



XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR)

Hosted by the Canadian Society for Bioengineering (CSBE/SCGAB)
Québec City, Canada June 13-17, 2010



EVALUATION OF BACKPACK SPRAYERS FOR HERBICIDE APPLICATION IN A BRAZILIAN FOREST

R.G. VIANA¹, M.S. MACHADO¹, L.R. FERREIRA¹, A.F.L. MACHADO²,
G.L. FERREIRA¹, C.A.D. MELO¹

¹ R.G. VIANA, Universidade Federal de Viçosa, Brazil, Department of Plant Production,
rafaelgomesviana@yahoo.com.br

¹ M.S. MACHADO, Master student of Plant Production Department, milermachado@yahoo.com.br.

¹ L.R. FERREIRA, Professor of Plant Production Department, lroberto@ufv.br.

¹ G.L. FERREIRA, Forestry Engineering Student, gisellelima87@yahoo.com.br.

¹ C.A.D. MELO, Agronomy Engineering Student, christiane.melo@ufv.br.

² A.F.L. MACHADO, Universidade Federal do Tocantins, Brazil, Post doctorate in Plant Production Department, aroldomachado@yahoo.com.br.

CSBE100077 – Presented at Section III: Equipment Engineering for Plant Production Conference

ABSTRACT The backpack sprayer is the most widely used sprayer for herbicide application in Brazilian eucalyptus production. However, the maintenance, repair and replacement of parts and accessories, is a relatively uncommon practice. The objective of this study was to evaluate the operational conditions of backpack sprayers used for herbicide application in the culture of eucalyptus. The study was performed in Alagoinhas-Brazil in Copener Forestry/Bahia Pulp. 362 sprayers were evaluated for the following factors: leaks in the tank and spray boom; the presence of sharp edges; handle condition; presence, absence and position of pressure regulating valve; suitable clamps to support the spray boom; the spray nozzle conditions; presence and adequacy of the nozzle filter. The levels of irregularities observed for sharp edges, damaged handles and the lack of suitable clamps to support the boom at the pump, were 35, 19 and 32% respectively. To spray nozzles, pressure regulating valve and the nozzle filter the levels of irregularities were 12, 14 and 11% respectively. It is concluded the application of herbicides with the backpack sprayer in Copener Forestry/Bahia Pulp, presents operational errors, which must be corrected to reduce possible environmental contaminations, and increase the efficiency of weed control and operator safety.

Keywords: Agriculture Engineering, Inspection, Agrochemical, Eucalyptus, Application machinery.