

LET'S TAKE ADVANTAGES OF *EUCALYPTUS GLOBULUS* PLANTATIONS FOR WEED CONTROL IN SUSTAINABLE AGRICULTURE!

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*Eucalyptus globulus* Labill. (Tasmanian blue gum) is widely grown in European forestry exploitations. In Spain, eucalyptus plantations cover around 325,000 ha and they are mainly devoted to produce cellulose pulp. The abundant eucalyptus harvest residues, by-product of the paper industry, as well as the evidences of the allelopathic nature of this forest species, led us to propose the use of eucalyptus leaves as green manure for weed control in cropping systems [1].

In the present study, two-year field experiments were conducted to probe the potential of *E. globulus* leaves for weed control in weed-infested maize fields from two different locations. Fresh eucalyptus leaves were slashed in small pieces and incorporated into the soil at the dose of 2,2 kg m<sup>-2</sup>. Control treatments consisted of eucalyptus-free plots. After a safety period of fifteen days after eucalyptus incorporation to overcome the initial phytotoxicity caused by allelopathic compounds released from the plant material [1], maize was sown. Samples were harvested at 1, 3 and 6 months after eucalyptus incorporation.

Significant reductions in weed biomass were observed in the two locations and years. Eucalyptus leaves could significantly control broadleaved weed species such as *Solanum nigrum* L., *Chenopodium album* L., *Artemisia vulgaris* LINN., *Raphanus raphanistrum* L. and *Galinsoga parviflora* Cav. Weed biomass of monocotyledon species was also reduced by eucalyptus green manure, being affected species such as *Digitaria sanguinalis* (L.) Scop., *Holcus mollis* L. and *Cyperus rotundus* L. Phytotoxic effects were more pronounced at early stages of maize establishment, reducing growth competition between crop and weeds. Our results constitute evidence that the incorporation of *E. globulus* harvest residues to soil can be a feasible practice to reduce the reliance on synthetic herbicides in maize-based cropping systems.

[1] Puig CG, Álvarez-Iglesias L, Reigosa MJ, Pedrol N (2013). *Weed Science* 61: 154-161.