

EFFICACY AND COMPARATIVE COST OF WEED CONTROL METHODS IN A MATURE RUBBER PLANTATION IN NIGERIA

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The efficacy of three weedicides *viz.*, glufosinate ammonium, paraquat and glyphosate and a combination of paraquat and glyphosate was evaluated at the rates of 0.90, 1.80, 3.00 and 3.80 kg a.i. per ha in two different seasons for weed control in a mature rubber plantation in Nigeria. Manual weeding was included as control. Among the treatments, glufosinate ammonium at the lowest dose was the most cost effective. Considering the efficacy of weed control and the cost, glufosinate ammonium at 1.80 kg a.i. per ha also could be rated as effective.

Key words : *Hevea*, Herbicides, Weed control, Nigeria.

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INTRODUCTION

Weed growth in rubber plantations raised in humid tropical environment causes problem by competing with the rubber plants, limiting their growth and yields, and by hindering access to the trees. During the dry season, the dried up weeds also pose the threat of bush fire which may cause extensive damage to rubber trees.

The solution to weed problem depends on good weed management practices backed by a sound knowledge of the biology of the weed plants (Seth, 1977; Pillai, 1978; Fiaz, 1979a, b). Manual weed control, traditionally practised on rubber plantations, is now practised only in limited areas owing to lack of availability and high cost of labour (Fiaz, 1992). Edgar (1958) had suggested mechanical weed control as an alternative which could be practised if the terrains permit use of the equipment.

Chemical weed control using herbicides along the planting strips and inter-

rows for both general weed control and for control of noxious weeds is a viable alternative (Fiaz, 1992). However, rainfall interfering weedicide spraying may affect their effectiveness. This could be overcome by judicious selection of herbicides based on the time required for their absorption and translocation (Fiaz and Liu, 1982). The local availability and cost of the weedicide as well as the overall cost of weed control operation are also other limiting factors for chemical weed control (Yee and Lim, 1982).

Information on the relative efficacy and cost effectiveness of herbicide application in mature rubber plantations in Nigeria is lacking. This study was taken up to gather information on this aspect.

MATERIALS AND METHODS

The experiment was conducted at the Rubber Research Institute of Nigeria farm on a 30 year old mature plantation using mixed clones. The mean annual rainfall was 2450 mm and mean relative humidity var-