Sorghum nucleus, breeder seed production, IPR & distinctiveness uniformity & stability (DUS)

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with concerned BSP scientists at 10 SAUs

Contents

Executive summary

During 2011-12, 156.75 q breeder seed was produced against the BSP-I allocation of 112.60 q. A total of 824 kg nucleus seed was produced against the allocation of 657 kg.

The centre-wise allocation for nucleus seed production and tentative allocation for breeder seed production has been made for 2012 – 13 seed production in centres across 15 AICSIP locations.

DUS testing of ten candidate varieties for first year, fifteen candidate varieties for second year during kharif 2011; and seven candidate varieties for first year in rabi 2011-12 was completed and kharif 2011 data is submitted to PPV&FRA, New Delhi.

Farmer participatory seed production was taken up to multiply new varieties (CSV 20, CSV 22, SPV 462, CSH 16, CSH 25, CSV 18, C 43, Phule Revati, Phule Vasidha, Phule Anuradha & Phule Yashoda) for popularization, licensing and commercializing.

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A. Sorghum seed production

1. Breeder seed production during 2011-12

The total breeder seed production during 2011-12 by AICSIP centers and DSR, Hyderabad was 156.75 q, which is 44.15 q (13.92%) more than DAC indent (112.60 q). There was surplus production of breeder seed for most of the allocated lines and varieties of sorghum at all AICSIP centers in Kharif and Rabi seasons during 2011-12. There was a minor shortfall in the production for CSV 23 (1.95 (-) q) at Udaipur. For DSR, Hyderabad, the total allocation as per BSP-I was 24.50 q against which production of 47.60 q target was achieved. The details of total and centre-wise breeder seed production during 2011-12 are given in Table 1 and table 2 respectively.

2. Nucleus seed production during 2011-12

The nucleus seed was produced as per the targets by most of the centers and at DSR Hyderabad. The expected nucleus seed production across centers was highly satisfactory. A total of 676 kg nucleus seed is expected to be produced against an indent of 657 kg (Table 3). At DSR, Hyderabad alone, 245 kg nucleus seed is expected to be produced against an indent of 657 kg.

B. Distinctness uniformity and stability (DUS) testing

1. Technical Progress

i) No. of sorghum varieties under maintenance breeding

S. No	Crop species	Source of varieties	Name of the varieties (114)
1.	*Sorghum bicolor*	ICAR & SAU'S	104 B, 2077 B,2219 B,27 B, 296 B, 7 B,AKMS 14 B, AKR 150,AKR 354, AKR 73, AKSV 13 R, APK1, BP 53, BSR 1, C43, CO 26, CO.S.28,CS 3541, CSH 13, CSH 14, CSH 15 R, CSH 16, CSH 17, CSH 18, CSH 169 R, CSH 20 MF, CSH 23, CSH 9, CSV 10, CSV 13,CSV 14 R, CSV 15, CSV 17, CSV 18, CSV 19 SS, CSV 216 R, DSH 3, DSV 1, DSV 2, DSV 4, DSV 5, DSV 6, GFS 4, GFS 5, GJ 35,GJ 36, GJ 37, GJ 38, GJ 39, GJ 40, GJ 41, GJ 9, HC 136,HC 171, HC 260, HC 308,HJ 513, ICS 70 B, ICSR 89058, ICSV 745, IMS 9 B , Indore 12, JJ 1022, JJ 1041, JJ 741, JJ 938,K-8, M35-1(Bijapur), M 35-1(Mahol), Mant1, MR 750, NSV 13, NTJ 4, Paiyur 1, Paiyur 2, Pant Chari 3, Pant Chari 4, Pant Chari 5, Pant Chari 6, Parbhani Dagadi, Phule Maulee, Phule Amrutha, Phule Uttara, Phule Vasudha, Phule Yasodha, PSB 3, PSB 9, PSR 23, PSR 34, PSV 1, PSV 2, PVK 400, PVK 801, PVK 809, PVR 453,RS 29, RS 5858, RS 673, RSSGV 3, Selection 3, SPH 840, SPV 1430, SPV 1616, SPV 462, SSG 59-3, SSV 74, SSV 84, Surat -1, SU 1080, Swathi, UP Chari 2, UPMC 503 (PC 6) (Total: 114 varieties)

ii) List of sorghum varieties under 1st year DUS test and 2nd year DUS test

Year/Season	New Variety	VCK	FV
2011–12 Kharif	Second Year Testing: KJH 6363, Phule Chitra, KSMS 233, CSH 24MF, DSV 6, CSV 24 SS, CSH 23, KSR 6203 (8)	BGS 801, PVK 809 (2)	Nil
	First Year Testing: HTGS 3201, DGJ 021, DGJ 018, DGJ 017, DGJ 015, DGJ 020, HJ 513, JKSH 434, JKSH 234, MRS 4094, MIJ 005, NJH 40(RATNA), DGJ 019, KSMS 263, KSR 6194 (15)	Nil	Nil
2011–12 Rabi	First Year Testing: RS 585, 104A, 104B, KSMS 234, KSMS 237, KSR 6192, KSR 6195 (7)	Nil	Nil

iii) Date of monitoring of DUS test & Name of Chairman and brief comments / recommendations

a) Kharif 2011:

