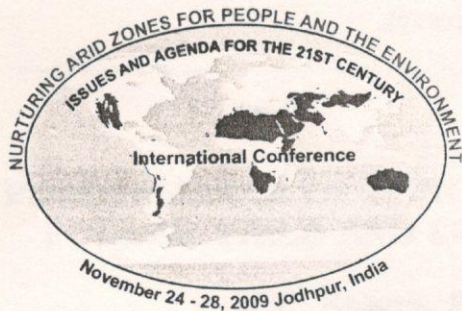


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Abstracts

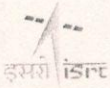
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PERFORMANCE OF *CENCHRUS CILIARIS* L. GENOTYPES FOR FODDER YIELD AND ITS COMPONENTS IN ARID REGION

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Buffel grass (*Cenchrus ciliaris* L.) commonly known as 'dhaman' is one of the major pasture species of the Thar desert. Four promising genotypes grown in randomized complete block design in a plot of 4 m x 4 m in August 2006 were evaluated for fodder yield and its components during 2006, 2007 and 2008. Survival of the plants was recorded in August 2009. Data analyzed as per Eberhart and Russel (1966) showed that there were significant differences among the genotypes for leaf length, leaf width and its ratio, flag leaf length, flag leaf width and its ratio. The differences were non-significant for dry matter yield and plant height. Genotype-environment interaction was significant for leaf length only, whereas environments (linear) were significantly different for all the traits. Dry matter yield per hectare was 7.7 q in first year, 17.0 q in second year and 24.4 q in the third year. Though the differences for fodder yield were non-significant, but in the 4th year genotypes CAZRI 358 and CAZRI 2221 showed more than 90 per cent survival of the plants with more vigour against IGFRI 3108. In the arid areas where establishment of pastures is a real problem, genotypes CAZRI 358 and CAZRI 2221 are most suitable for high fodder yield and pasture longevity.

POTENTIAL OF BIRDWOOD GRASS (*CENCHRUS SETIGERUS*) GERMPLASM FOR HIGHER FORAGE YIELD FOR SUSTAINING RANGE LAND MANAGEMENT

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Birdwood grass (*Cenchrus setigerus* Vahl) commonly known as dhaman grass in north western part of Gujarat is one of the important perennial grass species of Indian arid zone pastures. It forms the dominant species of *Dichanthium-Cenchrus-Lasiurus* grass cover and is known for its drought resistance. Twenty four germplasm of birdwood grass were collected from different habitats of Gujarat desert. The experiments were carried out at the research farm of CAZRI, Regional Research Station, Kukma, Bhuj (at 22° 41' 11" to 24° 41' 47" North latitude and 68° 9' 46" to 71° 54' 47" East longitude) during *kharif* season of 2004 and 2005. Twenty five germplasm lines (including 1 check) were grown in randomized block design in three replications. The annual rainfall during the growing season of 2004, 2005 was 239.9 mm and 238.2 mm, respectively. Observations were recorded on morphological characters namely; plant height (cm), number of tillers per plant, green fodder yield (kg ha⁻¹) and dry fodder yield (kg ha⁻¹). Germplasm differed significantly for all the characters during both the years. Plant height ranged from 49.46 cm (CAZRI-BH-CS-22 in year 2004) to 78.63 cm (CAZRI-BH-CS-5 in year 2005), while tillers per plant ranged from 6 (CAZRI-BH-CS-23 in year 2004) to 18 (CAZRI-BH-CS-13 in year 2005). Green fodder yield ranged from 536.96 kg ha⁻¹ (CAZRI-BH-CS-3 in year

2004) to 4195.71 kg ha⁻¹ (CAZRI-BH-CS-5 in year 2005), while the dry fodder yield ranged from 268.32 kg ha⁻¹ (CAZRI-BH-CS-3 in year 2004) to 2184.95 kg ha⁻¹ (CAZRI-BH-CS-5 in year 2005). Germplasm CAZRI-BH-CS-5 gave the maximum green fodder yield (3967.79 kg ha⁻¹) followed by germplasm CAZRI-BH-CS-8 (3653.16 kg ha⁻¹) during the year 2004 and 2005. These germplasm lines may be utilized in further genetic improvement programme to improve forage productivity of birdwood grass for sustaining range land management.

GRASS RESOURCES OF KACHCHH REGION OF GUJARAT AND THEIR MANAGEMENT

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Kachchh is the largest district of Gujarat occupying almost 24 per cent of geographical area (54,652 km²) of the state. Kachchh is the only district of the country where four distinct ecologies namely, desert ecology, coastal ecology, grassland ecology and upland ecology exist within a 100 km span. Accordingly, Kachchh has very rich diversity of both flora and fauna. The forest area (8%) and the wastelands (18%) are the potential areas for further development of pasture land so that feed and fodder production could be enhanced to bridge the gaps between demand and supply of the fodder for existing animal population of the region. The Great and Little Rann comprise greater part (53%) of the Kachchh region. Here the ecosystem is dry and hot, and soils are saline. Both perennial and annual grasses are found in the grass land of this region. The most prominent grasses in the region are *Sporobolus marginatus*, *Eremopogon foveolatus* and *Cenchrus* spp. In Hilly area where soils are mostly shallow, *Sehima nervosum* is the major grass occupying the area. The associated grasses are *Chrysopogon fulvus*, *Panicum antidotale*, *Heteropogon contortus*, *Cympogon jawararueusa* and *Eremopogon foveolatus*. In plain areas where soils are mostly sandy to sandy loam, *Desmostachya bipinata*, *Dichanthium annulatum* and *Elusine compressa* form the major grasses. The associated grasses are *Aristida adscensionis*, *Chloris montara*, *Dactyloctenium aegyptica*, *Eragrostis ciliaris*, *Sporobolus* spp, *Aleuopsis lagopoides* and *Panicum antidotale*.

The grass lands of the Kachchh region are under the threat of degradation. The major factors that contributed towards the degradation are introduction of *Prosopis juliflora*, increasing salinity in the soil and over-grazing by the animals. Research work carried out at CAZRI, RRS Bhuj on efficient management of grasses indicated that among the three important grasses, *Lasiurus indicus* was most productive (10800 kg ha⁻¹) where as *Cenchrus setigerus* produced the minimum yield (2160 kg ha⁻¹). Among the 10 strains of *C. ciliaris* evaluated, CAZRI-75 gave the highest dry forage yield of 7460 kg ha⁻¹ followed by CAZRI-1228 (5700 kg ha⁻¹) and CAZRI-1263 (5260 kg ha⁻¹). Six strains of *C. setigerus* were evaluated and the highest producer was CAZRI-76 (3860 kg ha⁻¹) followed by CAZRI-296 (2760 kg ha⁻¹) CAZRI-1 (2610 kg ha⁻¹). Among the various strains of *L. indicus* evaluated, the maximum dry forage yield was given by CAZRI-1952 (12930 kg ha⁻¹), followed by CAZRI-1825 (10550 kg ha⁻¹). These results clearly showed that the productivity of the grassland can be significantly improved if suitable grass species with improved cultivar are introduced in the