

Breeding - Grain sorghum - Rabi 2011-12

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Executive summary

During 2011, two types of experiments were conducted. One was multi-location yield trials of the finished products like varieties and hybrids, and the second was development of test hybrids from pooled MS and R lines from various centers and evaluating the test hybrids in multi-location. The major results are given below.

I. Multi-location yield trials: Rabi 2011-12

1. *Advanced Varietal and Hybrid Trial-I (Deep soil)*: In this combined trial of varieties and hybrids, 5 varieties and 4 hybrids along with 4 checks were evaluated for grain and fodder yields and other agronomic traits. Four hybrids (SPH-1689, SPH-1690, SPH-1663, and SPH-1666) and 3 varieties (SPV-2033, SPV-2034, and SPV-2035) were superior to the checks, CSH-15R and CSV-22, respectively, for both grain and fodder yields.

2. *Advanced Varietal and Hybrid Trial-II (Shallow soil)*: Thirteen genotypes including hybrid and variety checks were evaluated in this trial. The hybrid, SPH-1665 was superior to the check, CSH-15R by 17.4% for grain yield. The variety, SPV-2029 was significantly superior to the check, Mauli giving an increase of 38.0% of fodder yield. Other varieties, SPV-2048, SPV-2034, and SPV-2084 were superior to the check, Mauli by 29.8%, 8.0% and 4.8%, respectively, for fodder yield.

3. *Initial Varietal and Hybrid Trial-III (Deep soil)*: The hybrid, SPH-1721 and varieties, SPV2144 and SPV-2139 were superior for grain and fodder yields than the check, CSH-15R and CSV-22, respectively. The varieties, SPV-2142, SPV-2144, SPV-2149, SPV-2150, and SPV-2151 were bold seeded than the check, CSV-22.

4. *Initial Varietal and Hybrid Trial-IV (Shallow soil)*: SPV 2155 showed numerical superiority over the check, Mauli for grain yield. None of the varieties was better than the check, Phule Anuradha. The varieties, SPV-2159, SPV-2154, SPV-2157, and SPV-2158 were superior for fodder yield to the check, Mauli by 18.6%, 15.5%, 7.4% and 5.5%, respectively.

5. *Parental line trial*: A combined parental line trial consisting of 27 parents (A/B lines and R lines) was conducted at Nandyal and Parbhani. There was good synchronization in parental lines (A/B and A/R lines). The high yielding CMS lines and R lines were AKRM 66-2A, 456A, I 27, AKR-492, AKR-456, AKR-504, RR-06-1, RS-585, UPMC-503, CB-134, CB-147, AVU-1, AVU-2 and AVU-3.

II. Rabi sorghum breeding research under team efforts

a) *Development of new hybrids by pooling A and R lines available in the project:* The parental lines (14 nos. CMS lines and 20 nos. R lines) pooled from rabi centers and DSR were crossed to develop 69 experimental hybrids. New hybrids will be tested across locations during Rabi 2012-13.

b) *Evaluation of newly developed experimental hybrids under team efforts:* A total of 40 experimental hybrids developed during 2010-11 were evaluated in 2 trials at 3 locations (Solapur, Bijapur and Rahuri). In EHT-I, six new hybrids and in EHT-II, seven new hybrids were superior in grain yield than the check, CSH-15R.

Detailed report

During 2011, two types of experiments were conducted. One was multi-location yield trials with the end products like varieties and hybrids, and the second was basic and strategic research by pooling MS and R lines from various centers and evaluating the test hybrids in multi-locations.

- I. Multi-location yield trials: Rabi 2011-12
- II. Rabi sorghum breeding research under team efforts

The major results are reported below.

I. Multi-location yield trials: Rabi 2011-12

During the year 2011-12, the following 5 multi-location yields trials were conducted across locations.

1. Advanced Varietal and Hybrid Trial-I (Deep soil)
2. Advanced Varietal and Hybrid Trial-II (Shallow soil)
3. Initial Varietal and Hybrid Trial-III (Deep soil)
4. Initial Varietal and Hybrid Trial-IV (Shallow soil)
5. Parental line trial

1. Advanced Varietal and Hybrid Trial-I (Deep soil)

In this combined trial of varieties and hybrids, 5 varieties and 4 hybrids along with 4 checks were evaluated for grain and fodder yields and other agronomic traits (Table 1).

