

Rate-of-seeding Wheat Trials in South Canterbury

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FOR many years in South Canterbury it has been common practice to drill both autumn- and spring-sown wheat at about 2 bushels of seed per acre with 1 to 1½ cwt of superphosphate, but variation of sowing rates has ranged from 1 to 4 bushels per acre. Nineteen wheat manurial trials since 1951 have shown that yield increases of autumn-sown wheat of about only 1 bushel per acre can be expected from wheat sown with 1 or 2 cwt of superphosphate per acre as compared with wheat sown without manure. These results, however, were obtained with autumn-sown wheat only, no experimental work having been done to find out if spring-sown wheat needed manure. Similarly, little was known of the effects of high and low seeding rates on yields of both autumn- and spring-sown wheat. To obtain this information two trials which compared rates of seeding, superphosphate application and no manure, and times of sowing (autumn and spring) were sown in 1959. In both trials the variety Aotea was used.

THE first trial was drilled in late autumn (12/6/59) on the Timaru downs at Landsborough and followed a rape crop. The soil type was a Timaru silt loam and the area gave a soil test which was average for the class of country. The sowing rates used were 1, 1½, 2, 2½, and 3 bushels per acre, each rate being drilled with no manure in some plots and with 1 cwt of superphosphate in others.

By August, after an excellent strike and establishment, 1 bushel per acre appeared to be too thin, 2½ and

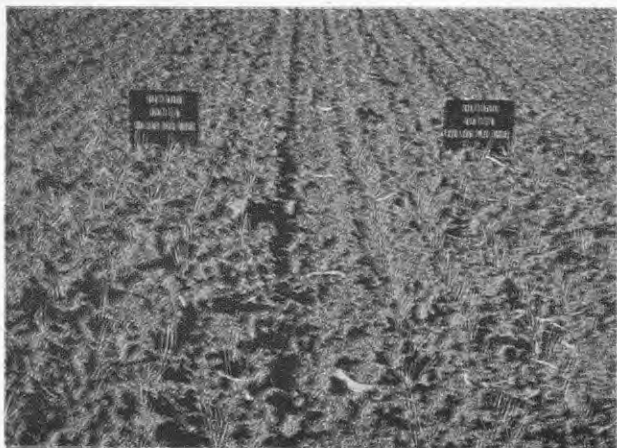
3 bushels too thick, and 2 bushels about the right density. Differences due to manurial treatment were slight, sowings made without manure if anything being more vigorous than those with 1 cwt of superphosphate. At this stage the number of plants establishing per 10 ft of row (see Table 1) fairly closely followed the seeding rate.

The trial was grazed bare by sheep in mid August and, despite dry weather in September, plants were 8 to 10 in. high by mid October, when a count of the tillers (see Table 1)

showed that the lower the seeding rate was the greater was the number of tillers per plant. Tillers in the 1 and 1½ bushels per acre rates were also much stronger than in the higher seeding rates.

By the end of December, after a month of warm, showery weather, the trial had made good progress and was very even; 1 and 1½ bushels per acre were still less dense than the higher seeding rates, though differences were not as marked as may have been expected. The heads per 10 ft of row were counted just before harvest (see Table 1). Measurements showed that the heads varied markedly in size, but the 1 and 1½ bushels per acre seeding rates had much less variation. These two rates were later maturing with heads better filled and about ½ in. longer than with the heavier seeding rates. There were no visible responses to superphosphate at any stage of the trial.

At harvest (8/2/60) a seeding rate of 1 bushel per acre gave the lowest yields, but there was little variation in yield between 1½, 2, 2½, and 3 bushels per acre. There was only a slight increase in yield where 1 cwt of superphosphate was drilled with the seed.



Aotea autumn sown at 1 bushel per acre (left) and 2 bushels (right).



Aotea autumn sown at 2½ bushels per acre (left) and 1 bushel (right).