Date of monitoring : 16th September, 2012
Chairman : Dr EA Siddique, Hyderabad

b) Rabi 2011-12:

Date of monitoring : 27th January, 2013
Chairman : Dr DM Hegde, Hyderabad

The monitoring team visited the rabi sorghum DUS testing plots at Directorate of Sorghum Research (DSR), Rajendranagar, Hyderabad on 27th January 2012. The following are the team's observations and recommendations.

1. The overall conduct of the testing in all the 7 candidate varieties was quite impressive as per the guidelines of the PPV&FR Authority
2. The committee found that the reference varieties used for comparison of the candidate varieties were appropriate
3. The expression of the rabi candidate varieties may be checked with the actual rabi locations at MPKV – Rahuri as the supplementary information for any final decisions on those varieties
4. Small plot trial on public and private candidate varieties may be constituted to observe the uniform traits in those varieties
5. Based on the available data on the reference varieties, the best suited reference variety may be identified and reported to the Plant Authority
6. All the grouping characters of the candidate varieties must be recorded irrespective of whether they are claimed characters or not
7. A note on the biotic & abiotic stresses observed in the candidate variety may be included in the report.

iv) Training cum awareness programme

a) Awareness cum Training Programme on PVP and DUS Testing" on 27th January 2012

Category of Participants	Number
M Sc Students	30
Senior Research Fellow	25
Ph.D Scholar	13
Scientist	15
Technical Assistant	6
Associate Professor	6
Research Associate	5
Assistant Professor	7
Technical Officers	5
Junior Research Fellow	3
Highly Skilled Assistant	2
IPR & PR Officers	3
	120

b) Training Programme on Plant Variety Protection & Commercialization on 21st March 2012

Category of Participants	Number
Private sector	20
M Sc Students	59
Senior Research Fellow	12
Ph.D Scholar	9
Scientist	4
Technical Assistant	2
Associate Professor	1
Research Associate	5
Assistant Professor	1
Technical Officers	2
Junior Research Fellow	2
Highly Skilled Assistant	3
	120

c) Important visitors and visit date to the DUS test facility
Dr RC Agarwal, Registrar General visited Sorghum DUS Testing field on 8th February 2012

C. Institute technology management unit (ITMU)

1. Proceeding of the First ITMU / ITMC Meeting held on 14th December 2011 at DSR

The DSRs Institute Technology Management Unit meeting was held on 14th December 2011 under the Chairmanship of Dr JV Patil, Director, DSR. The meeting was attended by Dr SK Soam, Principal Scientist and IPR Expert, NAARM and other member's viz., Dr S Audilakshmi, Principal Scientist, DSR (Technical Expert), Dr IK Das, Member Secretary - QRT and special invitees as Dr HS Talwar, Nodal Officer – PME Cell, Dr B Dayakar Rao, Principal Investigator – NAIP, Sreenivasa Bhat (AO) and K Sanath Kumar (FAO). The meeting was organized by Dr M Elangovan, Member Secretary and Nodal Officer (IPR). The following agendas were discussed and decision taken during the meeting

Agenda 1: Licensing and commercialization of new hybrids and parental lines
Sub-agenda 1.1: CSH 25 – Upfront fee (3 lakhs) or through Seed production MoA – NSC

- Rough cost of CSH 25 production to be estimated

Sub-agenda 1.2: New parental lines – Registration with Plant Authority before licensing to any companies

- Private seed companies are interested in both A & B lines
- These lines may be licensed after submitting the A & B line applications to the Plant Authority
- Food products to many companies
- Food products process may be protected through process patent
- Roti making machine may be protected under design act
- Licensing to companies for both machines and process
- Publication of sorghum food articles in the famous magazines viz., IRCTC, Air India, Swagath, etc for wider circulation in the country

Agenda 2: Annual loyalty – Difficult from the companies, one company ready to pay

- Letter to all licensed companies to pay the annual royalty fees

Agenda 3: Germplasm/genetic stocks registration – AICSIP centres need to do more

- Proposed to hold separate session on IPR and Plant Variety Protection during the Sorghum Annual Group Meetings