- Days to flowering – The varieties and hybrids ranged for flowering from 68 to 74 days. The variety, SPV-2049 (114 d) was on par with the check, CSV-22 (114 d) for maturity.
- Plant height – The range of plant height of varieties and hybrids was from 183 to 203 cm.
- Grain Yield – The hybrids, SPH-1689 (3178 kg/ha), SPH-1690 (3105 kg/ha) and SPH-1663 (3082 kg/ha) were superior to the check, CSH-15R (3005 kg/ha) by 5.7%, 3.3% and 2.6%, respectively. Three varieties (SPV-2033, SPV-2034, SPV-2035) exhibited more than 5.0% grain yield than the check, CSV-22 (2780 kg/ha).
- Fodder yield: The hybrid, SPH-1690 (7181 kg/ha) was significantly superior to the check, CSH-15R (6275 kg/ha) exhibiting 14.5% more fodder yield. Three hybrids, SPH-1666 (6804 kg/ha), SPH-1663 (6723 kg/ha), and SPH-1689 (6538 kg/ha) were superior to the check, CSH-15R by 8.4%, 7.1% and 4.2%, respectively. Among varieties, SPV-2035 (6882 kg/ha), SPV-2034 (6667 kg/ha), and SPV-2104 (6578 kg/ha) were significantly superior to the check, CSV-22 (5822 kg/ha), giving in increase of 18.2%, 14.5% and 12.9%, respectively.
- Grain size – The hybrid, SPH-1689 (3.12 g) and variety, SPV-2104 (3.29 g) were superior to M35-1 (3.03 g) and check, CSV-22 (3.08 g).

Remarks – All the 4 hybrids (SPH-1689, SPH-1690, SPH-1663, and SPH-1666) and 3 varieties (SPV-2033, SPV-2034, and SPV-2035) were superior to the checks, CSH-15R and CSV-22, respectively, for both grain and fodder yields.

2. Advanced Varietal and Hybrid Trial-II (Shallow soil)

In this combined trial of varieties and hybrids, 5 varieties and one hybrid along with 5 checks were evaluated for grain and fodder yields and other agronomic traits (Table 2).

- Days to flowering – The varieties and hybrid ranged for flowering from 67 to 81 days. None of the varieties and hybrid was earlier to the checks, Maui (115 d) and Phule Anuradha (112 d).
- Plant height – The range of plant height of varieties and hybrid was from 125 to 164 cm.
- Grain Yield – The hybrid, SPH-1665 (856 kg/ha) was superior to the check, CSH-15R (729 kg/ha) by 17.4%. None of the varieties was superior to the checks, Maui and Phule Anuradha.
- Fodder yield: Among varieties, SPV-2029 (4106 kg/ha) was significantly superior to the check, Maui (2975 kg/ha), giving an increase of 38.0% yield. Other varieties, SPV-2048 (3862 kg/ha), SPV-2034 (3214 kg/ha), and SPV-2084 (3117 kg/ha) were superior to the check, Maui (2975 kg/ha) by 29.8%, 8.0% and 4.8%, respectively.
- Grain size – The variety, SPV-2084 (3.16 g) was better in grain size than the check, M 35-1 (3.11 g).

Remarks – The hybrid, SPH-1665 was superior to the check, CSH-15R by 17.4% for grain yield. The variety, SPV-2029 was significantly superior to the check, Maui giving an increase of 38.0% of fodder yield. Other varieties, SPV-2048, SPV-2034, and SPV-2084 were superior to the check, Maui by 29.8%, 8.0% and 4.8%, respectively, for fodder yield.

3. Initial Varietal and Hybrid Trial-III (Deep soil)

In this combined trial of varieties and hybrids, 15 varieties and 2 hybrids along with 3 checks were evaluated for agronomic traits (Table 3).

