



# Sorghum Nucleus, Breeder Seed Production, MSP & Distinctiveness Uniformity & Stability (DUS) 2013-14

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and coordinating with concerned centers

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### Executive summary

During 2013-14, 305.04 q breeder seed was produced against BSP-I allocation of 82.90 q. A total of 1047 kg nucleus seed was produced against allocation of 1035 kg. In farmers participatory seed production a total of 810 q seed was produced. The center wise allocation of sorghum breeder and nucleus seed production has been made for 2014-15 across 14 locations based on DAC indent received for the year 2014-15.

During the period under report, two field trials each were conducted during *Kharif* 2013 and *Rabi* 2013-14 seasons for examining the DUS in candidate varieties of sorghum as per the PPV&FRA test guidelines. A total of 23 candidate varieties were tested for DUS traits in the *kharif* season and nine candidate varieties were tested in the *rabi* season along with the corresponding reference varieties.

### 1. Breeder seed production

The total breeder seed production during 2013-14 by AICSIP centers was 305.04q which is 217.05q (343.26%) more than DAC indent (87.99 q) and 222.14q (364.34%) more than BSP-I allocation (82.90 q). There was surplus production of breeder seed for most of the allocated lines and varieties of sorghum at eleven AICSIP centers in Kharif and five centers in Rabi seasons during 2013-14. There was shortfall in production of JJ 1041 from Indore, PC 1080 from Udaipur, Punjab Sudex Chari-1 from Ludhiana, Pusa Chari 23 and Pusa Chari 6 from IARI centers. The shortfall in the production of CSV 15, CSV 17 and MP Chari from different centers was abridged by DSR, Hyderabad with additional production of these cultivars. The centre-wise and variety-wise breeder seed production (quintals) of sorghum during 2013-14 is presented at Table 1 and 2 respectively.

### 2. Nucleus seed production

The nucleus seed was produced as per the targets by most of the centers (Table 3).

### 3. Information on participatory seed production

At DSR, Hyderabad, different classes of seed are produced in leased farmers' field in Andhra Pradesh and at SFCI farm, Jawalagera because land and water and space isolations are the limiting factors at our research stations. Both public and private sector seed producers were involved in seed production. In view of the isolation requirements, we have produced the quality seed of CSV 15, CSV 17, CSV 20, CSV 21F, CSV 23, CSV 27, MP Chari, Pusa Chari 615, UPMC 503, AKR 150 and Phule Suchitra in SFCI, Jawalagera farm and in leased farmers fields under strict quality control of DSR scientists and officials from Andhra Pradesh and Karnataka seed certification agencies. A total of 810 q of different class of seed was produced under mega seed project and the details are as given in table 4.



**Nucleus and breeder seed production allocation for the year 2014-15:** The allocation of sorghum breeder and nucleus seed production for 2014-15 as per BSP 1 allocation based on DAC Indent (q) for the year 2014-15 is given in Table 5 and 6, respectively.

**Table 1: Centre-wise breeder seed production (quintals) of sorghum during 2013-14**

(Kharif & Rabi centres)

