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TRANSFORMING LIVES AND LANDSCAPES

# Forage Herbaceous Legumes Evaluation for Conservation Agriculture Production Systems



**SANREM INNOVATION LAB**  
Feed the Future Innovation Lab for Collaborative Research  
on Sustainable Agriculture and Natural Resource Management

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## Introduction

Forage legumes are characterized by having seeds in pods with compound leaves and their roots have symbiotic relationship with bacteria which allow nitrogen fixation in the atmosphere. Legumes are rich in protein which contain desirable amino acid in their foliage and seeds. Forage legumes were integrated as component in conservation agriculture throughout the world which provide feed for livestock, as green manure and used as soil conservation measure providing soil cover. Thus, selecting an appropriate forage legume is essential to maximize the benefit of Conservation Production System (CAPS)

## Objective

Forage herbaceous legumes with high biomass were aimed to be identified to be used in Conservation Agriculture Production Systems (CAPS).

## Methodology

Five herbaceous legumes collected in the Philippines were evaluated in 15m<sup>2</sup> plot using a randomized complete block design with 4 replications for biomass production for possible inclusion in the conservation agriculture production system (CAPS). This is to partly address External Program Management Review (EMPR) evaluators comment that we were narrowing in our option to *Arachis pintoi*. These herbaceous legumes are *Arachis pintoi*, *Calopogonium mucunoides*, *Centrosema hemata*, *Crotalaria juncea*, and *Stylosanthes guianensis*.

## Results

Figure 2 shows the aboveground dry biomass of 5 different herbaceous legumes under acid soil as potential inclusion in CAPS with no fertilizer application. *Stylosanthes guianensis* and *Crotalaria juncea* out performed the rest of the herbaceous legumes evaluated. *Arachis pintoi* yielded approximately 3 times lower than the *Stylosanthes* 5 months after planting. Both the *Stylosanthes* and *Arachis* were already integrated in the wider evaluation in both the farmers and researcher managed, but not the *Crotalaria juncea* which showed good performance as well under acid soil environment. This can be also integrated in wider experimentation to exploit its potential.

## Conclusion

*Stylosanthes guianensis* and *Crotalaria juncea* were herbaceous legumes with high in biomass which can be potential inclusion in CAPS providing quality feeds and enhance soil quality through addition of soil organic matter.



Figure 1. Different photos of forage herbaceous legumes evaluated for CAPS. Claveria, Misamis Oriental, Philippines.

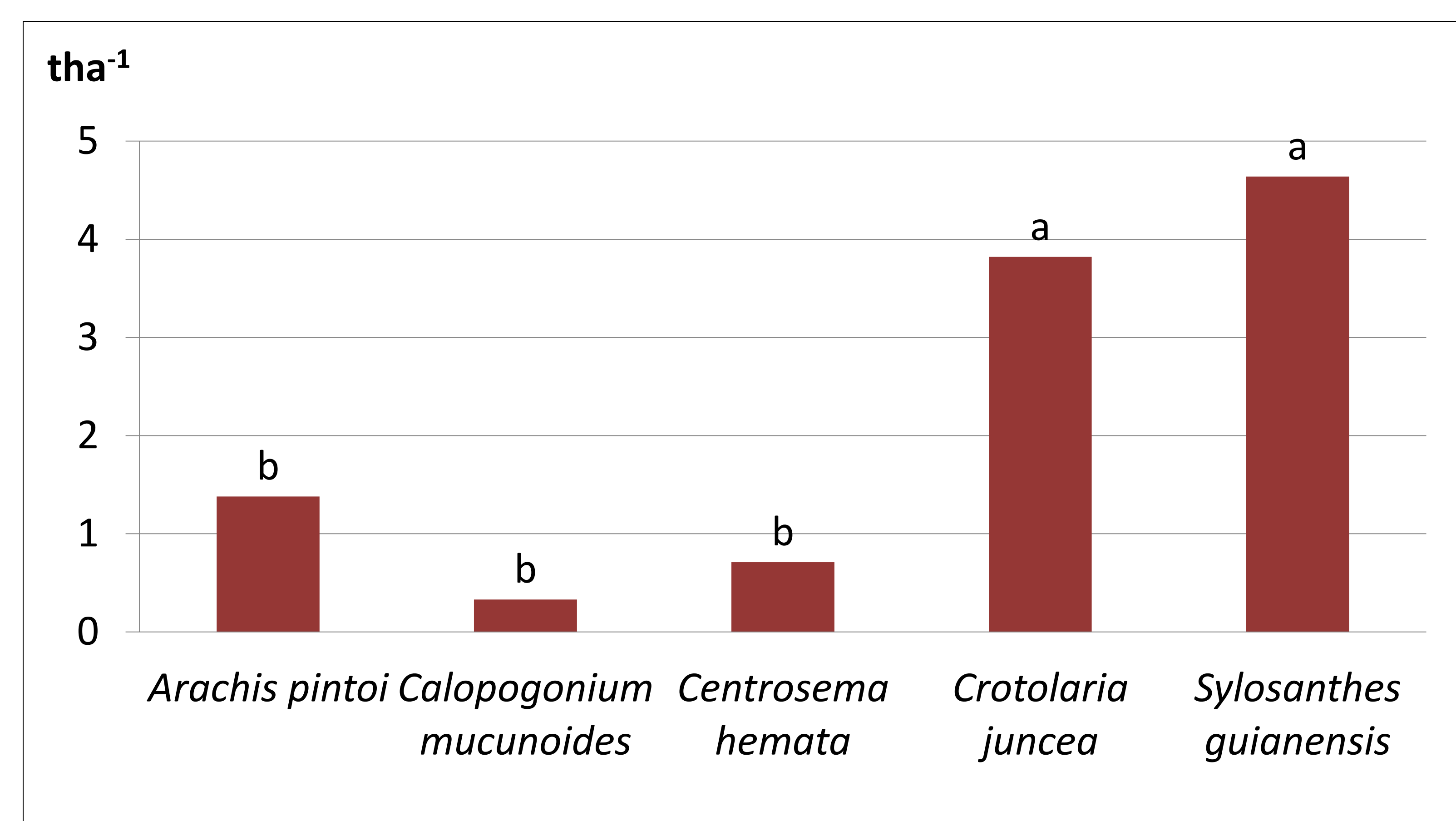


Figure 2. Total Biomass of different herbaceous legumes 5 months after planting. Claveria, Misamis Oriental, Philippines.



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