- Days to flowering – The flowering in varieties and hybrids ranged from 66 to 78 days.
- Plant height – The range of plant height of varieties and hybrids was from 2166 to 221 cm.
- Grain yield: The hybrid, SPH-1721 (2937 kg/ha) gave 10.2% more grain yield than the check, CSH-15R (2665 kg/ha). The varieties, SPV2144 (3053 kg/ha), SPV-2139 (3005 kg/ha), SPV-2143 (2977 kg/ha), SPV-2152 (2927 kg/ha), and SPV-2140 (2852 kg/ha) were superior to the check, CSV-22 (2705 kg/ha) by 12.9%, 11.1%, 10.0%, 8.2% and 5.4%, respectively.
- Fodder yield: The hybrids, SPH-1720 (6521 kg/ha), and SPH-1721 (6187 kg/ha) were better than the check, CSH-15R (5618 kg/ha). Three varieties SPV-2144 (8432 kg/ha), SPV-2150 (8390 kg/ha), and SPV-2145 (8279 kg/ha) were significantly superior to the check, CSV-22 (6792 kg/ha) and gave more yield of 24.1%, 23.5% and 21.9%, respectively. Other varieties which gave more than 10% fodder yield than the check, CSV-22 were SPV-2142 (19.0%), SPV-2149 (16.5%), SPV- 2151 (11.4%), and SPV-2139 (10.6%).
- Grain size – The varieties, SPV-2142 (3.25 g), SPV-2144 (3.22 g), SPV-2149 (3.20 g), SPV-2150 (3.22 g), and SPV-2151 (3.19 g) were bolder than the check, CSV-22 (2.91 g).

Remarks –The hybrid, SPH-1721 and varieties, SPV2144 and SPV-2139 were superior for grain and fodder yields than the checks, CSH-15R and CSV-22, respectively. The varieties, SPV-2142, SPV-2144, SPV-2149, SPV-2150, and SPV-2151 were bold seeded than the check, CSV-22.

4. Initial Varietal and Hybrid Trial-IV (Shallow soil)

In this combined trial of varieties and hybrids, 10 varieties along with 5 checks were evaluated for agronomic traits (Table 4).

- Days to flowering – The varieties and hybrid ranged for flowering from 67 to 82 days.
- Plant height – The range of plant height of varieties and hybrids was from 114 to 157 cm.
- Grain yield: SPV 2155 showed numerical superiority over check, Maui.
- Fodder yield: The varieties SPV-2159 (4682 kg/ha), SPV-2154 (4558 kg/ha), SPV-2157 (4240 kg/ha), and SPV-2158 (4163 kg/ha) were superior to the check, Maui (3947 kg/ha) by 18.6%, 15.5%, 7.4% and 5.5%, respectively.
- Grain size – The variety, SPV-2162 (3.06 g) was bolder than the checks.

Remarks – SPV 2155 showed numerical superiority over the check, Mauli for grain yield. None of the varieties was better than the check, Phule Anuradha. The varieties, SPV-2159, SPV-2154, SPV-2157, and SPV-2158 were superior for fodder yield to the check, Mauli by 18.6%, 15.5%, 7.4% and 5.5%, respectively.

5. Parental line trial

A combined parental line trial consisting of 27 parents (A/B lines and R lines) was conducted at Nandyal and Parbhani (Table 5). There was good synchronization in parental lines (A/B and A/R lines). The high yielding CMS lines and R lines were AKRM 66-2A, 456A, I 27, AKR-492, AKR-456, AKR-504, RR-06-1, RS-585, UPMC-503, CB-134, CB-147, AVU-1, AVU-2 and AVU-3.

