



Agronomic evaluation of 25 accessions of *Clitoria ternatea* in time of maximum and minimum rainfall in Colombia

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Introduction

- Livestock is one of the main sources of animal protein for human consumption.
- Most of the fattening systems are found in extensive grazing systems under native pastures that, although they have good nutritional quality, have a limited supply of forage, especially in critical seasons.
- The above added to other factors have led to cattle ranching becoming a seasonal activity in the tropics, since in periods of low rainfall, farmers struggle with their animals to keep their weight and, in the worst case, to keep them alive.
- This leads to an inefficient use of the area used for livestock, obtaining a very low stocking rate per hectare.
- In Colombia there are around 33.8 million hectares under grazing with a livestock inventory of around 29.3 million head of cattle and a stocking rate of 0.86 animals/ha; being necessary to introduce new forage materials adapted to the conditions of the American tropics to increase the forage supply available for animals in critical times.

Methodology

- Agronomic evaluation of 25 accessions of *Clitoria ternatea* obtained from the Genetic Resources Bank of The Alliance Bioversity International and CIAT, in Palmira, Colombia.
- Data was collected for 14 months, between 2020 and 2021, including periods of maximum and minimum precipitation.
- The size of the plots was 9m² with three repetitions per treatment.
- Cuttings were carried out at different regrowth stages:
 - First cutting: 35 days
 - Second cutting: 42 days
 - Third cutting: 49 days after cutting.
- Evaluated variables: Agronomic parameters (coverage, vigor, height, Data on these parameters are not presented) and dry matter production (DM).



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Results and analysis

Forage production

- The average production of the accessions evaluated between the cutting stages, showed that the 3rd cutting (49 days after cutting) was the best (Figure 1.) with a production of 5.61 Ton DM/Ha/Cut, followed by the 1st cutting with 5.43 and the 2nd cutting with 5.27.

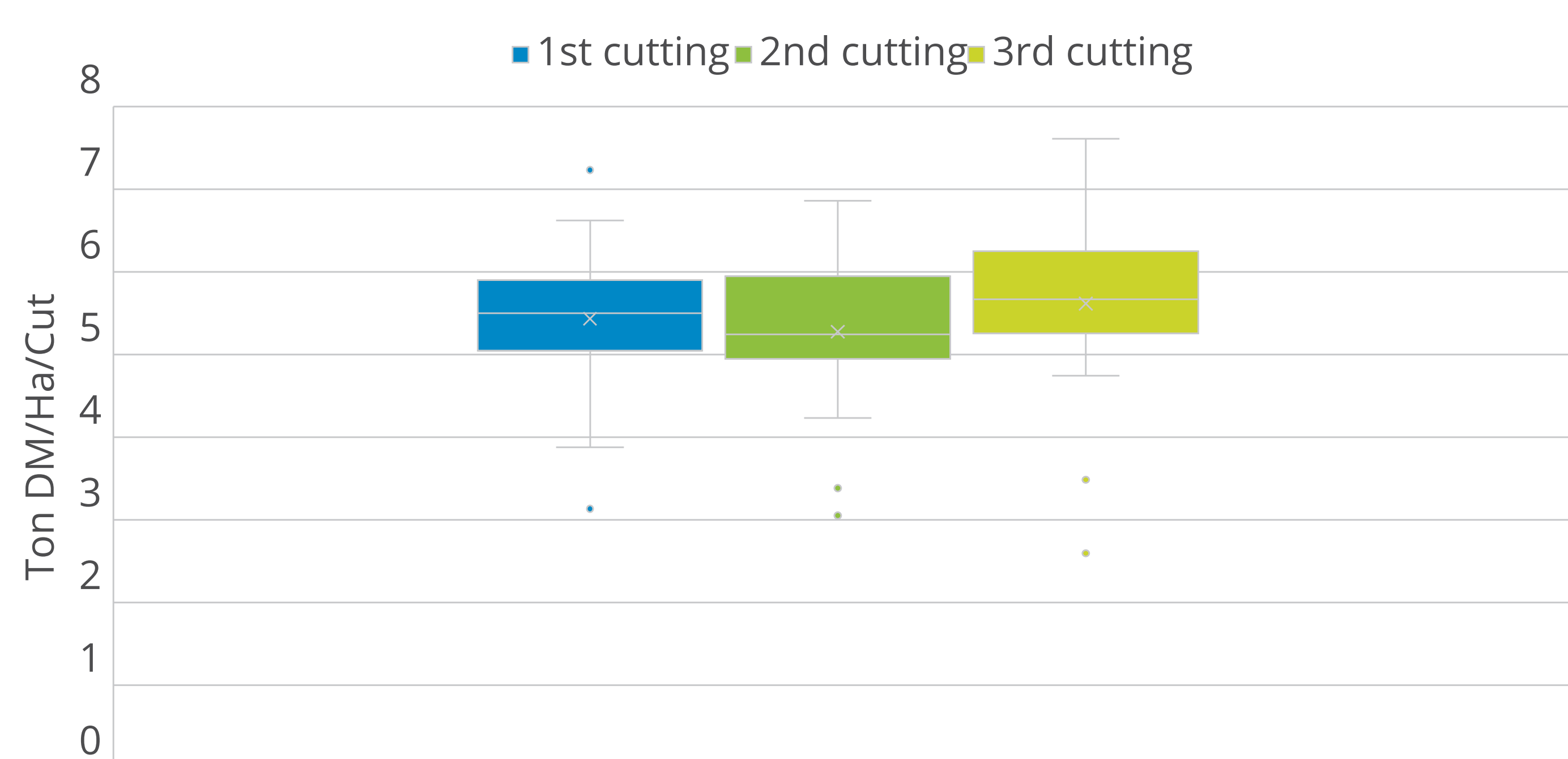


Figure 1. Comparison of forage production averaging cutting stages. Source: own elaboration.