S. No.	Name of the Producing Centre/State	Name of variety / parental line	DAC Indent	Actual allocation as per BSP - I target	Actual Production	Prod. surplus (+) Deficit (-) over BSP-I targets	
<b>Kharif Centers</b>							
1	Dr. PDKV, Akola	AKMS 14A	0.27	0.30	0.36	0.06(+)	
		14B	0.16	0.20	0.39	0.19(+)	
		AKR 150	0.14	0.20	0.45	0.25(+)	
		PKV Kranti	0.20	0.50	15.00	14.50(+)	
2	MAU, Parbhani	PMS 28A	0.10	0.30	*	*	
		PMS 28B	0.10	0.20	*	*	
		C 43	0.10	0.10	0.10 COS	0.00	
		CSV 18	0.62	0.70	75.00	74.30(+)	
		Parbhani Sweta	0.12	0.20	7.00	6.80(+)	
		Parbhani Moti	5.85	6.00	80.00	74.00(+)	
3	JNKVV, Indore	JJ 938	0.10	0.10	1.00	0.90(+)	
		JJ 1041	0.10	0.10	Failure	0.10(-)	
		MP Chari	4.45	5.00	4.00	1.00(-)	
4	CRF, Mauranipur	Bundela	0.10	0.20	1.70	1.50(+)	
		CSV 15	2.10	2.50	1.40	1.10(-)	
5	MPUA&T, Udaipur	CSV 17	2.14	2.50	1.00	1.50(-)	
		CSV 23	2.36	2.50	2.50	0.00	
		PC 1080	3.00	3.00	0.70	2.30(-)	
6	CCS & HAU, Hisar	HC 136	0.25	0.25	0.25	0.00	
		HC 308	2.30	2.50	2.50	0.00	
		HJ 513	1.00	1.00	4.50	3.50(+)	
7	PAU, Ludiana	Punjab Sudex Chari -1	A	1.00	1.00	**	1.00(-)
			B	0.50	0.50	**	0.50(-)
			R	0.50	0.50	0.50	0.00
8	GBPUA&T, Pantnagar	467A	0.18	0.20	0.20 COS	0.00	
		467B	0.09	0.10	0.10 COS	0.00	
		Pant Chari 6	0.09	0.10	3.50	3.40(+)	
		Pant Chari 5	0.90	1.00	3.00	2.00(+)	
9	IARI, New Delhi	Pusa Chari 6	1.80	0.25	0.16	0.09(-)	
		Pusa Chari 23	20.20	10.00#	8.68	1.32(-)	
10	Coimbatore	CO(FS)29	2.75	3.00	2.75	0.25(-)	
11	NAU, Surat	Gujarat Fodder Sorghum	0.60	0.60	1.00	0.40(+)	
<b>Rabi centers</b>							
12	MPKV, Rahuri	Phule Chitra	0.41	0.50	1.00	0.50(+)	
		Vasudha	1.50	1.50	1.50	0.00	
		Phule Anuradha	0.41	0.50	1.00	0.50(+)	
		Phule Revathi	2.31	2.50	3.00	0.50(+)	
13	RARS-UAS, Bijapur	M 35-1	18.39	20.00	20.80	0.80(+)	
14	ANGRAU, Madhira	Kinnera	1.00	1.00	1.50	0.50(+)	
15	DSR, Hyderabad	296 A	1.25	1.50	3.00 COS	1.50(+)	
		296 B	0.80	1.00	1.50 COS	0.50(+)	
		CS 3541	0.50	0.50	2.00 COS	1.50(+)	
		27 A	0.60	1.00	*	*	
		27 B	0.30	0.50	*	*	
		C 43	0.30	0.50	1.00 COS	0.50(+)	
		CSV 15	0.00	0.00	10.00***	10.00(+)	
		CSV 17	0.00	0.00	9.00***	9.00(+)	
		CSV 20	2.35	2.50	15.00	12.50(+)	
		CSV 24SS	3.30	3.30	5.00 COS	1.70(+)	
CSV 27	0.40	0.50	10.00	9.50(+)			
		MP Chari	0.00	0.00	2.00***	2.00(+)	
<b>Total</b>			<b>87.99</b>	<b>82.90</b>	<b>305.04</b>	<b>222.14(+)</b>	



Table 2: Variety-wise breeder seed production (quintals) of sorghum during 2013-14

(Kharif &amp; Rabi centres)

