	1.60	0.16
		Range	34.00	195.00	8.00	65.00	5.00
		Minimum	52.00	155.00	10.00	30.00	4.50
		Maximum	86.00	350.00	18.00	95.00	9.50
		CD (0.05%)	3.37	12.73	0.53	3.21	0.32

Feedback from AICSIP – Deesa

A total of 28 Indian germplasm entries were evaluated for dual-purpose traits viz., days to 50% flowering, plant height, number of leaves, leaf length and leaf width (Table 5).

Table 5: Sorghum germplasm evaluated for dual-purpose traits

SN	Acc. No.	Days to 50 (%) flowering	Plant Height (cm)	No. of Leaves/plant	Leaf length (cm)	Leaf width (cm)
1	PEC – 21		255	16	80	7.5
2	IC 372599		230	13	85	7.5
3	NSS 7969	76	260	16	70	8
4	NSS 7995	76	240	16	75	7.5
5	NDS 294		170	15	95	9
6	EP – 61	79	215	13	65	8
7	EP – 62	76	250	13	80	8
8	IS – 1152	84	175	11	85	9
9	IS – 1331	73	225	13	90	8.5
10	IS – 2814	80	155	15	70	8
11	IS – 9664	72	195	14	75	8
12	IS- 13057	74	220	13	80	10
13	IS- 13437	75	110	16	80	10.5
14	IS- 15448		180	15	75	10.5
15	IS- 19163	76	220	14	80	10
16	IS- 22482		145	14	75	7
17	IS- 22501		140	15	70	9.5
18	IS- 23599	75	190	13	85	9
19	IS- 25071	72	215	16	100	9.5
20	IS- 25097	74	185	15	85	7.5
21	IS- 26866	80	225	17	95	10
22	IS- 26871	80	195	15	80	9
23	IS- 27395	79	170	15	85	8.5
24	IS- 27874	73	245	13	90	6

SN	Acc. No.	Days to 50 (%) flowering	Plant Height (cm)	No. of Leaves/ plant	Leaf length (cm)	Leaf width (cm)
25	IS- 27875	76	205	14	85	7.5
26	RAJ- 35	77	140	14	80	9
27	EP - 19		240	15	75	9.5
	Mean	76.35	199.81	14.41	81.11	8.59
	SD	3.15	39.87	1.37	8.36	1.14
	SE	0.70	7.67	0.26	1.61	0.22
	Range	12.00	150.00	6.00	35.00	4.50
	Minimum	72.00	110.00	11.00	65.00	6.00
	Maximum	84.00	260.00	17.00	100.00	10.50
	CD(0.05%)	1.47	15.77	0.54	3.31	0.45

Feedback from AICSIP – Deesa

7. Status of sorghum varieties registration to the PVPFR Authority

7.1: Status of variety registration at NRCS

A)	Submitted	- 21 (Accepted – 07 & Re-submissions – 14)
	New submissions	- 26
	Total	- 47
B)	Varieties	- 13
	Hybrids	- 11
	R -line	- 09
	A -line	- 07
	B -line	- 07
	Total	- 47
C)	Extant variety	- 41
	New variety	- 06
	Total	- 47

7.2: Status of variety registration at AICSIP centres

- Only Coimbatore has submitted the applications so far.
- Indore applications are being prepared by them.
- Rahuri has been advised to correct the application and re-submit
- Akola has started filling the application

7.3: Status of centrally released sorghum varieties registration to the PVPFR Authority by NRCS