Table 1: Performance of hybrids & varieties in All India AVHT - Deep Soil: Rabi 2011-12

S. No	Entry	Centre	GY	R	% over check*	FY	R	% over check*	DTF	R	DTM	R	PH	R	GW	R
1	SPH 1663	Solapur	3082	4	2.7	6723	5	7.1	73	6	118	6	203	1	2.92	11
2	SPH 1666	Devgen	3050	5	1.5	6804	4	8.4	70	9	116	8	183	13	2.84	13
3	SPV 2033	Bijapur	3114	2	12.0	6187	11	6.3	69	11	115	11	188	10	2.89	12
4	SPV 2034	Bijapur	3022	6	8.7	6667	6	14.5	73	5	118	5	195	5	2.97	9
5	SPV 2035	Bijapur	2952	8	6.2	6882	3	18.2	74	2	119	3	195	6	2.98	8
6	SPV 2049	Rahuri	2863	11	2.9	5818	13	0.0	68	13	114	13	192	7	2.96	10
7	SPH 1689	Solapur	3178	1	5.7	6538	8	4.2	69	10	116	9	188	8	3.12	3
8	SPH 1690	Solapur	3105	3	3.3	7181	1	14.5	74	4	118	4	200	2	3.00	6
9	SPV 2104	Rahuri	2827	12	1.7	6578	7	12.9	71	8	116	10	188	9	3.29	1
10	CSH 15R	Check	3005	7		6275	9		71	7	116	7	197	4	3.00	7
11	CSV 22	Check	2780	13		5822	12		68	12	114	12	184	12	3.08	4
12	M 35-1	Check	2904	10		6209	10		75	1	120	1	199	3	3.03	5
13	Local Chk	Check	2927	9		7158	2		74	3	119	2	185	11	3.17	2
	LOC. MEAN		2985			6526			71		117		192		3.02	
	C.D. (5%)		374			679			2		2		7		0.21	
	C.D. (1%)		494			897			2		3		9		0.28	
	C.V. (%)		14.12			13.42			3.06		1.49		4.81		7.54	
	F (Probability)		0.62			0.00			0.00		0.00		0.00		0.01	

Note: R - Ranking; GY - Grain yield (kg/ha); FY - Fodder yield (kg/ha); DTF - Days to flowering; DTM - Days to maturity; PH - Plant height (cm); GW - 100 Grain weight (g) Local check varied from location to location. *Percent over CSV-22 for varieties and CSH-15R for hybrids.

Table 2: Performance of hybrids & varieties in All India AVHT-Shallow Soil: Rabi 2011-12

S. No	Entry	Centre	GY	R	% over check	FY	R	% over check	DTF	R	DTM	R	PH	R	GW	R
1	SPH 1665	Rahuri	856	4	17.4	2882	8	-14.2	75	7	121	5	156	5	2.48	11
2	SPV 2029	Akola	742	7	-28.2	4106	1	38.0	81	1	125	1	162	2	2.91	6
3	SPV 2031	Akola	660	10	-36.2	2665	10	-10.4	77	5	120	6	125	11	2.49	10
4	SPV 2034	Bijapur	668	9	-35.4	3214	4	8.0	80	3	124	2	158	4	2.87	7
5	SPV 2048	Rahuri	782	6	-24.3	3862	2	29.8	80	2	124	3	164	1	2.99	3
6	SPV 2084	Nuziveedu	981	3	-5.1	3117	5	4.8	80	4	124	4	146	8	3.16	1
7	CSH 15R	Check	729	8		3360	3		70	9	116	9	142	9	2.83	9
8	Mauli	Check	1034	2		2975	7		70	10	115	10	158	3	2.95	5
9	M 35-1	Check	824	5		3027	6		75	6	120	7	149	6	3.11	2
10	Phule Anuradha	Check	1042	1		2307	11		67	11	112	11	147	7	2.97	4
11	Local check	Check	385	11		2844	9		73	8	118	8	139	10	2.85	8
	LOC. MEAN		791			3124			75		120		150		2.87	
	C.D. (5%)		324			893			5		6		15		0.30	
	C.D. (1%)		442			1203			7		8		20		0.41	
	C.V. (%)		24.02			19.80			5.02		3.29		7.94		7.31	
	F (Probability)		0.00			0.02			0.00		0.00		0.00		0.00	

Note: R - Ranking; GY - Grain yield (kg/ha); FY - Fodder yield (kg/ha); DTF - Days to flowering; DTM - Days to maturity; PH - Plant height (cm); GW - 100 Grain weight (g) Local check varied from location to location. *Percent over Mauli for varieties and CSH-15R for hybrids.