S. No.	Hybrids/Varieties	Year of Release & Notification	Actual allocation as per BSP-I target	Actual production	Production surplus (+) Deficit (-) over BSP-I targets
<b>(A)</b>	<b>Hybrids</b>				
I	<b>CSH 9</b>	S.O.19(E) -14.1.1982			
1	296 A		1.50	3.00 COS	1.50(+)
2	296 B		1.00	1.50 COS	0.50(+)
3	CS 3541		0.50	2.00 COS	1.50(+)
II	<b>CSH 14</b>	S.O.814(E) - 4.11.1992			
4	AKMS 14 A		0.30	0.36	0.06(+)
5	AKMS 14 B		0.20	0.39	0.19(+)
6	AKR 150		0.20	0.45	0.25(+)
III	<b>CSH 16</b>	S.O.647(E) -9.9.1997			
7	27 A		1.00	*	*
8	27 B		0.50	*	*
9	C 43		0.50	1.00 COS	0.50(+)
IV	<b>CSH 24MF</b>	S.O.2187(E) - 27.8.2009			
10	467 A		0.20	0.20 COS	0.00
11	467 B		0.10	0.10 COS	0.00
12	UPMC 503		0.10	3.50	3.40(+)
V	<b>CSH 25</b>	S.O.1108(E) - 8.5.2008			
13	PMS 28A		0.30	*	*
14	PMS 28B		0.20	*	*
15	C 43		0.10	0.10 COS	0.00
VI	<b>Punjab Sudex Chari 1)</b>	S.O.408(E) -4.5.1995			
16	A Line		1.00	**	1.00(-)
17	B Line		0.50	**	0.50(-)
18	R Line		0.50	0.50	0.00
<b>(B)</b>	<b>Varieties</b>				
1	CSV 15	S.O.349 (E)-20.5.1996	2.50	11.40	8.90(+)
2	CSV 17	S.O.449(E) - 11.2.2009	2.50	10.00	7.50(+)
3	CSV 18	S.O.449(E) - 11.2.2009	0.70	75.00	74.30(+)
4	CSV 20	S.O.449(E) - 11.2.2009	2.50	15.00	12.50(+)
5	CSV 23	S.O. 72(E) -1 4.1.2008	2.50	2.50	0.00
6	CSV 24SS	S.O.2326(E) - 10.10.2011	3.30	5.00 COS	1.70(+)
7	CSV 27	S.O.1708(E) - 26.07.2012	0.50	10.00	9.50(+)
8	Parbhani Moti	S.O.122 (E)-2.2.2005	6.00	80.00	74.00(+)
9	Parbhani Sweta	S.O. 821(E) - 13.9.2000	0.20	7.00	6.80(+)
10	Phule Chitra	S.O. 72(E) -1 4.1.2008	0.50	1.00	0.50(+)
11	Phule Anuradha	S.O.2137 (E)-31.8.2010	0.50	1.00	0.50(+)
12	Phule Vasudha	S.O. 72(E) -1 4.1.2008	1.50	1.50	0.00
13	Phule Revathi	S.O. 2125(E) -10.9.2012	2.50	3.00	0.50(+)
14	M 35-1	S.O.596(E)-13.8.1984	20.00	20.80	0.80(+)
15	PKV Kranti	S.O. 72(E) -1 4.1.2008	0.50	15.00	14.50(+)
16	Kinnera	S.O.211(E) - 29.1.2010	1.00	1.50	0.50(+)
17	PC 1080	S.O.283(E) - 7.2.2011	3.00	0.70	2.30(-)
18	JJ 938	S.O.1(E) - 1.1.1996	0.10	1.00	0.90(+)
19	JJ 1041	S.O.425(E) - 8.6.1999	0.10	Failure	0.10(-)
20	Bundelee	S.O.1566 (E)-5.11.2005	0.20	1.70	1.50(+)
21	Gujarat Fodder Sorghum	S.O.122 (E)-2.2.2005	0.60	1.00	0.40(+)
22	CO(FS) 29	S.O.1134 (E)-15.11.2001	3.00	2.75	0.25(-)
23	Pant Chari 5	S.O. 1050(E) - 26.10.1999	1.00	3.00	2.00(+)
24	HC 136	S.O.19(E) - 14.1.1982	0.25	0.25	0.00
25	HC 308	S.O.1(E) - 1.1.1996	2.50	2.50	0.00
26	HJ 513	S.O.1178(E) - 20.7.2007	1.00	4.50	3.50(+)
27	Pusa chari 6	S.O.470(E) - 19.2.1980	0.25	0.16	0.09(-)
28	Pusa chari 23	S.O.295(E) - 9.4.1985	10.0#	8.68	1.32(-)
29	MP Chari	13-19.12.1978	5.00	6.00	1.00(+)
	<b>Total</b>		<b>82.90</b>	<b>305.04</b>	<b>222.14(+)</b>

- \* Production failed in kharif/rabi due to heavy rains production will be taken up in summer 2014
- \*\* Since heavy rains in kharif production taken up in rabi 2013-14, but it has also failed again due to sever cold, hence no production
- \*\*\*DSR has taken up production during rabi 2013-14 to abridge deficiency in some kharif centers
- # IARI has accepted a target of 10 q only