SN	Denomination	Type of variety	Classification	SPV/SPH Nos	Notification	Parent	DD No	Date of submission	Status	Information added
1	CSV 17	New variety	Variety	SPV 1489	Awaited	SPV 946 x SPV 772	374969, 24th July 2007, SBH-Budvel	13th September 2007	Re-submitted on 26th Dec 2007	
2	CSV 18	New variety	Variety	SPV 1595	Awaited	CR 4 x IS 18370	374968, 24th July 2007, SBH-Budvel	13th September 2007	Re-submitted on 26th Dec 2007	
3	CSV 216R	Extant variety	Variety	SPV 1359	821(E) 13/09/2000	Sel from landrace of Dhulia, MS	242944, 4th Sep 2007, SBH-Budvel	13th September 2007	Accepted	
4	CSV 19SS	Extant variety	Variety	RSSV 9	1172(E) 28/08/2005	RSSV 2 x SPV 462	374967, 24th July 2007, SBH-Budvel	13th September 2007	Re-submitted on 26th Dec 2007	
5	CSH 13	Extant variety	Hybrid	SPH 504	647(E) 09/09/1997	296A x RS 29	242945, 4th Sep 2007, SBH-Budvel	13th September 2007	Accepted	
6	CSH 15R	Extant variety	Hybrid	SPH 677	1(E) 01/01/1996	104A x RS 585	242946, 4th Sep 2007, SBH-Budvel	13th September 2007	Accepted	
7	CSH 16	Extant variety	Hybrid	SPH 723	647(E) 09/09/1997	27A x C 43	242947, 4th Sep 2007, SBH-Budvel	13th September 2007	Accepted	
8	CSH 17	Extant variety	Hybrid	SPH 660	425(E) 08/06/1999	AKMS 14A x RS 673	374972, 24th July 2007, SBH-Budvel	13th September 2 007	Accepted	
9	CSH 18	Extant variety	Hybrid	SPH 960	1050(E) 26/10/1999	IMS 9A x Indore 12	242948, 4th Sep 2007, SBH-Budvel	13th September 2007	Accepted	
10	CSH 19R	Extant variety	Hybrid	SPH 1010	821(E) 13/09/2000	104A x AKR 354	242949, 4th Sep 2007, SBH-Budvel	13th September 2007	Re-submitted on 26th Dec 2007	
11	CSH 20MF	Extant variety	Hybrid	UPMCH 1101	1172(E) 25/08/2005	2219A x UPMC 503	374971, 24th July 2007, SBH-Budvel	13th September 2007	Re-submitted on 26th Dec 2007	
12	CSH 22SS	Extant variety	Hybrid	NSSH 104	1566(E) 05/11/2005	ICSA 38 x SSV 84	374970, 24th July 2007, SBH-Budvel	13th September 2007	Re-submitted on 26th Dec 2007	
13	CSH 14	Extant variety	Hybrid	SPH 468	814(E) 04/11/1992	AKMS 14A x AKR 150	243039, 4th Oct 2007, SBH-Budvel	6th November 2007	Re-submitted on 26th Dec 2007	
14	CSH 23	Extant variety	Hybrid	SPH 1290	1566(E) 05/11/2005	MS 7A x RS 627	243038, 4th Oct 2007, SBH-Budvel	12th October 2007	Accepted	5th January 2008
15	CSV 14R	Extant variety	Variety	SPV 839	814(E) 04/11/1992	[M35-1 x (CS 2947 x CS 2644) x M35-1]	243031, 4th Oct 2007, SBH-Budvel	6th November 2007	Re-submitted on 26th Dec 2007	
16	CSV 15	Extant variety	Variety	SPV 946	349(E) 20/05/1996	SPV 475 x SPV 462	243032, 4th Oct 2007, SBH-Budvel	12th October 2007	Re-submitted on 26th Dec 2007	
17	CSV 21F	New variety	Variety	SRF 286	Awaited	GSSV 148 x SR 897	243034, 4th Oct 2007, SBH-Budvel	12th October 2007	Re-submitted on 26th Dec 2007	
18	CSV 23	New variety	Variety	SPV 1714	Awaited	SPV 861 x SU 248	243036, 4th Oct 2007, SBH-Budvel	12th October 2007	Re-submitted on 26th Dec 2007	
19	CSV 22	New variety	Variety	SPV 1626	Awaited	SPV 1359 x RSP 2	243035, 4th Oct 2007, SBH-Budvel	12th October 2007	Re-submitted on 26th Dec 2007	
20	SSV 84	Extant variety	Variety	SSV 84	814(E), 04/11/1992	Selection from IS 23568	243037, 4th Oct 2007, SBH-Budvel	12th October 2007	Re-submitted on 26th Dec 2007	
21	296A	Extant variety	A - line	296A	647(E) 09/09/1997	IS 3922 x Karad local	243477, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
22	296B	Extant variety	B - line	296B	647(E) 09/09/1997	IS 3922 x Karad local	243478, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
23	2219A	Extant variety	A - line	2219A	1172(E) 25/08/2005	Selection from Kharif shallu	243479, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
24	2219B	Extant variety	B - line	2219B	1172(E) 25/08/2006	Selection from Kharif shallu	243480, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
25	AKMS 14A	Extant variety	A - line	AKMS 14A	425(E) 08/06/1999	(MR760 x BT632) x AKMS 2B	243481, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
26	AKMS 14B	Extant variety	B - line	AKMS 14B	425(E) 08/06/1999	(MR760 x BT632) x AKMS 2B	243482, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
27	27A	Extant variety	A - line	27A	647(E) 09/09/1997	83B x 199B	243475, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
28	27B	Extant variety	B - line	27B	647(E) 09/09/1997	83B x 199B	243476, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
29	IMS 7A	Extant	A - line	IMS 7A	1566(E),	Selection from AKMS 14A	243485, 14th Dec 2007,	26th December 2007,	Being processed	

