

IMPROVEMENT OF PHORMIUM TENAX FOR THE FIBRE INDUSTRY.

INVESTIGATIONS AT MIRANUI.

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THE writer was appointed by the New Zealand Flax-millers' Association in November, 1921, to carry out investigations into the so-called yellow-leaf disease of *Phormium tenax*, with the object of discovering its cause and finding means of combating it. The scope of the work also included improvement of the existing poor condition generally of phormium,* and the breeding of plants immune to the disease. The investigation was centred at the Miranui mill and phormium areas of the Seifert Company, near Shannon.

When commencing the work I realized that to achieve some immediate result it would be necessary to concentrate on ascertaining the factors which give rise to the disease, rather than to discover its actual causal agent. By working on this line, I became of opinion that there are at least three factors which prepare the way for the disease—namely, (1) the common method of cutting the phormium-plant, (2) the grazing of cattle in the phormium areas, and (3) the presence of weed-growth among the plants. As the investigation has progressed, however, so has the field for research broadened, and we now realize that combating the yellow-leaf disease is but one of the ameliorative measures to be undertaken.

Work of prime importance for the future of the industry is the selection and breeding of the very best varieties of phormium—varieties which will produce the greatest quantity of fibre of the highest quality. We now know that there are great differences in the varieties of phormium, the fibre yield of some of the best being twice as valuable as that from the average. This comparison is based on the varieties already tested; there may be some even more valuable. It is therefore most important to test every variety.

FACTORS INDUCING YELLOW-LEAF DISEASE.

Faulty Cutting of the Plant.—Examining the four factors which induce yellow-leaf disease, it is found that the present ordinary method of cutting the plant is the most important. That method consists in chopping down all the fans 5 in. to 10 in. above the ground. As the cutters are paid by the weight they cut, and the butts of the leaves are the heaviest part, they naturally try to cut as low as possible, the only restraint being that the butts must not show too much of what is colloquially termed "rhubarb." The butt ends of the leaves are of a rhubarb colour, and if there are long ends

* The term "phormium" instead of "flax" is used throughout this article, in conformity with recent practice in the *Journal*.