

The characters of the rocks usually called Maitai throughout New Zealand are by no means uniform, and no doubt the maximum slope on them which may be safely cleared varies from point to point.

On rocks of the "papa" type, on the other hand, slips are quite common. The subsoil and the underlying mudstone are impervious, and the surface is liable to become so thoroughly soaked that flow results, whole hillsides in some cases being affected.

A grass covering appears to afford no protection against erosion of this type. More protection appears to be afforded by forest; for slopes that were evidently stable when bush-clad have begun to flow after being cleared. The slopes of the valley of the Maungapakeha, on the road from Masterton to Tinui, may be cited as an example.

I have in mind also flowing hillsides of quite gentle slope bordering the Kaipara Harbour; the underlying rock, however, is there an argillaceous limestone.

It will probably be found to be a general rule that the average slope which it is safe to clear is much less steep on the younger (Cretaceous and Tertiary) rocks than is the average on the older (Maitai and other) rocks.

It should be stated that the foregoing remarks are not made as a result of special investigations of erosion on slopes, and that in making them I have had to rely entirely on mental impressions received while my attention was mainly devoted to facts of a different order. I can therefore make no claim to finality for the conclusions reached.

No. 3.

SIR,—

The Dairy-produce Grader, Auckland, 23rd May, 1913.

As requested by your Commission, I now have much pleasure in reporting on the various samples of butter packed by the New Zealand Dairy Association (Limited), in boxes made from the following timbers: Taraire, kahikatea, *Pinus insignis*, and tawa.

The butter has been stored in the freezing-chamber at a temperature of 10° F. for a period of six weeks, and before being inspected it has been thoroughly defrosted.

On examination, we found the flavour in the various boxes to be as follows:—

*Taraire*.—One box paraffin-waxed and one without wax. No taint of wood could be found, and the butter had kept remarkably well. One thing I noticed was that this timber did not appear to take the nails too well, but in every other respect it seems suitable.

*Kahikatea, Poplar, and Tawa*.—Butter kept remarkably well, and no taint of wood.

*Pinus Insignis*.—The flavour of these two boxes (waxed and unwaxed) kept remarkably well, there being no taint of the wood.

I am of the opinion that any of these timbers would be most suitable to manufacture boxes for the export of butter; but with reference to the *Pinus insignis*, if used, would suggest that it be paraffin-waxed so as to eliminate any chance of taint, owing to the fact that some of our factories use a lighter parchment paper than others.

Some twenty-odd years ago, when the dairy industry was in its infancy and the only export trade was with Australia, the principal timber used was tawa and totara, and, having experience in the business in those days, I may state that the former wood used to give excellent results, there being no complaints whatsoever with regard to taints.

Another matter I would bring under your notice is that I was asked some three years ago to carry out an experiment with a specially prepared envelope manufactured of grease-proof paper. Butter was packed by the Cambridge Co-operative Dairy Company from one churning in envelopes of this make and placed in boxes made from the following timbers: Oregon pine, kauri, and *Pinus insignis*, and you will see by the enclosed copies of reports that the butter turned out free from taint.

At the present time I have not an envelope on hand, but, should you desire to see one, I believe that one could be borrowed from the patentee, Mr. E. Canavan Smith, of this city.

I trust that this experiment will be satisfactory to your Commission, and should you require any further information it will be my pleasure to supply same.

Kindly instruct me as to what I shall do with the samples of butter.

Yours, &c.,

A. A. THORNTON,

Dairy-produce Grader.

The Chairman, Forestry Commission, Wellington.

No. 4.

DEAR SIR,—

Mona Vale, Ma Waro, 22nd May, 1913.

Re establishing plantations on my property.

In 1907 there were 5,000 one-year-old prickly acacia trees planted 4 ft. apart, pit method, by day labour, at a total cost of £5 per thousand, also 2,000 oaks and 500 walnuts 6 t. apart, pit method, at £6 per thousand, all in grass land. These plantations were practically a failure, due partly to dry seasons, the tops dying back to the ground, and grass choking new growth from the root. The whole area planted with the above trees has since been replanted with *Pinus ponderosa*, with the exception of about an eighth of an acre, which I have kept with the object of observing whether the trees which are alive but making no progress will in time take a start when the grass runs out.