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YIELD POTENTIAL AND MORPHO-AGRONOMICAL EVALUATION OF SELECTED FOOD-GRADE SORGHUM HYBRIDS GROWN IN SOUTHERN ITALY

PONTIERI P.*, TROISI J.**, BOFFA A.*, SORRENTINO G.***, DEL GIUDICE F.****, CHESSA A.L.*****, PIZZOLANTE G.******, ROMANO R.*******, ALIFANO P.********, DEL GIUDICE L.*

*) IBBR-UOS Portici-CNR, c/o Dipartimento di Biologia. Sezione di Igiene, 80134 Napoli (Italy)
**) Theoreo srl - Spinf off of the University of Salerno, Montecorvino Pugliano (Italy)
***) ISAFOM-CNR, 80056 Ercolano (Italy)
****) Bioteam Laboratory, Via Girolamo Santacroce, 80129 Napoli (Italy)
*****) Asesor Privado, Pueyrredón 971 (2600), Venado Tuerto, Santa Fè (Argentina)
******) ZooPlantLab, Dep. Biotechnol. Biosci., University of Milano-Bicocca, 20126 Milan (Italy)
*******) DICAM, University of Bologna, Bologna (Italy)
********) DiSteBa, Università del Salento, Via Monteroni, 73100 Lecce (Italy)

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Sorghum (*Sorghum bicolor* L. Moench) is a crop that is widely grown for food and feed (Awika and Rooney 2004). It is one of the main staples for many of the world's poorest people in the developing world, especially in the semi-arid tropics (Dicko et al. 2006; Pontieri and Del Giudice 2016). Due to its tolerance to abiotic stresses, sorghum is valued as a climate-resilient crop (Dicko et al. 2006). Identification of varieties meeting specific food and industrial requirements is important for food security. Genetic improvement and the expansion of production are two main ways of reaching higher production levels. Expanded testing programs are required to evaluate the agronomic performance of these genotypes and to determine their value with respect to food and grain quality traits. Our research group is engaged in developing the cultivation of white, tan-plant, "food-grade" sorghum lines in South Italy (Pontieri and Del Giudice 2016). The aim of the present study was to compare the agronomical performances of six selected white grain "food-grade" sorghum hybrids from South America belonging to different maturity classes, with the perspective of their introduction in temperate Italian environmental area as a competitive crop. Two years field trials were conducted in San Bartolomeo in Galdo (BN) in an area called Fortore, in Campania Region, South of Italy, were soils are predominantly clay loam, deep and with a good water holding capacity. It were evaluated the following agronomic traits: seedling emergence, flowering time, fertile panicles, grain filling period, grain yield, grain yield per panicle, infertile panicles, length of panicle exertion, plant height, panicle length and panicle yield, respectively. It is selected the best hybrid in yield for the right maturity which is a key point, since the other traits (drought tolerance, disease and insects tolerance, etc.) are going in the genetic pool. The results showed moderate variation in adaptation of these hybrids as measured by differences in grain yields (4.60 to 7.30 t ha^{-1}) and other pheno-morphological traits. In particular, the hybrid SW6129W from Bolivia and the hybrid SASG05W from Argentina had grain yields higher than others tested in these trials. Our results demonstrated that selected food-grade hybrids from South America, have agronomic characteristics well-suited for cultivation in Mediterranean countries.

-Awika and Rooney 2004. *Phytochemistry,* **65**, 1199-1221.
- Dicko et al. 2006. *Afr J Biotechnol* **5**:384-395.
- Pontieri and Del Giudice 2016. The Encyclopedia of Food and Health. Caballero B, Finglas P,
Toldrà F, eds. Oxford, UK, pp. 33-42.

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