



## Chlorophyll content on maize plants in a crop-livestock-forest system in the southwest of Brazilian Amazon

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### Introduction

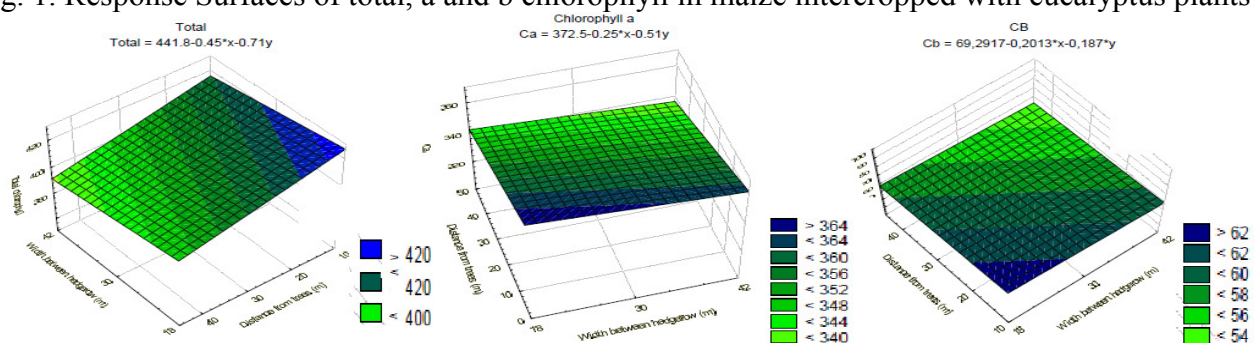
To design sustainable cropping systems, adapted and appropriated to the specific soils and climate conditions is mandatory to understand the environmental and plant production physiology. The appropriate photosynthetic radiation supply is essential for the corn properly grow, to develop and produce. Especially in the rainy Amazon biome and agrosystems with the presence of shade trees.

### Material and Methods

The chlorophyll contents in maize plants were evaluated under the influence of the eucalyptus trees (hedgerow), planted in 2013, in a long term experiment in the southwest of the Amazon, in Porto Velho, Rondonia (Passos et al., 2013). The spatial arrangement of the trees comprehends hedgerow of four rows of eucalyptus plants spacing in 18, 32 and 42 meters among them. Among the hedgerows the maize intercropped with *Brachiaria brizantha* cv Xaraés was valued for total, a and b chlorophyll contents using a portable device (Clorofilog<sup>®</sup>). The treatments were three distances of the hedgerow versus four proportions of distances from the trees (10, 20, 30 and 45%). The treatments were laid out in a randomized complete block design (RCBD) with forty-eight replicates.

### Results and Conclusions

Fig. 1. Response Surfaces of total, a and b chlorophyll in maize intercropped with eucalyptus plants



Distances corn plants from the tree hedgerows and the width between hedgerows influenced linearly the leaf contents of total, a and b chlorophyll in plants. The higher chlorophyll levels were observed in areas closest to trees, possibly due to lower supply of photosynthetic radiation in these regions. Similarly, the lowest levels were observed at larger spacing between trees (42 meters). The levels of chlorophyll a presented the same levels in all hedgerows, in the areas closest to eucalyptus. The chlorophyll correlated with radiation levels, hours of light due to the distance of plants inside the rows. The largest variations, of 13.5% of total chlorophyll were observed in the 42 meters wide. The smallest, were measured in the 30 m wide. The environmental conditions due the tree interferes significantly on the physiological response of maize for the production of chlorophyll a and type b.

**References cited** PASSOS, et al. (2013). In: XII CONGRESSO INTERNACIONAL DO LEITE.

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