Table 3: Centre-wise nucleus seed production (kg) of sorghum during 2013-14

S. No.	Centre	Parental line / variety	Allocation	Actual Production	Surplus (+) / deficit (-) over production
1.	MPKV, Rahuri	RSV 9R/ Swathi	10	10	0
2.		Selection 3	5	5	0
3.		CSV 216R	10	10	0
4.		CSV 19SS	15	15	0
5.		SSV 84	15	15	0
6.		CSV 22	15	15	0
7.		Phule Revati	15	15	0
8.		Phule Anuradha	15	15	0
9.		Phule Vasudha	15	15	0
10.		Phule Chitra	15	15	0
11.		Phule Panchami	10	10	0
12.	PDKV, Akola	AKMS 14A	25	25	0
13.		AKMS 14B	15	15	0
14.		AKR 150	15	15	0
15.		AKR 73	10	10	0
16.		R 354	10	10	0
17.		AK 70A	10	10	0
18.		AK 70B	5	5	0
19.		296A	10	10	0
20.		296B	5	5	0
21.		CS 3541	10	10	0
22.		AKSV 13R	10	10	0
23.	MAU, Parbhani	PVK 400	5	5	0
24.		2077A	10	10	0
25.		2077B	5	5	0
26.		2219A	15	15	0
27.		2219B	10	10	0
28.		CSV 18	5	5	0
29.		PMS 28 A	15	15	0
30.		PMS 28 B	10	10	0
31.		C-43	10	10	0
32.		Parbhani Moti	15	15	0
33.		Parbhani Swetha	15	15	0
34.	JNKVV, Indore	IMS 9A	15	15	0
35.		IMS 9B	15	15	0
36.		Indore 12	15	15	0
37.		M.P.Chari	50	50	0
38.	CRF, Mauranipur	CSV 13	10	10	0
39.		CSV 15	10	10	0
40.		Bundela	5	5	0
41.	MAUA&T, Udaipur	AKMS 14A	10	10	0
42.		AKMS 14B	5	5	0
43.		AKR 150	5	5	0
44.		CSV 10	5	5	0
45.		CSV 15	10	10	0
46.		CSV 17	10	10	0
47.		SU 556 (SPV 1430)	5	5	0
48.		CSV 23	20	20	0
49.		Pratap Chari 1080	10	10	0
50.	GBPUA&T, Pantnagar	2219A	10	10	0
51.		2219B	5	5	0
52.		UPMC 503 (PC 6)	20	20	0
53.		ICS467A	10	10	0
54.		ICS467B	5	5	0
55.		Pant Chari 7	5	5	0
56.		Pant Chari 8	5	5	0
57.	DSR, Hyderabad	2077A	10	10	0
58.		2077B	5	5	0
59.		2219A	10	10	0
60.		2219B	5	5	0
61.		CS 3541	5	5	0
62.		296A	10	10	0
63.		296B	5	5	0
64.		RS 29	5	5	0
65.		27A	10	10	0



66.		27B	5	5	0
67.		C 43	5	10	5(+)
68.		RS 673	5	5	0
69.		CSV 14R	5	5	0
70.		CSV 15	15	15	0
71.		CSV 20 (SPV 1616)	15	20	5(+)
72.		ICSA 38	10	10	0
73.		ICSB 38	5	5	0
74.		SSV 84	10	10	0
75.		MS 7A	10	10	0
76.		MS 7B	5	5	0
77.		RS 627	5	5	0
78.	DSR, Hyderabad	CSV 27	10	15	5(+)
79.		CSV 24SS	5	5	0
80.		415 A	5	5	0
81.		415 B	5	5	0
82.		CB 33	5	5	0
83.		279 A	5	5	0
84.		279B	5	5	0
85.		CB 11	5	5	0
86.	ANGRAU, Hyderabad	SPV 462	10	10	0
87.		NTJ 2	10	10	0
88.		Kinnera	5	5	0
89.	ICRISAT, Patancheru	MR 750	3	3	0
90.		ICSV 745	3	3	0
91.		CSV 13	6	6	0
92.		ICSA 38	10	10	0
93.		ICSB 38	5	5	0
94.	RARS, Bijapur	M 35-1	30	30	0
95.		CSV 29R (SPV 2033)	20	20	0
96.	CRS, Solapur	104A	5	5	0
97.		104B	5	5	0
98.		RS 585	5	5	0
99.		CSV 26	15	15	0
100.	UAS, Dharwad	M 148-138	5	5	0
101.		AKMS 14A	10	10	0
102.		AKMS 14B	5	5	0
103.		AKR 150	5	5	0
104.		SSV 74	10	10	0
105.		DSV 4	15	15	0
106.		DSV 6	5	5	0
<b>Total</b>			<b>1032</b>	<b>1047</b>	<b>15(+)</b>

**Table 4: Certified, labeled, foundation and breeder and seed target and achievements under participatory seed production programme of ICAR Seed Project**

S.No.	Varieties	Quantity ( <i>quintals</i> )
1.	CSV 15	130
2.	CSV 17	82
3.	CSV 20	25
4.	SPV 21F	12
5.	CSV 23	300
6.	CSV 24SS	2
7.	Phule Suchitra	10
8.	Pusa Chari 615	9
9.	MP Cahri	15
10.	UPMC 503	2
11.	AKR 150	13
12.	CSH 14	40
13.	CSH 16	70
14.	CSH 24MF	100
<b>Total</b>		<b>810</b>



Table 5: National (DAC) Indent for sorghum breeder seed production and BSP-I allocation for 2014-15

(www.seednet.gov.in)