Table 3: Performance of hybrids & varieties in All India IVHT - Deep Soil: Rabi 2011-12

S. No	Entry	Centre	GY	R	% over check*	FY	R	% over check*	DTF	R	DTM	R	PH	R	GW	R
1	SPV 2138	Rahuri	2750	7	1.7	6426	15	-5.3	74	14	124	12	210	8	2.96	11
2	SPV 2139	Rahuri	3005	2	11.1	7515	7	10.6	75	12	123	14	221	1	2.86	18
3	SPV 2140	Rahuri	2852	6	5.4	7033	11	3.5	75	11	125	6	209	9	2.91	16
4	SPV 2141	Rahuri	2623	15	-3.0	6335	16	-6.7	75	9	124	13	202	12	2.94	12
5	SPV 2142	Parbhani	2683	11	-0.8	8084	4	19.0	78	1	128	1	213	6	3.25	1
6	SPV 2143	Parbhani	2977	3	10.0	7414	9	9.1	75	10	124	10	213	5	3.00	9
7	SPV 2144	Parbhani	3053	1	12.9	8432	1	24.1	75	7	124	11	197	15	3.22	2
8	SPV 2145	Akola	2465	18	-8.8	8279	3	21.9	73	16	121	16	207	10	2.77	19
9	SPV 2146	Akola	2674	13	-1.1	5431	19	-20.0	66	20	118	20	166	20	2.45	20
10	SPH 1720	Solapur	2676	12	0.0	6521	14	16.1	68	18	119	17	195	17	2.92	13
11	SPH 1721	Solapur	2937	4	10.2	6187	17	10.1	70	17	118	18	197	16	2.89	17
12	SPV 2149	Solapur	2514	16	-7.1	7915	5	16.5	76	6	124	9	213	7	3.20	4
13	SPV 2150	Solapur	2711	9	0.0	8390	2	23.5	77	2	124	7	193	18	3.22	3
14	SPV 2151	Bijapur	2484	17	-8.1	7564	6	11.4	73	15	121	15	198	14	3.19	5
15	SPV 2152	Bijapur	2927	5	8.2	6989	12	2.9	76	3	126	3	217	3	2.91	14
16	SPV 2153	Bijapur	2739	8	1.2	7036	10	3.6	76	4	125	4	205	11	3.04	8
17	SPV 2154	Bijapur	2129	20	-21.3	4802	20	-29.3	75	8	124	8	214	4	3.09	7
18	CSH 15R	Check	2665	14		5618	18		68	19	118	19	190	19	2.98	10
19	CSV 22	Check	2705	10		6792	13		76	5	125	5	220	2	2.91	15
20	Local Chk	Check	2455	19		7509	8		75	13	127	2	198	13	3.16	6
	LOC. MEAN		2701			7014			74		123		204		2.99	
	C.D. (5%)		388			1438			3		3		13		0.20	
	C.D. (1%)		512			1899			4		4		17		0.27	
	C.V. (%)		16.28			20.73			3.82		2.09		7.17		6.17	
	F (Probability)		0.00			0.00			0.00		0.00		0.00		0.00	

Note: R - Ranking; GY - Grain yield (kg/ha); FY - Fodder yield (kg/ha); DTF - Days to flowering; DTM - Days to maturity; PH - Plant height (cm); GW - 100 Grain weight (g) Local check varied from location to location. *Percent over CSV-22 for varieties and CSH-15R for hybrids.

Table 4: Performance of hybrids & varieties in All India IVHT - Shallow Soil: Rabi 2011-12

