

## FORAGE BREEDING STRATEGIES IN URUGUAY: FACING NEW CHALLENGES

Reyno R.<sup>1</sup>, Dalla Rizza M.<sup>3</sup>, Castillo A.<sup>3</sup>, Do Canto J.<sup>1</sup>, Condón F.<sup>2</sup>, Meneses L.<sup>2</sup>, Lattanzi F.<sup>2</sup>, Monza J<sup>4</sup>

Productivity and persistence of sown pastures remain the main demands of Uruguayans producers, immersed in a context of sustainable intensification of production systems, with adaptation to climate change. In INIA Uruguay we have developed a wide range of approaches to address these issues. The exploration of the productive potential of native species and the incorporation of vegetative structures that favor competition and persistence as rhizomes, are examples of the works that have been carried out in such diverse species as *Paspalum notatum*, *Bromus auleticus*, *Lotus corniculatus* and Tall Fescue. With the addition of some biotechnological tools we have also been planned long-term research and interspecific hybridization, seeking to incorporate new and higher productivity vegetative structures into agricultural interest species. An additional venue is to investigate and to develop those microorganisms responsible for biological nitrogen fixation in legumes, and for alkaloids production for plant protection as fungal endophytes in grasses. In the case of the rhizobia, a novel strategy was developed to seek and to characterize new strains better adapted to our environmental conditions. The same strategy is now being used for developing new alfalfa strains. Fungal endophytes (from the *Epichloë* genus) present in a *Bromus auleticus* germplasm collection are being described and characterized for the first time. This presentation resumes different strategies of genetic improvement of forage plants using contrasting cases. First, the case of native species *Paspalum notatum* and *Bromus auleticus* where the breeding scheme transited collection, molecular and agronomic characterization, and selection of genotypes adapted. Secondly, interspecific hybridization between species with the aim of combining vegetative structure with reproductive strategies, and finally investigating and developing different microorganism related to the productivity and persistence of forage species.

<sup>1</sup>Instituto Nacional de Investigación Agropecuaria, INIA Tacuarembó, Tacuarembó, Uruguay

<sup>2</sup>Instituto Nacional de Investigación Agropecuaria, INIA La Estanzuela, Colonia, Uruguay

<sup>3</sup>Instituto Nacional de Investigación Agropecuaria, INIA Las Brujas, Canelones, Uruguay

<sup>4</sup>Laboratorio de Bioquímica, Depto. Biología Vegetal, Facultad de Agronomía, Universidad de la República, Uruguay