SN	Denomination	Type of variety	Classification	SPV/SPH Nos	Notification	Parent	DD No	Date of submission	Status	Information added
		variety			05/11/2005		SBH-Budvel			
30	IMS 7B	Extant variety	B - line	IMS 7B	1566(E), 05/11/2005	Selection from AKMS 14B	243486, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
31	IMS 9A	Extant variety	A - line	IMS 9A	1050(E) 26/10/1999	2077A (M9B x Vidisha 60-1) -1 1-4-2-5-5	243483, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
32	IMS 9B	Extant variety	B - line	IMS 9B	1050(E) 26/10/1999	2077A (M9B x Vidisha 60-1) -1 1-4-2-5-5	243484, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
33	104A	Extant variety	A - line	104A	821(E) 13/09/2000	296B x Swati	243492, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
34	104B	Extant variety	B - line	104B	821(E) 13/09/2000	296B x Swati	243493, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
35	CSV 20	New variety	Variety	SPV 1616	Awaited	SPV 946 x Kh 89-246	243033, 4th Oct 2007, SBH-Budvel	12th October 2007	Re-submitted on 26th Dec 2007	
36	RS 585	Extant variety	R - line	RS 585	1(E) 01/01/1996	(CS 3541 x M35-1) x Nandyal rabi local	243490, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
37	RS 29	Extant variety	R - line	RS 29	647(E) 09/09/1997	SPV 126 x SC 108	243397, 12th Nov 2007, SBH-Budvel	26th December 2007	Being processed	
38	RS 627	Extant variety	R - line	RS 627	1566(E), 05/11/2005	RS 71 x M35-1	243398, 12th Nov 2007, SBH-Budvel	26th December 2007	Being processed	
39	AKR 150	Extant variety	R - line	AKR 150	814(E), 04/11/1992	CS 3541 x 900	243489, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
40	AKR 354	Extant variety	R - line	AKR 354	821(E) 13/09/2000	[(SPV 504(20KR) x SPV 504 x R 263)] x R 67-4	243491, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
41	C 43	Extant variety	R - line	C 43	647(E) 09/09/1997	CS 3541 x IS 23549	243396, 12th Nov 2007, SBH-Budvel	26th December 2007	Being processed	
42	RS 673	Extant variety	R - line	RS 673	425(E) 08/06/1999	SPV 544 X K24-1	243399, 12th Nov 2007, SBH-Budvel	26th December 2007	Being processed	
43	Indore 12	Extant variety	R - line	Indore 12	1050(E) 26/10/1999	(SSV 53 x SPV 475)-7-1-1-1	243400, 12th Nov 2007, SBH-Budvel	26th December 2007	Being processed	
44	HC 308	Extant variety	Variety	S 308	1(E) 01/01/1996	SPV 8 x IS 4776	243040, 4th Oct 2007, SBH-Budvel	26th December 2007	Being processed	
45	Pant Chari 5	Extant variety	Variety	UPFS 32	1050(E) 26/10/1999	CS 3541 x IS 6953	243487, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
46	PCH 106	Extant variety	Hybrid	PCH 106	360(E), 01/05/1997	2219A x Pusa Chari 23	243488, 14th Dec 2007, SBH-Budvel	26th December 2007	Being processed	
47	UPMC 503	Extant variety	R - line	Pant Chari 6	1172(E) 25/08/2005	SDSL 92140-MCT-36-93 (Sel from Zimbabwe germplasm)	243041, 4th Oct 2007, SBH-Budvel	26th December 2007	Being processed	

7.4: Status of state released sorghum varieties registration to the PVPFR Authority by AICSIP centres