S. No.	Location & season	Name of the Nodal officer	Name of the variety / parental line	DAC Indent	Quantities to be produced (quintals)-BSP I	Organization for whom seed is to be produced	Member of monitoring team
1	Dr. PDKV, Akola (Kharif)	Dr.RB Gharode Sr. Sorghum Breeder	AKMS 14A	0.26	0.30	TN(0.12)Mah(0.10), Kar(0.04),	Dr.RB Ghorade, PDKV, Akola, * Dr Usha Saxena, AICSIP, Indore. Seed Cert.Officer,MSSCA, Akola. Regional Manager,NSC, Akola
			14B	0.09	0.10	Mah(0.07),Kar(0.02)	
			AKR 150	0.09	0.10	Mah(0.07),Kar(0.02),	
			PKV Kranti	0.20	0.30	Mah(0.20)	
2	MAU, Parbhani (Kharif)	Dr. Methre Sr. Sorghum Breeder	CSV 18	0.20	0.25	Mah(0.20)	Dr. Mehtre, MAU, Parbhani. *Dr. Prabahakar, CRS, Solapur Seed Cert.Officer,MSSCA, Akola. Regional Manager,NSC, Akola
			Parbhani Moti	3.99	4.00	Mah(3.94), NSC (0.05)	
			Parbhani Sweta	1.40	1.50	Mah(1.50)	
3	JNKVV, Indore (Kharif)	Dr Usha Saxena / Dr Kataria / Dr Thakur Sr. Sorghum Breeder	MP Chari	6.45	6.50	DADH(6.00), NSC(0.20), SFCI(0.25)	Dr Usha Saxena, AICSIP, Indore. *DR. BR Ranwah, MPUA&T, Udaipur Seed Cert.Officer,MPSSCA. Regional Manager,NSC, Indore
			Bundela	0.04	0.10	UP(0.04)	
4	MPUA&T, Udaipur (Kharif)	DR. BR Ranwa Sr. Sorghum Breeder	Pratp Chari 1080	3.00	3.00	Raj(1.00), SAI(2.00)	DR. BR Ranwah MPUA&T, Udaipur *Dr VP Nagaich,CRF, Mauranipur. Seed Cert.Officer,RSSCA, Jaipur. Regional Manager, NSC, Karasthan
			Pratap Jawar 1430	0.02	0.05	UP(0.02)	
			CSV 17	5.03	5.10	Raj(5.00), UP(0.03)	
			CSV 23	5.30	2.50	Raj(5.00), SFCI(0.25), UP(0.05)	
5	DSR, Hyderabad (Rabi)	Dr.VA Tonapi, Principal Scientist	296A	0.65	0.75	Mah(0.65)	Dr. VA Tonapi, DSR, Hyderabad, Dr Umakanth, DSR, Hyd ICAR Nominee Seed Cert. Officer, APSSCA, Hyd Regional Manager, NSC, Secunderabd
			296B	0.42	0.50	Mah(0.42)	
			CS 3541	0.75	1.00	Mah(0.75)	
			C 43	0.20	0.50	Mah(0.20)	
			CSV 15	5.03	5.10	Raj(5.00),UP(0.03)	
			CSV 20	5.59	6.00	Raj(5.00), JH(0.50), TN(0.09)	
			CSV 24SS	0.05	0.10	SAI(0.05)	
			CSV 26	0.05	0.10	SAI(0.05)	
			CSV 27	0.10	0.10	NSC(0.10)	
			38 A	1.00	1.00	NDDB(0.50)	
			38 B	0.25	0.25	NDDB(0.25)	
			SSV 84	0.25	0.25	NDDB(0.25)	
6	ANGRAU, Madhira/Hyderabad (Kharif)	Dr. Naidu Director (Seeds). ANGRAU	Kinnerea	1.00	1.00	AP(1.00)	Dr. Naidu Reddy, Director (Seeds). ANGRAU, Dr. VA Tonapi, DSR, Hyderabad Seed Cert. Officer, APSSCA, Hyd Regional Manager, NSC, Secunderabd
7	RARS, Bijapur (Rabi)	Dr. BD Birdar Sr. Sorghum Breeder	M 35-1	11.92	12.00	AP(2.00), Kar (0.52), Mah(6.20), NSC(0.20), SAI(3.00)	Dr. BD Birdar, RARS,Bijapur *Dr. SR Gadakh, MPKV, Rahuri. Seed Cert. Officer, KSSCA, Bangalore Regional Manager, NSC, Bangalore
8	IARI, New Delhi (Kharif)	Dr. Lather Principal Scientist	Pusa Chari 6	0.50	0.50	NDDB(0.50)	Dr. Lather, IARI, New Delhi Dr. Pahuja, CCS&HAU, Hisar Seed Cert.Officer,New Delhi. Regional Manager,NSC, New Delhi
			Pusa Chari 9	5.00	5.00	DADH(5.00)	
			Pusa Chari 23	10.00	10.00	DADH(10.00)	
9	GBPU&AT, Pantnagar (Kharif)	Dr. PK Shrotria Sr. Sorghum Breeder	467 A	3.50	3.50	NDDB (2.50),NSC(0.80), SFCI (0.20)	Dr. PK Shrotria, GBPUA&T, Pantnagar *Dr. SK Pahuja, Hisar; Seed Cert. Officer, Uttaranchal seed corporation, Pantnagar; Regional Manager, NSC, Pantnagar
			467 B	1.50	1.50	NDDB (1.00),NSC(0.25), SFCI (0.25)	
			2219A	0.04		JH(0.04)	
			2219 B	0.02		JH(0.02)	
			UPMC 503	2.52	2.60	NDDB (2.00), JH(0.02), NSC(0.25), SFCI (0.25)	
Pant Chari 5	1.00	1.00	NDDB(0.50),SFCI(0.50)				