Agenda 4: Documentation of DUS characterization of all advanced lines

- Included as agenda for Sorghum Annual Group Meeting

Agenda 5: Seed price – To be fixed for 2012-13 based on the demand

- DSR should assures the quality of seed production to the private partners and motivate them to enter into licensing
- Consultancy charges towards private sector field visit to be charged
- Royalty on the licensed product will be charged after the eighth year
- Average of approximate cost of hybrid production + NSCs sale price may be fixed for the hybrid sale
- A & R lines may be supplied to private companies first to test them in their fields and supply B line while licensing

Agenda 6: Institute - Patent application (two novel technologies)

- One application filled during 2010. The concerned scientist needs to follow it up

Agenda 7: Scientists – Publication (two in high impact journals)

- DSR has wealthy publications during the year 2011 – 12. It has 84 publications already (upto December 2011), In which 15 are International Journals

Agenda 8: Extant notified varieties – to be submitted to the Plant Authority

- All the extant notified varieties of DSR have been applied for registration with the PPV&FRA.

Agenda 9: Genetic resources – registration with NBPGR

- As per decision 9

Agenda 10: Notional budget – 3-5% of the total budget for maintenance of IPRs, regulatory / commercialization requirements

- The XII Plan document preparation committee has already added notional budget of 3-5% to the total budget.

Agenda 11: Discussion on IARI adopted Model MoU for licensing

- Good model to adopt by the DSR

Other points discussed during the meeting and decisions taken

- DSR has very good contribution to the management of IPR. A new webpage with all the DSRs ITMU activities viz, MoAs, MoUs, pdf versions of jowar food products, Jowar Rath, Exhibitions, photos and video clippings may be appended with the www.sorghum.res.in
- Society awareness to be created with eye catching slogans
- Similar to *Brittania* and ITC collaborative models, *Bikaner* and *Haldhiram* may also be involved in the collaboration
- Product specific varietal development will be developed at DSR to cater the needs of the product
- DSR will hold the right of the product and process for the collaboration beyond five years
- Licensing of sorghum varieties and hybrids and Jowar based Product Price Fixing Committee will be formed to decide about the pricing. The committee members are as follows

At the end, the members felt very happy on the progress of IPR, varietal protection and commercialization activities at DSR. The sorghum varieties and jowar product price fixing committee will meet during January 2012 to fix the prices.

2. Proceeding of the Second ITMU / ITMC Meeting held on 17th January 2012 at DSR

The DSRs Institute Technology Management Unit meeting was held on 17th January 2012 under the Chairmanship of Dr S Audilakshmi, Principal Scientist, DSR. The meeting was attended by Dr SK Soam, Principal Scientist and IPR Expert, NAARM and other member's viz., Dr B Dayakar Rao, Principal Investigator – NAIP, Dr Yogeshwara Rao (Private Sector – Vicky's Seeds), Dr PK Shotria, OIC, AICSIP – Pantnagar (Technical Expert) Sreenivasa Bhat (AO) and K Sanath Kumar (FAO). The meeting was organized by Dr M Elangovan, Member Secretary and Nodal Officer (IPR). The following agendas were discussed and decision taken during the meeting. The following are the proposed Licensing fees for sorghum parental lines, varieties and hybrids and Jowar based Product by the Price Fixing Committee on 17th January 2012.

1. Gene / promoter:
    - Rs 7 lakhs as license fee (50% in the first year and 50% in the first and second year of marketing)
    - Annual royalty up to 7% on the net sale (Net sale price = MRP – Sale discount) of commercialized product
    - Variable royalty percentages can be fixed depending on market demand, nature of the product and end-users' ability to pay.
2. Transgenic seed material:
    - T3/ T4 stage - Rs 7 lakhs plus 7.5% on the sale of commercialized product
    - The licensing institute will hold intellectual property rights on the licensed gene
3. Custom made-parental line/ Non-transgenic/ hybrid
    - Rs 5 lakhs as license fee / product development fee
    - Under mutually agreed terms and conditions
4. Finished commercial parental lines /hybrids
    - Rs 3 lakhs for A line + 3% annual royalty
    - Rs 5 lakhs for A + B line + 3% annual royalty
5. Trait specific genetic stock / advanced genetic stocks / inbred / varieties:
    - 1 to 5 lakhs depending on value of crop commodities and trait categories
    - Trait-wise list and price may be made separately

6. Segregating progeny:
    - Onetime payment Rs 1.5 to 3.5 lakhs per segregating progeny
    - From F2 to F6 generation
    - Prior Informed Concern (PIC) required for each usage
7. Crop based consortia:
    - Annual fees to usher-in public private partnerships
    - Range of annual fees from 0.50 to 3.0 lakhs based on crop, trait and market specifics
    - Based on the consortium models available, new model for DSR may be developed and proposed
8. Nationally released varieties should retain their original nomenclature as per ICAR guidelines on IPR
    - The CSV or CSH numbers assigned to the material should not be changed by the licensee
9. In all the finished products the intellectual property of material will belong to licensing organization
    - IPR on the material supplied will belong to licensing organization
10. Other issues discussed and recommended
    - Seed production should be done at the appropriate seed production sites
    - A separate business proposal for all the sorghum based products may be developed
    - The shelf life of the product value may be identified
    - The process technology of the product development should be furnished with all the details
    - Supply chain fluctuations need to be addressed
    - The ITMU committees fixed price should be considered as minimum price for future agreements and licensing

