

Adaptive phenotypic plasticity of the native forage grass *Paspalum fasciculatum*: a trait relevant to climatic changes in wetlands

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Phenotypic plasticity is a mechanism for adaptation to highly variable environmental conditions presented by determined species, such as occurs in grasslands located in wetter areas of the Brazilian Pantanal, that are under periodic flooding/drought cycles. These areas may have yearly variations in flooding level and intensity, which favour certain plant species over others. This factor results in uncertainty concerning the forage availability, especially when facing extreme weather conditions of drought or flooding. This study has been conducted to detect natural forage species having adaptive phenotypic plasticity in wetlands to withstand extreme conditions in drought/flooding cycles. The screening targeted native forage species, which grow in wetlands and have been brought to the Active Germplasm Bank (AGB) of natural forages of the Pantanal. The AGB is located at the Nhumirim ranch, Nhecolândia sub-region, Pantanal, Mato Grosso do Sul State, by the edge of natural ponds. The AGB conserves accessions mainly of *Hemarthria altissima*, *Hymenachne amplexicaulis* and *Steinchisma laxum*. However, accessions of other species such as *Luziola subintegra*, *Oryza latifolia*, *Paspalum alnum*, *P. fasciculatum*, *P. plicatulum* and *P. wrightii* have also been included to assess their adaptation to wetlands. It was observed that *P. fasciculatum* supported periods both of hydric stress and flooding better than the other species maintained in the AGB, besides showing a high dry mass yield, even on sandy soil, therefore presenting a great potential for carbon sequestration. From these results, we recommend to continue collecting accessions of *P.*

fasciculatum from different Pantanal environments aiming at expanding its genetic diversity for future genetic improvement programs. *Paspalum fasciculatum* is a vigorous (C₄) native forage species with great potential for optimizing carbon flow in different climatic conditions, as well as to contribute to the year round forage supply for livestock and wildlife, despite periodic flooding or drought.

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