

GENETICALLY MODIFIED EUCALYPTUS TOLERANT TO GLYPHOSATE - AN EFFECTIVE PRODUCT FOR WEED CONTROL

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Destaque: 751K032 eucalyptus allows the efficient use of glyphosate-based herbicides, reducing operational costs and carbon footprint, no affecting productivity

Resumo: Eucalyptus is the main forest species cultivated in Brazil, encompassing 7,5 million hectares. Weed competition is one of the main challenges in eucalyptus plantation management, could reducing yield and increasing operational costs. In addition to direct yield losses caused by weed competition, herbicide applications can lead to yield losses due to herbicide drift, as well as the risk of operator contamination during manual application. To overcome these issues, Suzano S.A. developed a GM eucalyptus variety, 751K032, which carries the *cp4 epsps* gene that encodes EPSPS enzyme conferring tolerance to glyphosate herbicide, same enzyme inserted into other GM crops for over 30 years. Biosafety studies were conducted according to CTNBio requirements for commercial approval. Studies demonstrated a stable T-DNA insertion in the genome, with two functional copies of the gene *cp4 epsps* and one functional copy of the gene *nptII*, as well as absence of unwanted DNA sequences and a Mendelian inheritance pattern. No meaningful homologies to known or putative allergens and toxins were observed and safety assessment studies indicated that it is unlikely to cause allergenic or toxic effects to humans/animals. The GM variety is similar to the conventional clone in silvicultural, morphological, and reproductive characteristics. Chemical composition studies revealed no differences between the GM variety and the conventional clone. There were no adverse effects on non-target organisms, no change in the soil microbiota and no differences on decomposition in the soil. Studies with *Apis mellifera* and *Scaptotrigona bipunctata* larvae and adults with GM and non-GM pollen, revealed no differences in mortality and survival rates. Therefore, cultivation of 751K032 was judged to be as safe as the conventional clone for human/animal health and for the environment. In 2021 CTNBio evaluated and granted the approval of the GM eucalyptus for commercial uses (DOU 214, Nov 16th, 2021 – Section 1, p 8).

Palavras-chave: eucalyptus; weed control; GM (genetically modified); glyphosate; herbicide tolerance

Instituição financiadora: Suzano S.A.