D. Other issues

1. Refund of revolving fund under single window system (SWS)

- The Directorate of Sorghum Research (formerly NRC for Sorghum) Hyderabad was sanctioned two revolving funds:

Receipts

- An amount of Rs. 50,000/- (Rupees fifty thousand only) as first revolving fund was sanctioned under "NSP II" vide council's letter No. 22(4)/88-FC dated 27-10-1988.
- An amount of Rs. 10,00,000/- (Rupees ten lakhs only) as second revolving fund was sanctioned as revolving fund under "Hybrid Project" as per the council's letter N. 1(6)/89/FC-II/Seed dated 8-12-1989.
- Hence, DSR, Hyderabad in total has received only Rs. 10,50,000/- (Rupees ten lakhs fifty thousand only) as revolving fund and not Rs. 13,50,000/- (Rupees thirteen lakhs fifty thousand).

Refunds

- We have remitted back to the council entire amount of Rs. 10,50,000/- (Rupees ten lakhs fifty thousand) between 2000-2003 as detailed below. Therefore, we don't have anything pending on the issue of remitting back of revolving fund to the Council.

S.No	Year	DD No.	Date	Amount (Rs.)	DSR Letter No.
1	1999-2000	652571	24-03-2000	2,00,000	AT/8(9)/89-90/1690 dt. 25-4-2000
		297670	31-03-2000	10,000	
2	2000-2001	652685	20-11-2000	2,10,000	AT/8(9)/89-90/6034 dt. 22-11-2000
3	2001-2002	293443	13-12-2001	10,000	AT/8(9)/89-90/1453 dt. 20-12-2001
		652800	13-12-2001	2,00,000	
4	2002-2003	657027	03-10-2002	2,00,000	AT/3(11)/2002-03/1774 dt. 8-10-2002
		501448	03-10-2002	10,000	
5	2003-2004	653292	29-07-2003	2,10,000	AT/3(11)/2003-04/592 dt. 31-7-2003
Total revolving fund remitted back to Council				10,50,000	
Balance outstanding with DSR (NRCS) is Nil					

2. Test stock seed multiplication

The test stock of prominent sorghum hybrids and varieties (CSV 15, CSV 20, CSV 22, SPV 462, CSH 16 and CSH 25) have been multiplied in large quantities and are part of the seed rolling plan. The popularization is carried through large scale FLDs, and also through licensing and commercialization as per IP guidelines of ICAR for IP protection and commercialization.

3. Farmer's participation in sorghum seed production

All Breeder, foundation, certified and truthfully labeled seed is produced in farmers' field in Andhra Pradesh because land and water and isolations are the limiting factors at our experimental stations. However, from this year, we have involved both public and private sector seed producers in this endeavor. In view of the isolation requirements, we are producing the certified and foundation seeds of CSH 16, CSH 23, CSV 15, CSV 20, CSV 17, M 35-1 in farmers fields under strict quality control of DSR scientists and officials from Andhra Pradesh/Karnataka seed certification agencies. The seed productions of the following lines are being taken as per schedule in 9 villages with a cluster of 16 farmers organizing the seed production. Following seed was produced during rabi 2010-11 by DSR:

4. Sorghum seed production under ICAR Mega seed project at DSR during 2011-12

S.No.	Varieties	Quantity (Kgs)
1	CSV 20	940
2	CSV 22	1890
3	SPV 462	2500
4	CSH 16	1500
5	CSH 25	1000
6	CSV 18	500

S.No.	Varieties	Quantity (Kgs)
7	C 43	2500
8	Phule Revati	600
9	Phule Vasudha	600
10	Phule Anuradha	600
11	Phule Yashodha	600