S. No	Entry	Centre	GY	R	% over check	FY	R	% over check	DTF	R	DTM	R	PH	R	GW	R
1	SPV 2154	Rahuri	619	10	-21.3	4558	2	15.5	78	3	122	3	153	3	2.55	13
2	SPV 2155	Rahuri	811	4	3.0	3779	10	-4.2	79	2	123	2	157	1	2.77	8
3	SPV 2156	Bijapur	703	7	-10.6	3983	6	0.9	75	8	119	8	152	4	2.85	6
4	SPV 2157	Bijapur	631	9	-19.8	4240	3	7.4	77	4	121	4	155	2	2.96	2
5	SPV 2158	Solapur	502	11	-36.2	4163	4	5.5	76	6	120	7	150	8	2.95	3
6	SPV 2159	Solapur	658	8	-16.4	4682	1	18.6	76	7	121	6	151	5	2.85	7
7	SPV 2160	Tandur	462	12	-41.3	1873	15	-52.5	67	15	110	15	114	15	2.19	15
8	SPV 2161	Tandur	405	13	-48.5	2026	14	-18.6	71	12	116	11	117	14	2.23	14
9	SPV 2162	Tandur	303	15	-61.5	4112	5	4.2	82	1	126	1	128	12	3.06	1
10	SPV 2163	Tandur	324	14	-58.8	2895	13	-26.6	76	5	121	5	121	13	2.74	11
11	CSH 15R	Check	847	3		3290	11		71	11	115	12	147	10	2.76	9
12	Maulee	Check	787	5		3947	7		70	13	115	13	150	9	2.61	12
13	M 35-1	Check	751	6		3888	8		74	10	119	10	151	6	2.90	4
14	Ph Anuradha	Check	874	1		3074	12		68	14	113	14	137	11	2.74	10
15	Local Chk	Check	859	2		3863	9		75	9	119	9	151	7	2.88	5
	LOC. MEAN		636			3625			74		119		142		2.74	
	C.D. (5%)		245			996			5		5		13		0.22	
	C.D. (1%)		331			1343			7		6		18		0.30	
	C.V. (%)		23.09			16.43			4.71		2.81		7.39		5.72	
	F (Probability)		0.00			0.00			0.00		0.00		0.00		0.00	

Note: R - Ranking; GY - Grain yield (kg/ha); FY - Fodder yield (kg/ha); DTF - Days to flowering; DTM - Days to maturity; PH - Plant height (cm); GW - 100 Grain weight (g) Local check varied from location to location. *Percent over Maulee for varieties and CSH-15R for hybrids.

Table 5: Performance of parental lines: Rabi 2011-12

S. No	Entry	Centre	GY	R	DTF	R	DTM	R	PH	R	GW	R
1	IMS 9A	Indore	2154	26	73	5	114	6	175	15	1.92	20
2	I 27	Indore	6912	7	71	12	113	13	151	20	2.69	13
3	AKMS 30A	Akola	3832	17	73	6	114	5	179	13	1.97	18
4	AKR 456	Akola	5866	11	72	7	111	19	160	19	1.62	26
5	AKR 492	Akola	8734	3	72	10	112	16	173	16	1.61	27
6	AKR 504	Akola	5094	14	71	17	111	20	202	11	1.77	23
7	1409 A	Rahuri	3502	20	67	21	112	17	178	14	1.96	19
8	1409 B	Rahuri	3045	22	71	14	114	8	168	18	1.77	24
9	RR 06-1	Rahuri	6811	8	74	1	112	15	306	2	2.68	14
10	AKRMS 66-2A	Akola	4156	16	71	13	116	2	150	22	3.26	4
11	20-6-4	Akola	6188	9	72	11	109	22	262	5	2.77	12
12	104 A	Solapur	4820	15	71	16	112	18	211	10	3.61	3
13	104 B	Solapur	3328	21	73	4	113	11	212	9	2.39	16
14	RS 585	Solapur	5530	12	71	15	112	15	290	3	2.79	11
15	UPMC 503	DSR	5895	10	69	20	109	23	309	1	1.72	25
16	3042 A	DSR	3597	19	72	9	115	4	74	26	2.89	8
17	3151 A	DSR	948	27	69	19	114	7	151	21	3.83	2
18	PC 23	DSR	2554	24	66	22	110	21	233	7	1.79	22
19	3060 A	DSR	2232	25	74	2	119	1	145	23	2.41	15
20	CB 144	DSR	3633	18	71	14	112	17	114	25	1.88	21
21	455 A	DSR	2967	23	71	14	113	9	190	12	3.10	5
22	CB 134	DSR	7064	6	71	14	113	12	171	17	2.91	7
23	456 A	DSR	5466	13	71	17	115	3	121	24	2.86	9
24	CB 147	DSR	7344	4	72	8	112	15	145	23	2.80	10
25	AVU 1	DSR	7344	5	73	3	113	10	228	8	2.33	17
26	AVU 2	DSR	12536	1	71	17	113	14	287	4	4.41	1
27	AVU 3	DSR	11079	2	70	18	112	16	234	6	2.93	6
	Loc. Mean		5283		71		113		193		2.54	
	C.D. (5%)		1920		7		5		16		0.70	
	C.D. (1%)		2559		9		7		22		0.93	
	C.V. (%)		22.19		4.67		2.31		5.18		16.7	
	F (Prob.)		0.00		0.91		0.37		0.00		0.00	

