IN NEW ZEALAND CONTEMPORARIES

NEW ZEALAND JOURNAL OF AGRICULTURAL RESEARCH


The oak leaf-miner, a European species, was first recorded in New Zealand in February 1951. Populations of this insect in New Zealand suffer heavy mortality at certain times owing to adverse food-plant leaf conditions. Apanteles circumscriptus Nees and Enaysia splendens Delucchi were selected from the European parasite complex for consignment to New Zealand and Apanteles material was sent during March and April and Enaysia during October 1957. During the summer of 1957–58 Apanteles reached high population levels in Nelson.


Soil-temperature and soil-moisture changes during the year October 1954–October 1955 have been studied in two experimental plots in Whakarewarewa Forest. One plot was in a 39-year-old stand of radiata pine and the other in a seven-year-old stand of the same species. Changes down to a depth of 9 ft. 9 in. have been measured and correlated with the rainfall and mean daily temperatures.

Differences between plots were found, and their relationships to variations in the canopy, to thickness of litter, and to air movement in the stand are discussed. Both gypsum and fibreglass units were used, but this latter proved more satisfactory because of a more rapid response to a lowering of the soil-moisture content.

FARM FORESTRY


Explains the need to expand the planting of exotic forest trees and gives a brief review of the main districts throughout the country. It concludes that there is need for a more favourable basis for taxation on farm woodlots, a need for technical advice and assistance from the Forest Service, of demonstration woodlots, and of systematic management of woodlots aimed at the production of high-quality produce.

Farm forestry is not a haphazard undertaking, and the sooner a financial return can be obtained from some portion of the farm forest the greater are the chances of assuring a profitable undertaking. Utilisation of thinnings is important but usually necessitates preservative treatment. The farmer can successfully treat his own fencing material. The various methods of treatment are evaluated, and directions are given for the preparation of posts and of various recommended preservative solutions. The treatment of rough-sawn exterior boarding from non-durable timbers is also discussed.


Conditions of frequent cold south-westerly air streams accompanied by gale-force winds are a feature of the winter climate of Otago. Where effective shelter has been provided, pasture growth is checked less, stock lose less condition, and feed requirements are reduced. The author discusses the factors which should be considered in the orientation and location of shelter belts in rolling country, and suggests which tree species and shelter-belt patterns are most suited to the climate and topographic features of the rolling country of Otago. His points about shelter-belt location and orientation are generally applicable throughout New Zealand.

IMPROVING FOREST TREES. By T. T. C. Birch. Vol. 1, No. 2, Feb 1959


In any tree-planting programme or plan, balancing the various possibilities and requirements for shelter, woodlot, and aesthetic plantings requires considerable thought. This article brings forward some new aspects that should be considered and makes a forceful appeal for planned variety.


In this survey the author outlines some of the background to farm forestry activities in Hawke's Bay. The points he raises are equally applicable to all other areas of New Zealand.


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The two entire-leaved southern beech species of New Zealand, *Nothofagus solandri* and *N. cliffortioides*, although kept separate in botanical literature, have always constituted a taxonomic puzzle. Many intermediate forms can be found in the field. Since the two species, as originally defined, have quite different ecological requirements, and their timbers have distinct properties, it is important that their taxonomic relationships be clarified. A study of leaf characters in populations throughout the range of the supposed species revealed a transition in most characters. The evidence was sufficiently conclusive to propose adopting the taxonomic procedure of making one species of the complete range, and retaining the originally described species as varieties.
ECOLOGY OF THE LARGER WILDLIFE MAMMALS OF NEW ZEALAND. By R. I. Kean.
EFFECT OF DEER AND OTHER NOXIOUS ANIMALS ON NEW ZEALAND SOILS. By I. J. Pohlen.

NEW ZEALAND TIMBER JOURNAL AND WOOD PRODUCTS REVIEW
LAMINATED KAURI A FEATURE OF NEW CHURCH. By Tom Kane. Vol. 5, No. 6, Feb 1959.

NEW ZEALAND ENTOMOLOGIST

This paper, first of a paper on larvae of defoliating insects, deals with external characters of Selidosema suavis (Butler), a lepidopterous defoliator which is common on exotic conifer species grown in this country. The characters are given by instars, and an attempt is made to show how the setal pattern changes during larval development. This setal pattern is, so far as is known, characteristic of this species. Lists of host plants and localities (private plantations and State exotic forests) are given.