Table 1: Centre-wise sorghum breeder seed production (quintals) during 2011-12

S. No.	Location & Season	Name of the Nodal Officer	Name of the variety / parental line	Quantities to be produced (q)	Organization for whom seed is to be produced (DAC indent)	Actual Production (q)	Production surplus (+) deficit (-) over BSP-I targets
1	Dr. PDKV, Akola	Dr. RB Ghorade, Sr. Sorghum Breeder	AKMS 14A	0.50	KK(0.1)MH(0.2)	Plot sown in semi rabi. Yet to be harvested.	
			14B	0.50	KK(0.05)MH(0.15)	Plot sown in semi rabi. Yet to be harvested.	
			AKR 150	0.50	KK(0.06)MH(0.1)	0.85	0.35(+)
2	MAU, Parbhani	Dr. Ambekar Sr. Sorghum Breeder	CSV 18	1.00	MH (0.5)	5.00	4.00(+)
			Parbhani moti	2.00	MH (1.0)	5.00	3.00(+)
			Parbhani Swetha (PVK 801)	7.00	MH (5.22)	10.00	3.00(+)
3	IARI, New Delhi	Nodal officer-BSP IARI-New Delhi	Pusa chari 6	2.00	UP(1.08)	6.40	4.40(+)
			Pusa chari 9	1.00	UP (0.36)	6.70	5.70(+)
			Pusa chari 23	12.00	DADH(0.75)UP (0.36)	13.97	1.97(+)
			Pusa chari 615	1.00	SAI (0.6)	0.74	0.26(-)
4	JNKVV, Indore	Dr NS Thakur Sr. Sorghum Breeder	IMS 9A	1.00	NSC(0.04)	Seed production fail due to heavy rains	
			9B	0.50	NSC(0.01)	Seed production fail due to heavy rains	
			Indore 12	0.50	NSC(0.01	0.30	0.20(-)
			JJ 938	1.00	UP(0.6)	1.00	-
			JJ 1041	3.00	MP(2.6)	JJ 1041 was allotted Sehore centre by DRS, RVSKVV, Gwalior	
			MP chari	2.00	NSC(1.1)UP(0.36)DADH(1.00)	Not sown (Nucleus seed was not available)	
5	CRF, Mauranipur	Nodal officer Sr. Sorghum Breeder	CSV 13	2.00	UP(0.6)	2.91	0.91(+)
			Bundela	2.50	UP(1.00), MP(0.1)	10.28	7.78(+)
6	MPUA&T, Udaipur	Nodal officer Sr. Sorghum Breeder	CSV 17	3.00	RJ(2.0)	6.15	3.15(+)
			SU556 (SPV 1430)	5.00	RJ(3.0)	8.00	3.00(+)
			CSV 23	7.00	RJ(5.0)	5.05	1.95(-)
7	Directorate of Sorghum Research, Hyderabad	Dr.Vilas A Tonapi/ M Elangovan Principal/ Senior Scientist	296A	6.50	SAI(1.0)MH (3.0)NSC(0.09)SAI(00.4)	10.00	3.50(+)
			296B	3	MH (1.0)NSC(0.02)	4.00	1.00(+)
			27A	2	MH (1.0)KK(0.06)	5.00	3.00(+)
			27B	1	KK(0.06)	2.00	1.00(+)
			ICSA 38A	0.5	NSC (0.03)	5.00	4.5(+)
			ICSA 38B	0.25	-	0.50	0.25(+)

S. No.	Location & Season	Name of the Nodal Officer	Name of the variety / parental line	Quantities to be produced (q)	Organization for whom seed is to be produced (DAC indent)	Actual Production (q)	Production surplus (+) deficit (-) over BSP-I targets
			7A	0.5	NSC (0.03)	2.00	1.5(+)
			7B	0.25	-	0.10	0.15(-)
			CS 3541	0.5	MH (1.00)	1.00	0.5(+)
			RS 627	0.5	NSC(0.01)	2.00	1.50(+)
			C 43	1	KK (0.03)	2.00	1.00(+)
			SSV 84	0.5	NSC(0.01)	2.00	1.50(+)
			CSV 20	3	NSC(0.03), RJ (2.0), SFCI (0.20)	5.00	2.00(+)
			CSV 15	5	NDDB (1.25)	7.00	2.00(+)
8	GBPUA&T Pantnagar	Dr. PK Shrotria Sr. Sorghum Breeder	2219A*	*0.20*	-	-	
			2219 B*	*0.10*	-	-	
			ICSA 467*	*0.20*	-	-	
			ICSB 467*	*0.10*	-	-	
			UPMC 503/ Pant Chari 6	*4.00*	NDDB (1.0)SAI (0.6)	3.00	1.00(-)
			Pant Chari 5	*3.00*	NDDB(1.25)	3.00	-
	CCS&HAU Hisar	Dr. SK Pahuja AICSIP I/C	HC 308	1	NDDB(0.25)	1.00	-
			HC 171	1	DADH (0.5)	1.10	0.10(+)
			HC 136	1	NDDB (0.25)	1.00	-
			HJ 513	1	NDDB (0.25),SAI (0.6)	1.00	-
10	RARS, Bijapur	Dr. BD Birdar Sr. Sorghum Breeder	M 35-1	7.00	MH(4.0)NSC(0.15),AP(0.2)	7.00	-
11	CRS, Solapur	Dr. Prabhakar Prin. Scientist	104A	2.00	NSC (0.09)	1.00	1.00(-)
			104 B	0.50	NSC(0.01)	1.00	0.50(+)
12	MPKV, Rahuri	Dr. SR Gadakh Sr. Sorghum Breeder	Vasudha	7.00	SAI (5.0)	7.00	-
13	TNAU, Coimbatore	Dr. Vijay Kumar, Sorghum Breeder	SPV 462	1.00	AP (0.1)	0.70	0.30(-)
14	Navsari Agricultural University, Athwa farm, Surat	Dr BD Jadav AICSIP I/C	GFS 4	1.00	NSC(0.6)		
15	PAU, Ludhiana	Nodal officer Sr Sorghum Breeder	Punjab Sudex Chari 1	3	NSC (2.0)		