10	CCS&HAU, Hisar (Kharif)	Dr. Pahuja, Sr. Sorghum Breeder	Haryana Jawar 513	3.50	3.50	NDDDB(3.00),SFCI(0.50)	Dr. S K Pahuja, Sorghum Breeder, Hisar, *Dr. PK Shrotria, GBPUA&T, Pantnagar Seed Cert. Officer, Haryana seed corporation; Regional Manager, NSC, Hisar	
11	PAU, Ludhiana (Kharif)	Dr. R K Bajaj, Forages and Millets section Incharge	Punjab Sudex Chari-1	2077A	1.00	1.00	NSC(1.00)	Dr. R K Bajaj, Forages and Millets section Incharge, PAU, Ludhiana * Dr. Pahuja, Sorghum Breeder, Hisar Seed Cert. Officer, Punjab seed corporation; Regional Manager, NSC, Ludhiana
				2077B	0.50	0.50	NSC(0.50)	
				SGL 87	0.50	0.50	NSC(0.50)	
12	ICRISAT, Patnacheru (Rabi)	Dr Srinivas, Sorghum Breeder	CSV 13	0.04	0.10	UP (0.04)	DrSrinivas, Sorghum Breeder, ICRISAT Dr. VA Tonapi, DSR, Hyderabad Seed Cert. Officer, APSSCA, Hyd Regional Manager, NSC, Secunderabd	
13	MPKV, Rahuri (Rabi)	Dr. SR Gadakh Sr. Sorghum Breeder	Phule Panchami	0.05	0.05	SAI(0.05)	Dr. SR Gadakh, MPKV, Rahuri. *Dr. Prabahakar, CRS, Solapur. Seed Cert. Officer, MSSCA, Pune. Regional Manager, NSC, Pune	
			Phule Revati	2.75	3.00	Mah(2.70),SAI(0.05)		
			Phule Anuradha	0.35	0.35	Mah(0.35)		
			Phule Chitra	2.64	2.75	Mah(2.60),SAI(0.04)		
			Vasudha	1.90	2.00	Mah(1.90)		
14	TNAU, Coimbatore (Kharif)	Head Dept. Millets	CO(FS) 29	3.25	3.25	DADH(3.00), SFCI(0.25)	Head ,Dept of millets. TNAU, Coimbatore; * Dr Bhaskaran, Special Officer (Seed )TNAU, Seed Certification Officer, TSSCA, Chennai/Coimbatore; Regional Manager, NSC, Chennai	

\* Representing Project coordinator (Sorghum)

Table 6: Center wise allocation for nucleus seed production (kg) of sorghum during 2014-15

S. No.	Centre	Parental line / variety	Allocation
1.	MPKV, Rahuri	RSV 9R/ Swathi	10
2.		Selection 3	5
3.		CSV 216R	10
4.		CSV 19SS	15
5.		SSV 84	15
6.		CSV 22	15
7.		Phule Revati	15
8.		Phule Anuradha	15
9.		Phule Vasudha	15
10.		Phule Chitra	15
11.		Phule Panchami	10
12.	PDKV, Akola	AKMS 14A	25
13.		AKMS 14B	15
14.		AKR 150	15
15.		AKR 73	10
16.		R 354	10
17.		AK 70A	10
18.		AK 70B	5
19.		296A	10
20.		296B	5
21.		CS 3541	10
22.		AKSV 13R	10
23.	MAU, Parbhani	PVK 400	5
24.		2077A	10
25.		2077B	5
26.		2219A	15
27.		2219B	10
28.		CSV 18	5
29.		PMS 28 A	15
30.		PMS 28 B	10
31.		C-43	10
32.		Parbhani Moti	15
33.		Parbhani Swetha	15
34.	JNKVV, Indore	IMS 9A	15
35.		IMS 9B	15
36.		Indore 12	15
37.		M.P.Chari	50
38.		CSV 13	10
39.		CSV 15	10
40.		Bundela	5