PROCEEDINGS OF THE NEW ZEALAND ECOLOGICAL SOCIETY
AN EXAMPLE OF WINTER INJURY TO SILVER BEECH AT MODERATE ALTITUDE. By G. T. S. Baylis. No. 6, 1959.
Pollen-bearing deposits and forest history. By W. F. Harris. No. 6, 1959.

Twenty-four trees from eleven contrasted sites have been tested for their physical properties. Results indicate that, within the range of sites tested, the age of the tree and its rate of growth are the most important factors regulating wood density. The air-dry density of individual trees varied from 24 lb./cu. ft. for a 25-year-old tree grown at 3 rings per in. to 35 lb./cu. ft. for a 46-year-old tree grown at about 9 rings per in. Analyses are presented of the variation of wood density with age, rate of growth, and percentage of latewood. Results of strength tests on 12 trees and some 30 flitches from four contrasted sites indicate that Douglas fir grown in New Zealand is as dense and as strong as virgin material and second-growth material grown on the west coast of North America. It is recommended that timber containing less than an average of 5 rings per in. be excluded from the superior grades of structural timber.


Examination of the physical properties of rewarewa (Knightia excelsa R. Br.) shows that density variation is very low. Difficulties experienced in seasoning the timber are shown to be due to differential shrinkage, the ratio of which is frequently as high as 3 : 1. The results of standard mechanical tests on a random sample, one specimen per tree, are presented. Estimates of the precision of the tests are given in terms of the probable limits of error (P.L.E.) of the estimated species means. Some features affecting utilisation of the species are discussed.


The slow drying of radiata pine (Pinus radiata D. Don) treated with aqueous preservative solutions by the full-cell pressure process is investigated. The possible causes of slow drying are examined and means of minimising this problem are suggested. A direct comparison, using 4 X 2 in. and 4 X 1 in. timber, is made between the kiln-drying and air-seasoning rates of radiata pine treated with various liquids and untreated (green off the saw). The kiln-drying rates of boards treated with three multi-salt preservatives and with water are compared.

It is deduced that slow drying is due primarily to pit aspiration or to some similar physical phenomenon, while the preservative chemical is a slight secondary cause of slow drying. A significant correlation
is established between drying time and uptake of preservative solution, from which it is shown that if the uptake of preservative solution is restricted the drying time can be reduced. Other aspects of the drying of treated radiata pine that are examined include the effect of a preliminary air seasoning of treated timber in reducing the kiln-drying time, and the development of steep moisture gradients during drying.

NEW ZEALAND JOURNAL OF SCIENCE
A STUDY OF HOME RANGE IN A FERAL GOAT HERD.
The movements of a small population of free-ranging feral goats (Capra hircus) were studied for sixteen months, advantage being taken of individual natural markings adequate for identification of each animal.

In the winter, adult males went into the forest, leaving the nanny-kid herd in the more open area, where the study was concentrated. This was an area common to all nanny and kid home ranges, and more than 90% of all observations were made in this herd range, which was 1,050 yards at its widest diameter. The herd range consisted of three high-use areas surrounded by areas of less use. In the nanny-kid herd, two groupings were recognised—the family group, and larger more temporary associations formed within the herd. The herd was never observed all together at any one time. There was no antagonism between groups or associations, and, although some aggressive behaviour occurred among billies, no signs of dominance or leadership emerged. The boundary of a herd range appears to be more in the nature of a band or zone than a line, and in this area it is apparently influenced by the availability of cover. Relations between sheep and goats do not appear to affect boundary formation and shooting has not been intensive enough to alter permanently the shape of the herd range.

The nanny-kid herd is considered the part of the population most suitable for the application of management and control measures.

Tests have shown that the toxicity of three arsenical wood preservatives, Boliden S 25 (zinc-copper-chrome-arsenate), Tanalith C (copper-chrome-arsenate), and Tanalith U (fluor-chrome-arsenate-phenol), to the common house borer, Anobium punctatum de Geer, is proportional to their arsenic content. The toxicity of arsenic combined in these different preservative mixtures was equal to that introduced into the wood as arsenic pentoxide, which shows that the other elements present (Cr, Cu, Zn, F, and dinitrophenol) did not contribute to the toxicity to Anobium larvae, nor did they reduce the availability of arsenic in the wood. Larvae were able to survive at retentions of 0.01% As₂O₅ on an oven-dry wood basis, but retentions of 0.018% As₂O₅ prevented their development.