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## **Biophysical and socio-economic frame conditions for the sustainable management of natural resources**

### Book of Abstracts

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## Weed Control in Maize Crop Using *Leucaena leucocephala*

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*Leucaena* (*Leucaena leucocephala* (Lam.) de Wit) has been observed to control weeds when used as soil mulch. It contains mimosine, which, among other allelochemicals, is responsible for the allelopathic effect. In this work, the effects of leucaena shoots were assessed in field experiments against weeds of maize crop. A field experiment was carried out at the National Maize and Sorghum Center Research located in Sete Lagoas, Minas Gerais State, Brazil, with four treatments: 1) 40 t ha<sup>-1</sup> of fresh leucaena shoots material used as mulch in soil; 2) 20 t ha<sup>-1</sup> distributed at the stadium of 3 leaves and the other 20 t ha<sup>-1</sup> distributed at the time of flowering maize; 3) manual weeding control and; 4) no weed control. The maize was sown with spacing of 0.80 × 0.20 m<sup>2</sup>, corresponding to a population of 60 000 plants ha<sup>-1</sup>. Each month, phytotoxicity evaluations were made of leucaena on maize using a scale of notes of the European Council of Research on weeds (EWRC); as well as the identification and counting of weeds in a square metre in each plot. The values obtained for weed counts were converted to  $\sqrt{x}$ . In the plot with 40 t ha<sup>-1</sup> of leucaena mulch the weed population was controlled without any damage to the maize grain yield. Was also observed that all treatments with leucaena showed reductions in amounts of weeds (grasses and broad leaves) compared to the control without weeding. The treatment which received 40 t ha<sup>-1</sup> of leucaena showed fewer weeds than the treatment with repeated application of leucaena (20 +20 t ha<sup>-1</sup>). It was observed that the use of leucaena as mulch did not cause phytotoxic effect on the maize development favouring an increase of nitrogen and phosphorus content in the leaves. This probably influenced the higher grain yield of maize in treatments with the addition of leucaena.

**Keywords:** Allelopathy, leucaena, mulch, *Zea mays*