Tropentag, September 15-17, 2021, hybrid conference

"Towards shifting paradigms in agriculture
for a healthy and sustainable future"

Flowering and Fruiting Pattern in Various Ecotypes of the Neotropical Oilseed Palm Acrocomia

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Abstract

Acrocomia oilseed palms are endemic to the sub-humid tropical regions of South and Central America. They are considered a promising economic and sustainable alternative to African oil palm, allowing to expand the growing areas of oilseed palms into semi-arid regions. Acrocomia has a specific period of flowering, normally in the first month of the rainy season, and it takes around 12–14 months for the fruits to maturate. Acrocomia is protogynous, as such cross pollination is predominant and the success of reproduction is higher, the more plants flower at the same time. Understanding the differences of flowering patterns between Acrocomia ecotypes is of importance as the time of flowering is crucial for the reproductive success and not the number of female flowers. Even though, flowering patterns were already studied in Acrocomia, this study is the first to assess the flowering pattern and fruit set of contrasting ecotypes of A. totai and A. aculeata grown in the same location.

The study was conducted at the Acrocomia Active Germplasm Bank of the Universidade Federal de Viçosa in Araponga, MG, Brazil. In the flowering season of October 2019 to January 2020, the open inflorescence were counted once per week on 300 palms. In five ecotypes originating from various regions of Brazil, the exact opening data of all inflorescences were recorded. Bags were put around the infructescences in late 2020 to collect all fruits which were counted after the harvest in March 2021.

The first inflorescence.opened in early September 2019 whereas the last ones were seen in the beginning of February 2020. The peak of flowering was end November 2019 with more than 200 open inflorescences per week, even though a shift among ecotypes was observed. A. totai ecotypes showed a trend to flower scattered over the whole flowering period. In contrast, ecotypes of A. aculeata flowered over shorter periods of time. Fruit set was highest in the inflorescences flowering in November, so at the peak of the flowering season. Thus, we see differences in flowering patterns which need consideration in planning of breeding programs and ,subsequently, plantations including several ecotypes.

Keywords: Acrocomia aculeata, Acrocomia totai, Brazil, Flowering Pattern, Fruit Set, Oilseed palms

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