Table 2: Center wise nucleus seed production (kg) of sorghum during 2010-11

(Quantities in kg)

S. No.	Centre	Parental line / variety	Allocation	Actual Production	Surplus (+) / deficit (-) over production
1.	MPKV, Rahuri	RSV 9R/SPV 504 / Swathi	10	10	0
2.		Selection 3	5	5	0
3.		CSV 216R/Phule Yashoda	10	10	0
4.		CSV 19SS (RSSV 9)	15	15	0
5.		SSV 84	15	15	0
6.	PDKV, Akola	AKMS 14A	25	29	4 (+)
7.		AKMS 14B	15	21	6(+)
8.		AKR 150	15	17	2(+)
9.		AKR 73	10	16	6(+)
10.		R 354	10	14	4(+)
11.		AK 70A	10	12	2(+)
12.		AK 70B	5	8	3(+)
13.		296A	10	12	2(+)
14.		296B	5	6	1(+)
15.		CS 3541	10	11	1(+)
16.	MAU, Parbhani	PVK 400	5	5	0
17.		2077A	10	-	10(-)
18.		2077B	5	-	5(-)

19.		2219A	15	-	15(-)
20.		2219B	10	-	10(-)
21.		CSV 18 (SPV 1595)	5	10	5(+)
22.		PMS 28 A	15	20	5(+)
23.		PMS 28 B	10	15	5(+)
24.	JNKVV, Indore	IMS 9A	5		
25.		IMS 9B	5		
26.		Indore 12	5		
27.	CRF, Mauranipur	CSV 13	10	10	0
28.		CSV 15	10	14	4(+)
29.		Bundele	5	20	15(+)
30.	MAUA&T, Udaipur	AKMS 14A	10	10	0
31.		AKMS 14B	5	5	0
32.		AKR 150	5	Nil	
33.		CSV 10	5	5	0
34.		CSV 15	10	10	0
35.		CSV 17	10	10	0
36.		SU 556 (SPV 1430)	5	5	0
37.	GBPUA&T,	2219A	10	20	10(+)
38.	Pantnagar	2219B	5	15	10(+)
39.		UPMC 503	10	25	15(+)
40.		ICS467A	10	15	5(+)
41.		ICS467B	5	10	5(+)
42.		Pant Chari 6	10	35	25(+)
43.	DSR, Hyderabad	2077A	10	15	5(+)
44.		2077B	5	10	5(+)
45.		2219A	10	15	5(+)
46.		2219B	5	10	5(+)
47.		CS 3541	5	10	5(+)
48.		296A	10	15	5(+)
49.		296B	5	10	5(+)
50.		RS 29	5	10	5(+)
51.		27A	10	15	5(+)
52.		27B	5	10	5(+)
53.		C 43	5	10	5(+)
54.		RS 673	10	15	5(+)
55.		CSV 14R	5	-	5(-)
56.		CSV 15	15	20	5(+)
57.		CSV 20 (SPV 1616)	10	15	5(+)
58.		ICSA 38	10	10	0(+)
59.		ICSB 38	5	5	0(+)
60.		SSV 84	10	15	5(+)
61.		MS 7A	10	15	5(+)
62.		MS 7B	5	10	5(+)
63.		RS 627	5	10	5(+)
64.	ANGRAU,	SPV 462	10	22	12(+)
65.	Hyderabad	NTJ 2	10	40	30(+)
66.	ICRISAT,	MR 750	3	3	0
67.	Patancheru	ICSV 745	3	3	0
68.		CSV 13	6	6	0
69.	RARS, Bijapur	M 35-1	30		
70.	CRS, Solapur	104A	5	5	0
71.		104B	5	5	0
72.		RS 585	5	5	0
73.	UAS, Dharwad	M 148-138	5	-	-
74.		AKMS 14A	10	-	Summer sown, yet to be harvested.
75.		AKMS 14B	5	-	
76.		AKR 150	5	-	
77.		SSV 74	10	-	

Table 3: Allocation of sorghum BSP based on DAC indent of 2012-13

(www.seednet.gov.in/2012)