Note: R - Ranking; GY - Grain yield (kg/ha); DTF - Days to flowering; DTM - Days to maturity; PH - Plant height (cm); GW - 100 Grain weight (g). Net plot size : 1.35 sq.m.for Nandyal & Parbhani locations

II. Rabi sorghum breeding research under team efforts

a) Development of new hybrids by pooling A and R lines available in the project

The parental lines (14 CMS lines and 20 R lines) pooled from rabi centres and DSR formed the experimental material. Crossing block for the above parental lines was planted in 2 staggered sowings. A total of 21 crosses and 69 experimental hybrids have been made using 14 CMS lines and 20 R lines. New hybrids will be tested across locations in 2 trials during Rabi 2012-13.

b) Evaluation of newly developed experimental hybrids under team efforts

A total of 40 experimental hybrids were evaluated in 2 trials at 3 locations (Solapur, Bijapur and Rahuri). In EHT-I, six new hybrids (SLA-29 × SLR-17, SLA-19 × SLR-57, SLA-19 × SLR-67, SLA-19 × SLR-70, 104A × SLR-17, SLA-49 × RR- 9826) were superior to the check, CSH-15R for grain yield (Table 6). Whereas, in EHT-II, seven new hybrids (SLA-19 × SLR-72, SLA-9 × SLR-57, 104A × SLR-75, SLA-9 × SLR-70, SLA-19 × SLR-72, SLA-56 × SLR-72, SLA-56 × SLR-75) were superior in grain than the check, CSH-15R (Table 7).

Table 6: Performance of selected hybrids in EHT-I (Solapur and Rahuri)

S. No	Hybrids	Grain yield (kg/ha)	Fodder yield (kg/ha)	Days to 50% flowering	Days to Maturity	Plant height(cm)
1	SLA-29 × SLR-17	2482	5498	75	127	182
2	CSH 15 R	2286	5635	72	121	199
3	SLA-9 × SLR-72	2292	6327	72	126	224
4	SLA-12 × SLR-70	2188	6586	74	126	228
5	SLA-19 × SLR-57	2336	5968	74	129	212
6	CSV 22	2306	5926	76	123	230
7	SLA-19 × SLR-67	2407	6105	74	129	232
8	SLA-19 × SLR-70	2365	6284	74	124	211
9	104A × SLR-17	2417	6071	73	124	194
10	SLA-49 × RR- 9826	2306	6215	74	126	180
11	CSV 216 R	2380	6247	76	132	233
	C.V. %	19.6	20.3			
	C.D at 5%	193	301			

Table 7: Performance of selected hybrids (Solapur and Bijapur)

S. No	Hybrids	Grain yield (kg/ha)	Fodder yield (kg/ha)	Days to 50% flowering	Days to Maturity	Plant height(cm)
1	CSV216R	2203	5904	77	122	226
2	104A × SLR-75	2035	5078	71	116	225
3	SLA-9 × SLR-57	2104	5206	72	115	215
4	CSH15R	1927	4820	70	115	210
5	SLA-9 × SLR-70	2201	5582	74	117	232
6	SLA-19 × SLR-72	2304	5679	73	116	237
7	104A × RSLG-897	1987	4982	75	118	241
8	SLA-56 × SLR-72	2065	5126	76	119	206
9	SLA-56 × SLR-75	2185	5642	77	123	199
10	CSV22	2119	4852	72	116	220
	C.V. %	17.5	16.2			
	C.D at 5%	182	279			