Multi-species pastures showing a combination of grasses, legumes and herbs; and a bumblebee covered in pollen from a *Cannavalia brasiliensis* flower

Context

- Low species diversity within pastures make them more vulnerable to erratic weather events, outbreaks of pests and diseases and more reliant on external inputs (e.g., fertilizers)
- We implemented a field pilot study to test multi-species pastures (November 2019) in Palmira, Colombia, the Regional Hub for the Alliance Bioversity-CIAT in the Americas (ABC)

Our innovative approach

- We aim to investigate the production potential and ecosystem services (e.g., soil health, carbon accumulation, diversity of pollinators) of multi-species pastures consisting of one to three plant functional groups (grasses, legumes and forage herbs; up to six species) when compared to a grass monoculture or a grass-legume (one of each) system
- We are also investigating the importance of increasing the diversity of plants in relation to pasture management with the aim of achieving higher yields and plant persistence over time

ENVIRONMENTAL HEALTH & BIODIVERSITY

Multispecies pastures for increased productivity and provision of ecosystem services

- In the American tropics, the vast majority of pastures are dominated by a single species (mostly grasses)
- Pastures with higher species diversity can be more efficient and might be more stable and resistant to disaster than those with fewer species. They also provide ecosystem services.
- Preliminary results from a pilot study show an increase in pollinators in multi-species pastures

CGIAR RESEARCH PROGRAM ON Livestock

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Outcomes

- As this is a long-term project in its early stages, results of production potential and ecosystem services are not yet available.
- Despite this, preliminary results show that even within the limited period since the pilot study began, there has been a two-fold increase in richness and diversity of pollinators (e.g., Hymenoptera and Lepidoptera) in multi-species pastures compared to a grass-legume system
- The relevance of preliminary results is important in light of the steady decline of pollinators worldwide. Our preliminary results show that establishment of multi-species pastures can rapidly provide an environment friendly to pollinators and thereby mitigate their reductions as shown elsewhere.

Future steps

- Larger field trials are being established at ABC
- These trials will be part of Legacynet: a voluntary global network of experimental sites set up to investigate the benefits of multispecies grasslands

Partners

Alliance

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