S No.	Location & Season	Name of the Nodal Officer	Name of the variety / parental line	Quantities to be Produced (quintals)	Organization for whom seed is to be produced	Member of monitoring team
1	CCS&HAU, Hisar	Dr. SK Pahuja AICSIP I/C	Haryana Chari 308	1.00	NDDB (1.00)	Dr.Pahuja AICSIP I/C Seed Cert. Officer, Haryana seed corporation; Regional Manager, NSC, Hissar
2	CCS&HAU, Hisar	Dr. SK Pahuja AICSIP I/C	Haryana Jowar 513 (S-513)	2.75	NDDB (1.25), SAI (1.00), SFCI (0.50)	
3	CCS&HAU, Hisar	Dr. SK Pahuja AICSIP I/C	Punjab Sudex Chari 1	3.00	NSC (3.00)	
4	CRF, Mauranipur	Senior Sorghum Breeder, AICSIP	Bundela	3.10	MP (0.10), UP (3.00)	Senior Sorghum Breeder, AICSIP, CRF; Dr.Ranwa, RAU, Udaipur; Seed Cert.Officer,UPSSCA; Regional Manager, NSC, UP
5	Dr. PDKV, Akola	Dr.RB Gharode Sr. Sorghum Breeder	AKMS 14A	0.32	KK (0.12), MH (0.20)	Dr.RB Gharode, PDKV, Akola; Dr Upadhyay, AICSIP, Indore; Seed Cert.Officer, MSSCA, Akola. Regional Manager,NSC, Akola
6	Dr. PDKV, Akola	Dr.RB Gharode Sr. Sorghum Breeder	AKMS 14B	0.20	KK (0.08), MH (0.12)	
7	Dr. PDKV, Akola	Dr.RB Gharode Sr. Sorghum Breeder	AKR 150	0.09	KK (0.09)	
8	Dr. PDKV, Akola	Dr.RB Gharode Sr. Sorghum Breeder	AKSV-13R (PKV Kranti)	0.20	MH (0.20)	
9	Dr. PDKV, Akola	Dr.RB Gharode Sr. Sorghum Breeder	SPH-468 (AKSH-14-150)	0.12	MH (0.12)	
10	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	27A	0.05	MH (0.05)	Dr M Elangovan, Senior Scientist; Dr AV Umakanth, Senior Scientist; Seed Certification Officer, APSSDC; NSC, Secunderabad
11	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	27B	0.03	MH (0.03)	
12	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	296A	1.95	MH (1.90), SAI (0.05)	
13	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	296B	1.23	MH (1.20), SAI (0.03)	
14	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	C 43	0.53	MH (0.53)	
15	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	CS 3541	0.75	MH (0.75)	
16	DSR, Hyderabad	Regional Manager,NSC, Indore	CSV 15	8.60	MP (0.10), RJ (2.50), UP (6.00)	
17	DSR, Hyderabad	Dr M Elangovan, Senior Scientist	CSV 20	4.29	RJ (2.50), SFCI (0.50), TN (0.09), UP (1.20)	
18	GBPUA&T, Pantnagar	Dr. PK Shrotria, Senior Sorghum Breeder, AICSIP	CSH 20MF	0.25	SFCI (0.25)	Dr. PK Shrotria,, GBPUA&T, Pantnagar; Dr. SK Pahuja, Hissar; Seed Cert. Officer, Uttaranchal seed corporation, Pantnagar; Regional Manager, NSC, Pantnagar
19	GBPUA&T, Pantnagar	Dr. PK Shrotria, Senior Sorghum Breeder, AICSIP	CSH 24 MF	0.50	SFCI (0.50)	Dr. PK Shrotria,, GBPUA&T, Pantnagar; Dr. SK Pahuja, Hissar; Seed Cert. Officer, Uttaranchal seed corporation, Pantnagar; Regional Manager, NSC, Pantnagar
20	GBPUA&T, Pantnagar	Dr. PK Shrotria, Senior Sorghum Breeder, AICSIP	Pant Chari 4	0.50	SFCI (0.50)	
21	GBPUA&T, Pantnagar	Dr. PK Shrotria, Senior Sorghum Breeder, AICSIP	Pant Chari 5	1.50	NDDB (1.00), SFCI (0.50)	
22	GBPUA&T, Pantnagar	Dr. PK Shrotria, Senior Sorghum Breeder, AICSIP	Pant Chari 6	3.45	NDDB (1.45), SAI (2.00)	
23	GBPUA&T, Pantnagar	Dr. PK Shrotria, Senior Sorghum Breeder, AICSIP	Pusa Chari 6	110.00	UP (110.00)	
24	IARI, New Delhi	Nodal officer-BSP, IARI, New Delhi	Pusa Chari 23	37.00	UP (37.00)	Nodal officer-IARI BSP unit; Seed certification officer, Regional manager-NSC,New Delhi
25	IARI, New Delhi	Nodal officer-BSP, IARI, New Delhi	Pusa Chari 615	1.00	SAI (1.00)	