- In the 3rd cutting of the 24 accessions evaluated, 23 of them, including the control, exceeded the average production of 4.74 Ton DM/Ha/Cut. This shows that there is a wide diversity of materials within this species that have the potential to be included as a forage alternative under conditions of the American tropics.



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- The best accession in terms of forage production was CIAT 17768 with a production of 7.61 Ton DM/Ha/Cut, followed by CIAT9336 with 6.74 and CIAT712 with 6.73 respectively. On the other hand, the control, CIAT 20692 produced 5.36 Ton DM/Ha/Cut. (Figure 2.)

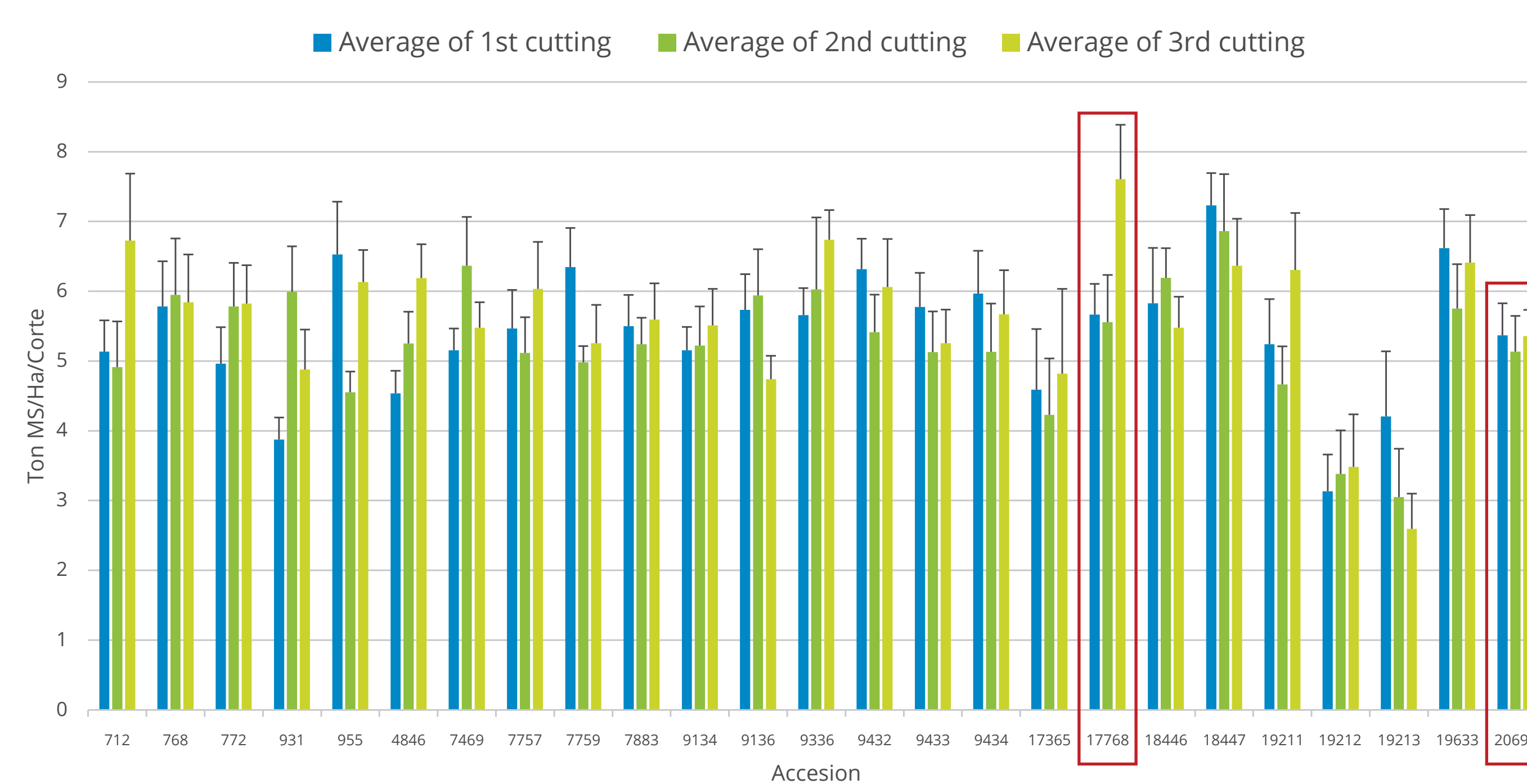


Figure 2. Average forage production based on DM per accession according to cutting stage. Source: own elaboration.

Conclusions

- » *Clitoria ternatea* is a suitable forage alternative for the American tropics where livestock production is important (e.g Llanos Orientales and Caquetá, Colombia), particularly when the forage supply is limited to associate grasses-legumes.
- » The inclusion of forage species in the grasslands can contribute to improving the productive parameters and the livelihoods of smallholder farmers, since with the greater supply of forage and the quality of the diet, productivity will be increased, improving household income.

Further reading

Heinritz SN; Hoedtke S; Martens S; Peters M; Zeyner, A. 2012. Evaluation of ten tropical legume forages for their potential as pig feed supplement. Livestock Research for Rural Development 24, #7. <http://www.lrrd.org/lrrd24/7/hein24007.htm>
Peters M; Franco LH; Schmidt A; Hincapié B. 2011. Especies forrajeras multipropósito: opciones para productores del trópico Americano. Publicación CIAT no. 374. Centro Internacional de Agricultura Tropical (CIAT); Cali, CO. <https://hdl.handle.net/10568/54681>

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