S.No.	Variety/Hybrid	Year	Central/State	Pedigree	Test name	Centre	Seed at MTS, NRCS	Status of application to PVP
1	AKSV 13R (PKV Kranti)	2004	State	SPV 1201 X Ringani		Akola		
2	SPH 840	2001	State	MS 70A X ICSR 89058		Akola		
3	AKR 73		State			Akola		
4	MS 70B					Akola		
5	RSSGV-3 (Uttara) (Sweet Grains)	2003	State	Selection from local gulbchendi (sweet sorghum)		Rahuri		
6	Phule Amruta (Forage Purpose)	2002	State	RSSV 2 X SPV 462	RSSV - 9	Rahuri		
7	RSLG 262 (Phule Maulee)	1999	State	Selection from local land race RSLG 262		Rahuri	YES	
8	Selection 3 *	1994	State	Selection from Bedar		Rahuri	YES	
9	Parbhani moti (SPV 1411 / PVR 396)	2004	State			Parbhani	YES	
10	Parbhani dagadi		State			Parbhani		
11	PVK 809	2004	State	PVK 801 X SPV 881	SPV 1474	Parbhani	YES	
12	PVK 801(parbhani swetha)	1999	State	selection from GDLP 34-5-5-3, ICRISAT population	SPV 1333	Parbhani	YES	
13	PVR 453		State			Parbhani		
14	DSH-3	2002	State			Dharwad	YES	
15	SSV - 74	2000	State			Dharwad		
16	DSH - 4	2002	State	SB 401 A X SPV 570		Dharwad		
17	DSV - 4	1998	State	E 36-1 X SPV 86		Dharwad	YES	
18	DSV - 2 (SPV 462)	1993	State			Dharwad	YES	
19	DSV - 3 (ICSV 745)	1993	State	ICSV 745 OF ICRISAT		Dharwad	YES	
20	DSV 6		State					
21	DSV - 5 (GRS 1)	1996	Central	selection from Natte Maladandi of Gulbarga locality		Dharwad		
22	M 35-1 (B)					Bijapur	YES	
23	NTJ - 4	2002	State	NTJ - 1 X CMS - 3		Nandyal		
24	NTJ - 3	1995	State	NJ 2092 X POD - 24		Nandyal		
25	Palem - 1	2002	State	SPV - 86 X GD - 57904		Palem		
26	ASH - 1	1999	State	PSA - 9 X PSR - 34		Palem		
27	PSH - 1	1999	State	PSA - 3 X PSR - 23		Palem		
28	PSV - 1	1997	State	MS - 827 X IS - 3691		Palem		
29	PSV - 2		State			Palem		
30	PSB 3		State			Palem		
31	PSB 9		State			Palem		
32	Teepi Jonna (AJ - 140)	1996	State	Selection from ICRISAT Germplasm		Anantpur		
33	Podalakur Jonna- 1 (PJ 890)	1993	State	Selection from SPV - 346		Podalakur		
34	RS 585			CS 3541 X M 35-1		Solapur	YES	
35	CO (S) 28 *	2001	State	CO 25 X SPV 492	TNS 296 (SPV 1410)	Coimbatore	YES	Submitted
36	Paiyur 2	2001	State	PLS from IC 15845		Paiyur		Submitted
37	APK 1 *	1996	State	TNS 30 X CO 26		Aruppukkotai		Submitted
38	BSR 1 (ICSV 239)	1994	State	(SS 108-3 X ICSV 4) X 16-3-1 X (MR 801 X RS 2751) 4-1-1		Bhavanisagar		Submitted
39	K 11- Dual Purpose	2004	State	K 7 X A 6552		Kovilpatti		Submitted
40	CO (FS) 29	2001	State	TNS 30 X Sorghum sudanense		Coimbatore		Submitted
41	K 9 - Tenkasi region	1993	Central	M 36200 X TWC 120		Kovilpatti		

S.No.	Variety/Hybrid	Year	Central/State	Pedigree	Test name	Centre	Seed at MTS, NRCS	Status of application to PVP
42	JJ 938	1995	Central	SPV 221 X E 602	SPV 938	Indore	YES	
43	JJ 1022	2006	Central	SPV 475 X SPV 462	SPV 1022	Indore	YES	
44	JJ 1041	1999	Central	SPV 475 X SPV 462	SPV 1041	Indore	YES	
45	GJ 41 (SPV 1038)	1999	State	(M 250 X GJ 36) X GJ 37	SR 322-1	Surat	YES	
46	GJ 40	1997	State	(2077A X M 25) X Malvan	GJ 35-15-15	Surat	YES	
47	GJ 38	1995	State	GJ 35 X E 35-1	SR 202	Surat	YES	
48	GFS 5 (Fodder)	1999	State	SPV 1087 X GSSV 148	FS 113	Surat		
49	Surat 1		State			Surat		
50	SPV 1388 (Bundela)		State			Mauranipur	YES	
51	Pant Chari 5 *	1999	State	CS 3541 X IS 6953	UPFS 32	Pantnagar	YES	
52	Pant Chari 4 *	1997	State	IS 4776 X RIO	UPFS 23	Pantnagar	YES	
53	UP Chari 2		State			Pantnagar	YES	
54	Pratap Jowar 1430 (SPV 1430)	2003	State	Selection from SPV 96	SPV 1430	Udaipur	YES	
55	SPH 837	2002	State	AKMS 14A X SU 556		Udaipur		
56	HJ 513	2006	State	S 305 (PJ 7R X SPV 80) X HC 136	S 513	Hisar	YES	

Compiled by M Elangovan on 20th Feb 08