41.	MAUA&T, Udaipur	AKMS 14A	10
42.		AKMS 14B	5
43.		AKR 150	5
44.		CSV 10	5
45.		CSV 15	10
46.		CSV 17	10
47.		SU 556 (SPV 1430)	5
48.		CSV 23	20
49.		Pratap Chari 1080	10
50.	GBPUA&T, Pantnagar	2219A	10
51.		2219B	5
52.		UPMC 503 (PC 6)	20
53.		ICS467A	10
54.		ICS467B	5
55.		Pant Chari 7	5
56.	Pant Chari 8	5	
57.	DSR, Hyderabad	2077A	10
58.		2077B	5
59.		2219A	10
60.		2219B	5
61.		CS 3541	5
62.		296A	10
63.		296B	5
64.		RS 29	5
65.		27A	10
66.		27B	5
67.		C 43	5
68.		RS 673	5
69.		CSV 14R	5
70.		CSV 15	15
71.		CSV 20 (SPV 1616)	15
72.		ICSA 38	10
73.		ICSB 38	5
74.	SSV 84	10	
75.	MS 7A	10	
76.	MS 7B	5	
77.	RS 627	5	
78.	DSR, Hyderabad	CSV 27	10
79.		CSV 24SS	5
80.		415 A	5
81.		415 B	5
82.		CB 33	5
83.		279 A	5
84.		279B	5
85.	CB 11	5	
86.	ANGRAU, Hyderabad	SPV 462	10
87.		NTJ 2	10
88.	Kinnera	5	
89.	ICRISAT, Patancheru	MR 750	3
90.		ICSV 745	3
91.		CSV 13	6
92.		ICSA 38	10
93.	ICSB 38	5	
94.	RARS, Bijapur	M 35-1	30
95.		CSV 29R (SPV 2033)	20
96.	CRS, Solapur	104A	5
97.		104B	5
98.		RS 585	5
99.	CSV 26	15	
100.	UAS, Dharwad	M 148-138	5
101.		AKMS 14A	10
102.		AKMS 14B	5
103.		AKR 150	5
104.		SSV 74	10
105.		DSV 4	15
106.	DSV 6	5	





#### 4. Distinctness uniformity and stability (DUS) testing

##### Technical progress

Maintenance breeding was undertaken for a total of 55 reference and example varieties (varieties/parental lines/hybrids) during *rabi* 2013-14 season under enforced selfing/controlled pollination.

##### Candidate varieties under DUS testing

###### a. *Kharif* 2013: 1<sup>st</sup> year testing

New (9)	KSR 6173, KSR 6171, KSR 6178, NR 486, KSMS 220, KSMS 283, KSMS 217, KSMS 213, 463 B
VCK (7)	SONA-NSH 27, IMS 9B, NS 444R, NS 203R, NS 509A, RS 627, PSV 2
Ref. var. (17)	C 43, Indore 12, RS 29, AKMS 14A, 27A, 296B, 2077B, 7B, AKMS 14B, CSH 18, CSH 9, CSH 16, CSV 14R, 296A, RS 673, CSV 15, JJ 1041

###### b. *Kharif* 2013: 2<sup>nd</sup> year testing

New (7)	KSMS 263, KSMS 241, MIJ 008, 463A, KSR 6176, MIJ 010, DGJ 014
Ref. var. (9)	27A, AKMS 14A, 296A, C 43, Indore 12, CS 3541, AKR 150, CSH 9, CSH 14

###### c. *Rabi* 2013-14: 1<sup>st</sup> year testing

New (3)	KSR 6313, KSR 6310, Aparna (NSRR 676)
VCK (1)	NTJ 4
Ref. var. (6)	M 35-1, CSV 216R, RS 585, AKR 354, CSV 14R, CSV 18R

###### d. *Rabi* 2013-14: 2<sup>nd</sup> year

New (5)	Suvarna (NSRR-259), KSMS 234, KSMS 237, NRJ-01, NRJ-02
Ref. var. (6)	M 35-1, Phule Maulee, CSV 14R, 27A, AKMS 14A, 296A

##### Reference and example varieties under maintenance breeding

Crop species	Source of varieties	Name of varieties (55)
<i>Sorghum bicolor</i>	ICAR & State Agricultural Universities	27A, 27B, C 43, 7A, 7B, RS 627, AKMS 14A, AKMS 14B, AKR 150, 296A, 296B, CS 3541, IMS 9A, IMS 9B, Indore 12, 104A, 104B, RS 585, 2219A, 2219B, 2077A, 2077B, ICSA 38, SSV 84, RS 29, CSV 15, PVK 400, CSV 14R, CSV 216R, GFS 4, M 35-1, Parbhani Dagadi, GFS 5, JJ 1022, Phule Maulee, Pant Chari 5, Surat 1, CSV 13, CSV 17, CSV 19 SS, DSV 5, Gwalior Local, JJ 1041, JJ 741, Man T1, MR 750, Pant Chari 3, Pant Chari 4, Pant Chari 6, Pusa Chari 23, PVR 453, RS 673, Selection 3, SPV 462, UP Chari 2

