

to the experience in most other parts, a second crop of swedes is even better than the first crop on the same, two years in succession. I put that down to the fact that, in the meantime, the soil has become sweeter from the cultivation, and the plant-food has become available. If the ground is ploughed and allowed to lie fallow for twelve months, that seems to be as good as 2 cwt. of manure to the acre. The mellowing of the soil seems to make plant-food available. It is, of course, necessary to use fertilizers in the growing of all crops in this country. Apparently we are very short of phosphate. I believe the pumice soils to be more than doubly supplied in potash, and by the growing of clovers, which do exceptionally well, we can supply the nitrogenous manures, but have no means of supplying the phosphates, except by getting them from outside. The country responds very much to the application of phosphoric manures. Both in cropping and in the top-dressing of pastures I have found superphosphates to give quite wonderful results. I have cut cow-grass hay for eight years in succession. I think the next-best clover country that I know of in New Zealand is in Marlborough, and it is considered in Marlborough that if they can cut for three or four years in succession that is quite good. The results of the growth of this grass in the pumice lands beat that by just about double, as you will see. I do not think there is any so-called bush sickness within many miles of this proposed railway. If there is, it is in isolated districts, where perhaps the soils are very coarse. I am not a chemist, but I have read a good deal of what Mr. Aston and others have said about the bush sickness, and I have come to the conclusion that the finer soils have no bush sickness whatever, but that the bush sickness might be to a certain extent perhaps in the coarser soils, where the iron has percolated through the loose surface soil; and I am of the opinion that all this country will in the course of time, with farming, become consolidated, and as it becomes consolidated it will become what we call very healthy country. I have had no experience at all of bush sickness, but I say without any hesitation that there is no bush sickness within many miles of my farm. I believe the "sick" country is practically confined to bush areas of not open country, but is mostly found in bush country along high country near Mamaku. I do not know that I have anything more to say, and perhaps I would be better at answering questions than at making a speech.

1. *The Chairman.*] I think you have done remarkably well. There is, however, one very important question arising out of what you have said. You laid great stress on the value of the fineness of the soil and the working of the soil to make it fine. I think, if I understood you aright, you said that getting the soil fine was equal to applying a certain weight of fertilizers?—Yes, my experience goes to show that that has assisted very materially, and is as good as 2 cwt. of fertilizers.

2. Then the remedy lies more in the working of the soil than in fertilizers?—No, I think that is an assistance; but from my experience, no matter how much working of the soil is done, we must have fertilizers. We do not need much potash and nitrogen—we need phosphates.

3. *Mr. Kyle.*] That applies to all farm lands?—

4. *The Chairman.*] Exactly so; but I want to get from the witness the relative values of the fertilizers and the working of the soil?—I top-dress all pasture at the rate of 2 cwt. to 3 cwt. to the acre. I would go further and say that it would be more profitable if I put on more fertilizers. I believe the carrying-capacity of this soil is very largely dependent on the quantity of phosphates applied.

5. You think fertilizers are more necessary in those areas than they are generally in New Zealand?—I think so—phosphoric fertilizers.

6. I would like to have something about the possibility of the railway being able to pay. Do you think it would be a financial success?—I do; and I will give you a few figures. Before the Reporoa settlement took place there was practically no butterfat coming from the Waio tapu Valley. To-day the quantity of butterfat that comes from this settlement is somewhere about 270,000 lb. Putting that down at 1s. 6d. per pound—and the New Zealand Dairy Co. paid 1s. 6d. and nearly $\frac{1}{2}$ d. last year—the yield last year from this small area was just over £20,000.

7. It is a question of what would be the tonnage freight on that?—Yes. I believe there are great possibilities for this country, and that the railway will bring settlement—that is, taking the experience elsewhere.

8. *Mr. Makitanara.*] With regard to the first working: it means that the land will have to rest, as it were. You let the weather and nature assist you?—Yes. I use 2 cwt. of fertilizers, and I think it is just as good, but I believe the conditions are the result of the soil being mature. The working of the soil improves it, and makes available the natural plant-food that is there. Of course, it does not supply phosphates. You could work the soil for ten years and it would not supply phosphates. The Government chemists will bear us out when we say that the soil is very short of phosphoric manures.

9. *Mr. Kyle.*] You say that the country lends itself to intensive cultivation, and you believe that eventually, it would be brought down to farms of 50 or 60 acres?—Yes.

10. That is if put down in permanent pastures? There is no necessity for any rotation or anything like that? Once you get a basis, the assistance of fertilizers would keep you going?—Yes, I believe even on pasture land it will in future be a case of 50- or 60-acre farms; but the country lends itself to all sorts of cropping.

11. What rotation would you suggest?—The country lends itself to grain-growing—to root crops. One does not like to blow one's own trumpet, but it seems to me it is necessary to state one's experience. As to the growing of oats, I have had to stop growing oats because of the cost of conveying the produce to a market.

12. *The Chairman.*] How far are you from the railway?—Fifteen miles.

13. *Mr. Kyle.*] What price do you get f.o.b.?—I sold a little and got £10 a ton at that time. I admit that was a good price.