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INTRODUCTION

Each year, the Forest Research Institute holds a symposium on a topical aspect of forest management practice. The subject for the 19th Symposium held at Rotorua in March 1977 was the use of fertilisers in New Zealand forestry. Knowledge of the nutrient requirements of trees, nutrient cycling in forests, growth responses to fertiliser treatment, and the technology of applying fertilisers to forests has advanced substantially during the past decade, so it was timely to critically review current forest fertilisation practice in New Zealand, and our rationale for it. The symposium provided the incentive for having a series of papers written which document the present "state of the art", thereby providing the base for examining our management decisions and determining research needs. These papers are reproduced in this special issue of the New Zealand Journal of Forestry Science so that they are available to a wider audience.

The symposium title, "Use of Fertilisers in New Zealand Forestry", could give the impression that fertilisers are being extensively used for increasing the productivity of our forests. That is not the case. Present usage is only a fraction of what could be advocated. At the symposium, it was predicted that if an intensive forest fertilisation programme was implemented immediately, the total roundwood yield harvested during the 1985-95 decade of lean wood supply could be increased about 30% per annum, assuming the utilisation of thinnings is practicable. Knowing that the opportunity for increasing the productivity of his existing forest estate exists, the New Zealand forest manager now has to decide whether or not he should capitalise on it. I am sure he is interested in obtaining higher levels of production per hectare, but except where chronic nutrient deficiencies are encountered, he has been tardy in using fertilisers to achieve higher rates of production. The reasons advanced usually reflect his uncertainty; uncertainty that growth gains obtained at an early stage in the rotation represent worthwhile gains in the volume of wood harvested at the end of the rotation; uncertainty that yield gains obtained in carefully controlled research trials can be realised in operations applied on a management scale; and thus uncertainty that investment in fertilisation years in advance of harvesting can be economically justified. Sometimes he is uncertain about the effects fertilisation could have on other forest values, such as water quality. Undoubtedly, a major factor contributing to the forest manager's uncertainty is the difficulty he has had in obtaining reliable information. One purpose, therefore, in publishing the symposium papers together in this special issue is to provide source material and data to which forest managers and researchers can refer until a more definitive text that is pertinent to New Zealand conditions is available.

E. H. Bunn,
Director, Production Forestry Division,
Forest Research Institute.