



## ASSESSING SPREADABILITY OF WARM SEASON SPECIES USED FOR TURFGRASS ON THREE TYPES OF SUBSTRATE IN THE MEDITERRANEAN ENVIRONMENT

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### Introduction

Even in areas with Mediterranean climate, the demand for private and public leisure and recreational areas has recently grown exponentially and in these areas turfgrass has gained in importance. However, the propagation material, which reproduce by seeds and otherwise, and which is currently available on the Italian market used to establish turfgrass, comes almost exclusively from environments with different biological traits and different climates from those of the Mediterranean area.

However, among the warm season species, *Cynodon dactylon* (L.) Pers is the most common species in the world used to grow turfgrass for sports fields, golf courses, etc. (Beard, 1973; Taliaferro, 2002). On the basis of these considerations, we have analysed the performance of warm season species that reproduce by seeds, including 6 varieties of *Cynodon dactylon* in comparison with *Zoysia japonica* and *Paspalum vaginatum*. The aim of the study was to examine qualitative and quantitative turfgrass response in substrates with different soil textures (sandy loam, sandy clay loam, clay), and to find those that adapt best in the Mediterranean environment, and that can combine purely aesthetic and/or technical (sports) purposes.

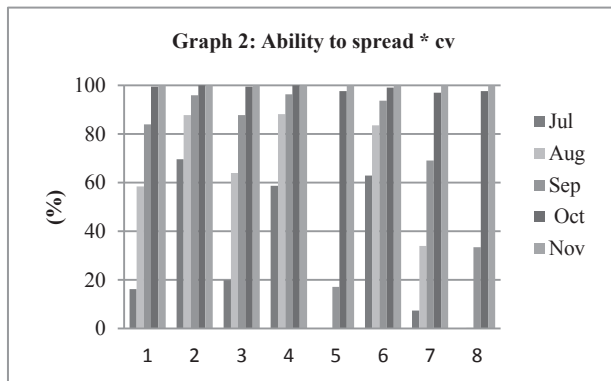
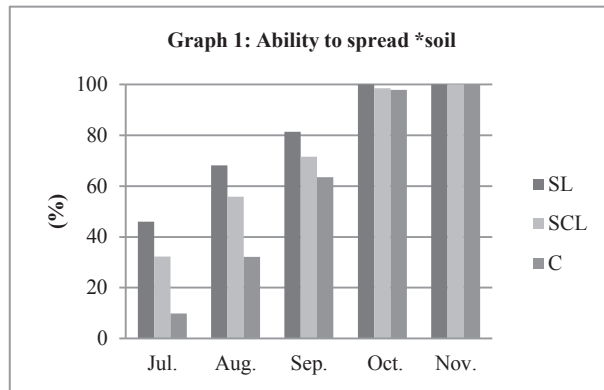
### Materials and Methods

An experimental test was conducted in 2008 at the didactic-experimental farm Sparacia (Italy- Sicily- AG 37 ° 37'N -13 ° 42'E), managed by the University of Palermo. This paper reports the data relating to the speed of settlement and to the spreading rate of six varieties reproducing by seeds of *Cynodon dactylon* (L.) Pers: Savannah (1), Transcontinental (2), Sunbird (3), La Paloma (4), Riviera (5) and Capriola (6), *Paspalum vaginatum* Sw Sea spray (7) and of *Zoysia japonica* Steud Zenith (8). The speed of settlement accounts for the number of plants that have begun tillering since germination. The spread rate accounts for the rate of colonisation of the plant mass on the surface unit. Both parameters have been expressed as a percentage between 0 and 100%. The test was carried

out on three different types of soil (sandy loam (SL), sandy clay loam (SCL) and clay (C), and a split-plot design was used. The water application was calculated to replace the water lost through evapotranspiration. The turfgrass was mowed at 40 mm high. The data was collected from the seedling stage twice a week during the season until the rest period. The average max. temperatures was 33,9°C in July and August and the average min. temperatures was 8,5°C in November. The data was analysed using ANOVA.

**Results and discussion**

Graph 1 shows how the spreading rate of the varieties on the sandy loam substrate is significantly higher than on the sandy clay substrate. There was also significant differences in the spreading rate between varieties (Graph 2). Transcontinental, Capriola and La Paloma were among the fastest while *Zoysia japonica*, Zenith variety, had lower values.



**Conclusions**

Growth of turfgrass in the Mediterranean areas is likely to be feasible with special attention to the choice of the proper species, varieties and substrates composition.

**References**

Beard J.B., 1973. Turfgrass: science and culture, Prentice Hall, Englewood Cliff, N.J.  
 Taliaferro C.M. 2002. Bermudagrass (*Cynodon dactylon* (L.) Rich). Turfgrass biology, genetics, and breeding. John Wiley & Sons, Inc