

## SHORT COMMUNICATIONS

## GAAG-1 : A HIGH YIELDING VARIETY OF ANJAN GRASS FOR PASTURE LANDS OF GUJARAT

H. P. PARMAR, M. R. SAIYAD AND P. M. PATEL

Main Forage Research Station  
 Anand Agricultural University,  
 Anand-388 110 (Gujarat), India  
 (e-mail : [sforageanand@gmail.com](mailto:sforageanand@gmail.com))

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## SUMMARY

An improved Anjan grass (*Cenchrus ciliaris* Linn.) variety GAAG-1 (Gujarat Anand Anjan Grass-1) has been developed at Main Forage Research Station, Anand Agricultural University, Anand (Gujarat) based on mean performance of multi location test centers of the project. The variety GAAG-1 recorded higher green forage yield (214.5 q/ha/year) and dry matter yield (72.0 q/ha/year) which were 44.9 and 51.9 per cent higher than the National Check variety CAZRI-75 (GFY 148.0 q/ha/year and DMY 47.4 q/ha/year, respectively). For quality point of view, it was also better than National Check CAZRI-75. Anti nutritional parameters viz., oxalates and nitrates were below than safer limit. This variety GAAG-1 was recommended for cultivation in pasture lands of Gujarat state during the year 2011.

**Key words :** Anjan grass, variety GAAG-1, green forage yield, dry matter yield

In Gujarat, 8.52 lakh hectares area is under permanent pastures, grazing lands, miscellaneous tree crops and groves. Anjan grass is a erect, tufted perennial grass, native to Africa, India and Indonesia. It has proven its ability to thrive and yield well under climatologically adverse conditions, it is especially tolerant to the droughts commonly present in Kutchh region. Since long there was no any variety released for Anjan grass in Gujarat state.

Anjan grass (*Cenchrus ciliaris* Linn.) is very similar to *C. setigerus* in appearance, habit and performance. This grass (2n=36) is a cross pollinated perennial forage crop. It is a tufted perennial grass in arid and semi-arid areas characterized by severe drought, high temperature, low rainfall and sandy soil. It is an excellent grazing perennial, suited to pasture and range lands. It is not very aggressive. Its high soil binding capacity is due to its clustered root system in the upper 8 to 10 cm layer

TABLE 1  
Yield performance

Variety	Av. green forage yield (q/ha/year)	Av. dry matter yield (q/ha/year)	% Increase of check	
			Green forage yield	Dry matter yield
A. Anand : Middle Gujarat Zone-II				
GAAG-1	272.8	97.3	55.5	59.5
CAZRI-75 (C)	175.4	61.0		
B. Sardar Krushinagar : North Gujarat				
GAAG-1	165.0	53.6	11.7	20.4
CAZRI-75 (C)	147.7	44.5		
C. Dhari : North Saurashtra-VI				
GAAG-1	55.5	23.0	42.3	62.0
CAZRI-75 (C)	39.0	14.0		
D. Av. over locations				
GAAG-1	214.5	72.0	44.9	51.9
CAZRI-75 (C)	148.0	47.4		

of soil. The establishment is slow and the grass is very persistent. The grass is very nutritious and palatable. The grass remains green even in the summer season with high temperature. The grass is frost tolerant.

The genotype GAAG-1 (Gujarat Anand Anjan Grass-1) was developed at Main Forage Research Station, Anand Agricultural University, Anand by clonal selection method from the perennial Anjan grass grown in Kutchh district (Gujarat). It was tested in state trial from 2002-03 at Anand Centre and in multi-location trial from 2003-04 at Anand, Sardar Krushinagar and Dhari Centres with National Check Variety CAZRI-75. The trials were conducted in randomized block design with three replications. The observations were recorded on green fodder and dry matter yield. The statistical analysis was done as per method of Panse and Sukhatme (1985).

The genotype GAAG-1 (Gujarat Anand Anjan

TABLE 2  
Distinguishing morphological characters

S. No.	Characters	GAAG-1	CAZRI-75 (National Check)
1.	Days to 50% flowering	80-85	70-75
2.	Av. plant height (cm)	116.1	104.8
3.	Av. number of tillers	38.7	37.9
4.	Av. length of leaves (cm)	35.2	25.7
5.	Breadth of leaves (cm)	0.48	0.47
6.	Stem thickness (cm)	0.33	0.22
7.	Foliage colour	Dark green	Light green
8.	Leaf : stem ratio	1.74	1.27
9.	No. of leaves/plant	348	303

TABLE 4  
Quality parameters of Anjan grass

S. No.	Variety	DM content (%)	CP content (%)	NDF content (%)	C. F. (%)	IVDMD (%)	Oxalates (%)	Nitrates (%)
1.	GAAG-1	34.0	4.60	61.40	42.5	46.1	1.96	0.71
2.	CAZRI-75 (National Check)	32.6	4.30	66.45	50.5	39.9	2.06	0.59

## REFERENCE

Panse, V. G., and P. V. Sukhatme, 1985 : *Statistical Methods for Agricultural Workers*. ICAR, New Delhi.

Grass-1) was tested in station and multi location trials (Table 1) for green forage and dry matter yield. The genotype GAAG-1 gave a mean green forage yield (214.5 q/ha/year) and dry matter yield (72.0 q/ha/year) accounting to 44.9 and 51.9 per cent higher green forage and dry matter yield than the check variety CAZRI-75 (GFY 148.0 q/ha/year and DMY 47.4 q/ha/year). This variety GAAG-1 was found superior to check variety CAZRI-75 with respect to plant height (116.1 cm), number of leaves per plant (348), leaf length (35.2 cm), leaf : stem ratio (1.74) and number of tillers of plant (Table 2).

Regarding the reaction to diseases, the negligible incidence of major disease leaf spot (*Pyricularia* spp.) was observed (Table 3).

For quality point of view, GAAG-1 was also better than the National Check variety CAZRI-75 (Table 4). Based on the performance of GF, DM, quality and other characters, the variety Gujarat Anand Anjan Grass-1 (GAAG-1) was released and recommended by Anand Agricultural University, Anand for Anjan grass growing areas and pasture lands of Gujarat state during the year 2011.

TABLE 3  
Per cent disease intensity

Variety	Disease leaf spot ( <i>Pyricularia</i> spp.)			
	2008	2009	2010	% Mean
GAAG-1	3.29	2.16	2.98	2.81
CAZRI-75	7.84	6.56	7.13	7.17