A STUDY OF THE INFLUENCE OF SPACING WITHIN ROWS AND SEED TUBER SIZE UPON THE YIELD OF THE POTATO CROP

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I N T R O D U C T I O N

I. INTRODUCTION

The potato is one of the main food crops grown in New Zealand, and has been established since the time of European settlement. In the early years production was concerned mainly with meeting the demands of the growing population. This resulted in a rapid and steady increase in the total acreage grown. However, in the last decade, increase has been gained largely through intensification of crop areas rather than their extensification. Consequently, a diminishing increase in acreage grown has resulted. The above pattern is clearly illustrated in the following figures (extracted from Farm Production Statistics of New Zealand 1963 - 1964);

Year	Acreage	Total Yield (ton)	Yield (ton/acr.)
1955-56	17.665	100.677	5.70
1960-61	22.334	190.438	8.53
1964-65	25.969	243.000*	9.36

Marked increases in productivity have been brought about by improvements in general crop husbandry and an increase in production efficiency. Notable progress has been made as a result of:

(1) The introduction of new varieties with high yielding capacity and resistance to certain disease;

(2) The establishment of the National Seed Certification Scheme;

(3) Better knowledge in the use of fertilizers;

(4) Specialisation of suitable areas in potato production;

(5) The use of modern technology and methods in general crop management.

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* estimated figure at the end of 1964.

In spite of these approaches there remains much to be studied. Mundy (1966) emphasised that because of rising costs in potato production, crops of at least 10 tons per acre will have to be grown if the venture is to be profitable. Undoubtedly there is a need for more intensive research on improving methods of growing potatoes.

One aspect which has a major influence on plant population is seed spacing and seed size. The project reported herein was designed to study the effect of different levels of spacing and seed size, together with their interactions, on terminal yield of potato crops.

In view of the need to study other important factors influencing yield, the investigation was extended to include the effects of seed spacing and size on growth and development of the crops.