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SURVIVAL, GROWTH AND BIOMASS PRODUCTION OF *Pennisetum purpureum* Schum IN A CLOSED LANDFILL

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Abstract

A phytocapping experience with elephant grass, *P. purpureum*, was carried out in a closed landfill in Buenos Aires province, Argentina, to evaluate survival, growth and biomass production. In spring of 2015 (November), 240 plants were planted in three lines of 80 plants, the distance between plants and lines was 1 m in both cases. The planting was done directly in the topsoil layer of the landfill capping system. The average height of the planted plants was 80.3 ± 24.5 cm. In the next 6 months after planting, elephant grass showed exponential growth with 33.3% of the plants exceeding 260 cm in height. Four harvests were made in winter, the first one, 10 months after planting, August 2016 and the remaining ones in September 2017, August 2018 and August 2019. In each one of them the plants survival and biomass production were evaluated. Survival was 100%, 100%, 87.1% and 82.9%, while the dry biomass production was 9.27, 16.96, 13.24 and 18.15 t / ha for the years 2016, 2017, 2018 and 2019, respectively. The elephant grass adapted to the conditions of the final cover of the sanitary landfill, showed high survival rates, good development of the specimens and a biomass production within the ranges observed in other works on natural soil.

Key words: biomass production, closed landfill, *Pennisetum purpureum*, phytocapping

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