##### Date of monitoring of DUS testing, and brief comments / recommendations

The *kharif* DUS testing trials conducted at DSR were monitored by the Monitoring Team under the Chairmanship of Dr. RC Sharma, Former Dean, College of Horticulture, University of Horticulture & Forestry, Nauni, Solan on 1<sup>st</sup> October 2013. The *rabi* DUS testing trials were monitored on 7<sup>th</sup> February 2014 under the Chairmanship of Dr. JV Patil, Director, DSR. The following were some of the observations and suggestions/recommendations.

##### *Kharif* 2013

- The layout and maintenance of the trials is very good and as per the PPV&FRA sorghum DUS test guidelines.
- The trials were sown on right time, as per the recommended sowing time for the region. Plant stand was slightly affected in some plots due to heavy infestation of shootfly and incessant rainfall during the initial crop growth.
- The crop growth and expression of morphological characters were good in most of the candidate varieties.
- Proper care has been taken to conduct the trials by following recommended package of practices and fields are maintained weed free.
- The data are recorded as per the DUS test guidelines and data sheets are being maintained properly. All the data till physiological maturity stage have been recorded and up-to-date.



- f. The Nodal officer has selected appropriate reference varieties for some of the candidate varieties based on grouping characters.
- g. The crop is in physiological maturity stage.
- h. In some of the candidate varieties like KSR 6171 (1), KSR 6178 (2), KSMS 283 (1), NS 509A (1), RS 627 (1), PSV 2 (1), SONA-NSH 27 (1) (All 1<sup>st</sup> year entries); DGJ 014 (1), MIJ 008 (1), 463A (1) and MIJ 010 (1) (2<sup>nd</sup> year entries) there was slight difference in the observed and claimed traits. The same was conveyed to the respective representatives who have agreed with the observation of the monitoring committee.
- i. In case of KSMS 6178, the expression was poor and entry was not looking like the parental line.
- j. In case of NS 444R and NS 203R, which are *kharif* adapted, CSV 14R - a rabi adapted type has been claimed as a reference variety which is not appropriate, and the same was conveyed to the representative of the varieties.

**Rabi 2013-14**

- a. The layout of the trials is good and as per the PPV&FRA sorghum DUS test guidelines.
- b. The trials were sown on right time, as per the recommended sowing time for the region. Plant stand was slightly affected in some entries due to cycloning weather conditions prevailed during October last week and mid-Novemeb, incessant rainfall and heavy infestation of shootfly during the initial crop growth.
- c. The overall crop growth and expression of morphological characters, especially height and flowering were affected in most of the candidate varieties due to seasonal effect.
- d. Proper care has been taken to conduct the trials by following recommended package of practices and fields are maintained weed free.
- e. The data are recorded as per the DUS test guidelines and data sheets are being maintained. All the data till physiological maturity stage have been recorded and up-to-date. The crop is in late flowering/soft dough stage.
- f. Appropriate reference varieties based on grouping characters of candidate varieties have been selected by the Nodal officer.
- g. In some of the candidate varieties like Aparna (2), KSR 6313 (5), KSR 6310 (4), KSMS 237 (1), NRJ 01 (1) and NRJ 02 (1) there was slight difference in the observed and claimed traits, and the same has been noted in the proformae.
- h. In case of NTJ 4 the expression was very poor as it might be adapted to kharif/late kharif season, and hence has to be grown in correct season only.
- i. In case of KSR 6313 and KSR 6310 many traits have been claimed by the applicant. It has to be restricted to only limited traits and PPV&FRA has to take care of this.
- j. In NRJ-01 and NRJ-02 panicle shape was not uniform throughout the plot and both Symmetric and Broader in Lower Part states were observed. In the final data majority state may be reported. Applicant has to submit genetically pure seeds to the PPV&FRA for testing.
- k. In case of Suvarna (NSRR-259) the panicle shape claimed is long while there is no such state for panicle shape (Chr#22). The observation is Panicle broader in lower part.
- l. A research paper may be written using data of reference varieties which have been grown repeatedly and stability may be worked out.

**Status of applications filed/submitted to PPV&FRA for variety registration and certificates issued**

No. of varieties notified by the center Since 1999	No. of applications filed			Certificates issued	Pending applications	Reasons for pendency
	<i>Extant</i>	<i>New</i>	<i>VCK</i>			
51	41	27	32	35	65	Under DUS test - 25 PVJ O3 issued - 3 Pending - 1 Appln closed - 7 Not known - 29