

## EVALUATION OF CRUMB RUBBER FACTORY SLUDGE AS MANURE FOR RUBBER

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An incubation and a nursery trial were conducted to evaluate the sludge obtained from settling tanks of crumb rubber factories as a source of nitrogen in comparison with urea. Results of the incubation study indicated that the release of inorganic nitrogen from sludge was slow and steady for 75 days. Nursery trial conducted on the same bed for three years indicated that sludge can be effectively used either in combination with urea, or singly at higher concentration to improve growth of young rubber. The sludge acts as a slow but steady source of nutrients for young rubber.

Key words: Crumb factory waste, Growth, *Hevea brasiliensis*, Inorganic nitrogen, Rubber nursery, Sludge.

### INTRODUCTION

A thick layer of froth is formed on the top of effluent water from crumb rubber factories producing technically specified block rubber in the settling tanks. This sludge, which consists of dirt, tree bark particles and rubber, is periodically removed from the tank. The disposal of the sludge around the factory premises causes environmental pollution. A simple solution for the problem would be to recycle this organic residue as manure.

An incubation study was conducted to observe the pattern of mineralisation of nitrogen (N) from the sludge in comparison with that from urea. A nursery trial was also conducted to evaluate sludge as a source of nutrients for young rubber plants.

### MATERIALS AND METHODS

#### Sludge sample: collection and analysis

About 2 kg of the sludge samples was collected at two month intervals for one year

from the Pilot Crumb Factory (PCRF) of the Rubber Research Institute of India (RRII) at Kottayam in Kerala, India and the Crumb Rubber Factory (CRF) of Travancore Rubber and Tea Estate at Mundakayam. The samples collected from both factories were air dried and analysed for nitrogen (N), phosphorus (P), potassium (K), calcium (Ca) and magnesium (Mg) as per the standard procedures (AOAC,1970).

#### Incubation study

An incubation study was conducted to observe the release of nitrate and ammoniacal nitrogen from sludge in comparison with urea at different intervals of time at field capacity. The soil selected for the study was collected from the RRII farm. The physico-chemical properties of the soil are given in Table 1.

The treatments consisted of either sludge or urea each at 30, 60 and 90 kg/ha and a no nitrogen control, laid out in a com-