September and October. Other forms of nitrogen were also reported on, but were not of outstanding merit. In the 1930–31 season three trials in which nitrate of soda and sulphate of ammonia were applied at different times were laid down. The differences between different times of application were not so marked as in the previous year, nor were the increases from the nitrogen as great. These experiments will be the subject of a special report to be published in the *Journal*.

Rate-of-seeding Trials with Wheat.

Three trials were carried out with rates of seeding ranging from 80 lb. to 130 lb. per acre with each of three varieties. The results confirm those of the previous year, and point to the conclusion that a sowing of 20 lb. or 30 lb. of seed in excess of the optimum will not affect the yield. If, however, the rate of seeding is 10 lb. or 20 lb. below the optimum a considerable reduction in yield will result. The results of these trials have an extremely important bearing on variety-trial work and also on farmers' practice. There is a tendency for the rate of seeding of wheat to be decreased below that formerly practised. While this practice may result in an improved sample, it is not likely that the grower will get a price for such wheat commensurate with the lowered yield which is likely to result. The tendency should be for a little more rather than a little less seed to be sown. These trials are being repeated in the coming season, and no results will be published until the results of the coming season's trials are available.

Wheat Variety Trials.

Twelve variety trials were laid down in collaboration with and on behalf of the Wheat Research Institute. With very few exceptions, Solid-straw Tuscan has proved to be the best-yielding variety under trial. Its yield, combined with its wind-resisting properties, will make it a difficult wheat to displace, and unless growers receive a considerably higher premium for quality than they have done in the past it is not likely that quality wheats will become very popular. The programme of variety trial work is being maintained as far as finances will permit.

Effect of Hot-water Treatment for Control of Disease on Yield of Wheat. (Trials conducted on behalf of Mycologist.)

Three trials were laid down in continuation of the programme of the two previous years. The hot-water treatment had rather a severe adverse effect on germination, and did not increase the yield. Seed once removed from treatment yielded the same as untreated wheat in all cases, although the treatments of the previous year from which this seed was derived did have a considerable effect on yield.

Oats.

One manuring trial was conducted at the Gore Experimental Farm; the results are not yet to hand. One hot-water-treatment trial was conducted; the hot-water treatment had no effect on yield.

Barley.

One manuring experiment was conducted in Canterbury; 1 cwt. of superphosphate increased the yield by approximately 9 bushels per acre; muriate of potash depressed the yield; nitrate of soda had no effect.

One hot-water-treatment trial was conducted, but the treatment was ineffective.

Note.—Hot-water-treatment trials on wheat, oats, and barley were carried out on the Canterbury Seed Co.'s Farm by courtesy of Mr. Hewlett, Manager of the Canterbury Seed Co.

Potatoes.

Four manuring trials on early potatoes were conducted in the Pukekohe district; the results of the 1929 experiments were published in the *Journal* for April, 1930.

Only ten South Island manuring experiments on main-crop potatoes were sown in 1930, as compared with twenty in the previous season, the rduction in the number of trials being occasioned by lack of finance. It is intended to summarize the results of four years' experiments about August next. A brief summary, including recommendations to growers, was published in the *Journal* for September, 1930.

Eight trials conducted in 1929–30 on behalf of the Agronomist revealed marked superiority of certified over non-certified seed potatoes. The increases in yields of the following four varieties, Epicure, Aucklander Short-top, Dakota, and Up-to-date were 148 per cent., 9 per cent., 84 per cent., and 112 per cent. respectively. These increases refer to the yields of table potatoes only.

Eight trials laid down in 1929 in collaboration with the Mycologist, Entomologist, and Agronomist, with the object of determining what districts least favoured the spread of virus disease and produced the most vigorous seed are being continued. In 1930 seed from eight different sources was put under trial at Rangiora. The results are not yet available.

Swedes and Turnips.

During the year two reports were published on manuring of turnips in Canterbury. Results of a large number of trials are awaiting publication and will be attended to this year. The average of nine experiments conducted in 1929–30 shows a superiority of superphosphate plus lime over superphosphate by 47 per cent. in germination and 30 per cent. in yield. Only thirteen experiments were laid down in 1930 as compared with twenty-four in the previous year.

An experiment on behalf of the Mycologist was laid down at Gore Experimental Area in 1930 to determine the effect of lime combined with the manuring of slag on the control of club-root. Reports to date indicate that the combination of lime and slag had a very striking effect on club-root control. This experiment is being continued to determine the effect of lime application in the second season.

Miscellaneous.

Other experiments being conducted include onion variety trials, lucerne inoculation trial, lucerne manuring, control of bidi bidi, control of manuka-scrub, lupins for sheep-feed, maize variety and selection trials.