

Senator TAYLOR (*Westmorland*): Is it not a fact that when growers are subsidized they are hard to compete with?

Dr. HILL: Well, this again is probably outside my terms of reference.

**Dr. K. F. Nielsen, Sectional Head, Soil Fertility and Soil Management, Division of Field Husbandry, Soils and Agricultural Engineering, Ottawa, called.**

Dr. NIELSEN: As has been mentioned, I have the responsibility of the management, co-ordination and supervision in Canada of soil fertility and soil-plant relationships, and I would say at the outset that as research personnel we consider our purpose and our responsibility to do research on soil-plant relationships which will give the best results. That is our duty, and in this objective we have to largely ignore the economics of overproduction which we frequently encounter. In other words, we want to be able to produce; we want to be able to have the information to give the farmers to produce when it is called for.

Now, the utilization of this information is another point, and while we are trying to get the information on how to best produce we have to be able to apply that information so that it can be best utilized. I want to say that to begin with.

With regard to the use of fertilizers in soil-plant relationships I would say this, that essentially all soils of agricultural importance in Canada could produce larger quantities of crops by the use of fertilizers,—practically all soils. Now, we must know the nutrient requirements of the crops, we must know the fertility or the nutrient supplying power of the soil, in order to make a recommendation to a farmer with regard to the growth of a particular crop. Take the Prince Edward Island soils, for instance. A lot of fertilizer is used in the production of potatoes. This stems from two reasons, the first is that the potato requires a lot of fertilizer. A 600-bushel crop requires large quantities of nitrogen superphosphates, and potash. Secondly, those soils are very poor soils in fertility and low in the necessary plant nutrients, on account of the granite parent materials and what little has been formed from these rocks has leached out by high rainfall. So in knowing the plants' requirements and in knowing the supplying power of the soil we are able to give some kind of recommendation to farmers with regard to the quantity of fertilizer they should use.

Now, we have been able to find similarities between soils in different areas. Sandy soils often respond similarly to fertilizer application, whether it is in New Brunswick or in Prince Edward Island, and they require larger quantities of fertilizer than clay soils. This could be misinterpreted. Clay soils have a larger capacity to retain the nutrients in the soil in a way that the plants cannot use them; clay soil has more fertilizer elements in it than sandy soil, that is what I meant.

Now, we have the responsibility of assessing the fertility requirements of crops on soils all the way across Canada. This has been a rather difficult task because there are so many different soils in Canada. Even in your own municipality and on your own farm, you will find different kinds of soil which require different management practices, and we will never reach a point where we can say we have indexed our soils. Nor can we say that we know how they must be handled, or know what their fertilizer requirements are going to be this year or a year from now, because not only are we still trying to find out about new ones that we have never studied, but those that we have studied are changing due to management practices, so that we are then faced with the problem of following the effect of management practices on the soil. We have recently organized a national soil fertility committee. On this committee we have representatives from the provincial Governments,