

## EVALUATION OF FOLIAR UREA SPRAY IN RUBBER SEEDLING NURSERIES

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Experiments were conducted at two locations to assess the possibility of reducing the dosage of nitrogen applied as fertilizer in rubber seedling nurseries by supplying reduced doses of N as foliar urea spray, at the time of second round of N application. In both the locations, there was no response to the second dose of N, either as soil application or as foliar spray, may be because the initial soil application of 250 kg N/ha was sufficient for the growth of rubber seedlings. The study points to the possibility of reducing the dosage of nitrogen in rubber seedling nurseries.

**Keywords:** Foliar urea spray, Nitrogen, Rubber seedling nursery.

Nitrogen is indispensable for the growth of rubber seedlings and urea is the widely-used fertiliser. Nutrient management followed in rubber seedling nurseries involves incorporating large quantities of fertilisers into the soil to produce vigorous seedlings. The current recommendation of chemical fertiliser is soil application of 250:250:100:37.5 kg NPKMg/ha six to eight weeks after planting and application of 250 kg N/ha, six to eight weeks after the first application (Karthikakuttyamma *et al.*, 2000).

Use-efficiency of N fertilisers by most crops ranges from 20-60 per cent. Excessive nitrogen fertilisation not only increases cost of cultivation, but also results in pollution of ground and surface water due to nitrate leaching. High concentration of nitrate in drinking water causes severe health problems in mammals (Dinnes *et al.*, 2002; Giles, 2005). Soils of the traditional rubber

growing area are acidic in nature and the excess acidification caused by nitrogen fertilisers can hinder the growth of seedlings.

Foliar application of urea is a widely-accepted practice in nitrogen management and is an efficient way to reduce nitrate leaching and increase N-use efficiency. Long-term experiments in citrus, apple and olive orchards have shown that foliar application of N is as effective as soil application (Embleton and Jose, 1974; Dong *et al.*, 2005). Dong *et al.* (2004) reported that in stock plants of poplar, a fast growing forest tree species, nitrogen applied as foliar urea spray was more easily mobilised for use in new growth than N taken up by the roots prior to foliar urea application. Studies conducted in apple with <sup>15</sup>N-labelled urea foliar spray showed that urea was converted to amino acids in leaves. Roots and bark were the main sinks

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