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Advances in Testing Multi-Species Pastures for Productivity and Environmental Benefits: Influence on Pollinators

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Abstract

In the American Tropics, livestock production is mostly based on pasture grazing systems. Such pastures tend to be dominated by a single forage species (mostly grasses), and if combined with legume(s) (herbaceous, shrubs or trees), the diversity of planted species within such pasture systems is still low (~three species in total). There is a growing interest in increasing diversity of forage species within pastures as a method of enhancing agricultural production while providing ecosystem services. Recently, the Tropical Forages Program of the Alliance Bioversity-CIAT (ABC), in collaboration with Grow Colombia Project (growcolombia.org), is testing the suitability of diverse forage mixes for agricultural productivity while providing positive environmental impacts. The project is investigating stress resilience, forage quality, yield, nutritional value from multi-species mixtures (up to six species of grasses, legumes and herbs) and their effects upon soil health compared to that of a grass-legume (1 grass, 1 legume) system under field conditions. Field trials were established in November 2019 and located at the regional office of ABC in the Americas. Furthermore, the trials are used to undertake pollinator surveys. Preliminary results show that even within the limited period since trials were established, there was over a two-fold increase in richness and diversity of insects, including pollinators, in multi-species pastures. The relevance of the preliminary results is high as there has been a steady decline of pollinators worldwide. Our preliminary results suggest that establishment of multi-species pastures can rapidly provide an environment friendly to pollinators and thereby mitigate their reductions as shown elsewhere.

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