S No.	Location & Season	Name of the Nodal Officer	Name of the variety / parental line	Quantities to be Produced (quintals)	Organization for whom seed is to be produced	Member of monitoring team
26	IARI, New Delhi	Nodal officer-BSP, IARI, New Delhi	Pusa Chari 9	37.00	UP (37.00)	
27	ICRISAT, Patancheru	Sorghum Breeder, ICRISAT, Patancheru	CSV 13	0.60	UP (0.60)	Sorghum Breeder, ICRISAT; Seed Certification Officer, APSSDC; NSC, Secunderabad
28	MAU, Parbhani	Senior Sorghum Breeder, AICSIP	CSV 18	0.50	MH (0.50)	Senior Sorghum Breeders, MAU, Parbhani, Dr. Prabahakar, CRS, Solapur; Seed Cert.Officer,MSSCA, Akola; Regional Manager,NSC, Akola
29	MAU, Parbhani	Senior Sorghum Breeder, AICSIP	M 35-1	20.32	AP (2.00), MH (14.32), NSC (1.00), SAI (3.00)	
30	MAU, Parbhani	Senior Sorghum Breeder, AICSIP	Parbhani Sweta	0.15	MH (0.15)	
31	MAU, Parbhani	Senior Sorghum Breeder, AICSIP	Prabhani Moti	7.45	MH (5.45), SAI (2.00)	
32	MPKV, Rahuri	Dr. SR Gadakh Sr. Sorghum Breeder	CSV 216R	3.00	MH (2.00), SFCI(1.00)	Dr. SR Gadakh Sr. Sorghum Breeder; Dr. Prabahakar, CRS, Solapur; Seed Cert.Officer,MSSCA,Pune; Regional Manager,NSC, Pune
33	MPKV, Rahuri	Dr. SR Gadakh Sr. Sorghum Breeder	Phule Chitra	0.40	MH (0.40)	
34	MPKV, Rahuri	Dr. SR Gadakh Sr. Sorghum Breeder	Phule Maulee	1.00	MH (1.00)	
35	MPKV, Rahuri	Dr. SR Gadakh Sr. Sorghum Breeder	Phule Vasudha	2.52	MH (2.52)	
36	MPKV, Rahuri	Dr. SR Gadakh Sr. Sorghum Breeder	SPV 1626	0.08	MP (0.08)	Dr. SR Gadakh Sr. Sorghum Breeder; Dr. Prabahakar, CRS, Solapur; Seed Cert.Officer,MSSCA,Pune; Regional Manager,NSC, Pune
37	MPUA&T, Udaipur	Dr BR. Ranwah, Senior Sorghum Breeder	CSV 17	0.60	UP (0.60)	Dr BR. Ranwah, Senior Sorghum Breeder, AICSIP, Udaipur, Dr SK Jain, Sorghu,m Breeder, AICSIP, Deesa; Seed Certification Officer, RSSDA; Regional Manager, NSC
38	MPUA&T, Udaipur	Dr BR. Ranwah, Senior Sorghum Breeder	CSV 23	5.50	AP (2.00), MP (0.10), RJ (2.50), UP (0.90)	
39	NAU, Surat	Senior Sorghum Breeder, AICSIP	Gujarat Fodder Sorghum (GFS)	1.10	NSC (0.60), SFCI (0.50)	Senior Sorghum Breeder, NAU, AICSIP, Surat; Dr SK Jain, Sorghum Breeder, AICSIP, Deesa; Seed Certification Officer, GSSDA; Regional Manager, NSC
40	RSKVV, Indore	Senior Sorghum Breeder, AICSIP	Jawahar Jowar 1041	2.60	MP (2.60)	
41	RSKVV, Indore	Senior Sorghum Breeder, AICSIP	Jawahar Jowar 938	0.60	MP (0.60)	
42	RSKVV, Indore	Senior Sorghum Breeder, AICSIP	MP Chari	39.10	NSC (1.10), UP (38.00)	
43	TNAU, Coimbatore	Dr. Vijay Kumar, Sorghum Breeder	CO(FS) 29	0.25	SFCI (0.25)	Dr. Vijay kumar, TNAU, Coimbatore; Dr Ganesamurthy, TNAU , Coimbatore' Seed Cert. Officer, TSSCA, Chennai/Coimbatore; Regional Manager, NSC, Chennai
44			Kinnerea (MJ-278)	2.00	AP (2.00)	
45			Pratap Chari 1080	3.00	RJ (1.00), SAI (2.00)	
46			Varsha	0.60	UP (0.60)	