

Seeds of other species—subterranean clover, browntop, *Phalaris tuberosa*, maize, linen flax, onion seed, rape, chou moellier, thousand-headed kale, turnips, and swedes (these last three described as Government Approved)—are also certified under conditions appropriate to the needs of the particular species.

Benefits from Certified Seed

The first and most obvious effect on farming of the availability of Certified grass and clover seeds has been that purchasers have been assured that the seed they buy is of good strain. In addition a channel has been provided whereby the work of the plant breeder developing pedigree strains is rapidly and assuredly passed on to the farming community.

A knowledge of strain coupled with a knowledge of purity and germination of the seed has enabled a more accurate evaluation of the seed, and buying and selling have been undertaken with more confidence. Though it is almost impossible to measure the effect of the scheme on individual species, a comparison of the position in regard to some species before the scheme was instituted with the position today is given below.

Perennial ryegrass: Before the introduction of the scheme 25 per cent. of the perennial ryegrass being harvested might have been expected to reach the certification standard of the first years of certification. Today, when a much higher standard of certification applies, fully three-quarters of the perennial ryegrass seed produced is certified and it is not difficult to believe that the quality of much of the remainder is not far short of the present standard for certification.

Italian ryegrass: When certification was first introduced no local strains had reached the standard of certification set; today the greater proportion of the seed harvested is recognised under certification. This is all of pedigree strain, which is superior even to the imported strain which provided the first material to be certified.

Short-rotation ryegrass: Only the certification scheme has made it possible to preserve with certainty the identity of lines of short-rotation ryegrass seed, and practically the whole seed crop is certified.

White clover: When a laboratory test for white clover certification was first introduced in 1937 the total production amounted to 485 tons, of which 40 per cent. was accepted for certification. Ten years later production reached 2648 tons, yet despite a higher certification standard, 70 per cent. of the crop was certified, a proportion which has been at least maintained since then.

Montgomery red clover: This seed would not have been identifiable from cowgrass without a scheme, such as is provided by seed certification, under which it could be recognised.

Potatoes: Crops planted with Certified seed are true to variety and yield on the average about 25 per cent. better than those planted with uncertified seed. Probably half or more of the New Zealand potato acreage is now planted each year with Certified seed.

Cereals: Impurities and smutted heads in all cereal crops are now rare and seed true to its varietal name is

now regularly supplied as a result of seed certification.

Brassicas: Seed of strains and varieties of different species of brassica crops is now available correctly described. New strains and varieties have been developed to meet local conditions and the production of these seeds for New Zealand use, previously the prerogative largely of overseas countries, has now become almost entirely a local industry.

Changes in Farm Practice

There are other less obvious though no less important effects of the seed certification scheme. Before its introduction it was essential with perennial species, if quality was to be maintained, to harvest seed from old



pastures. This uneconomic process can be eliminated under a certification scheme emanating from a nucleus supply of seed derived from regularly selected material of pedigree strain. Farmers have been able to take the fullest advantage of the heavier and

cleaner seed crops harvested from younger pastures. The undesirable practice of saving seed from pastures of mixed ryegrass species has been almost eliminated. Seed production under certification has become primarily an activity of the arable areas where crops and pastures are associated in the farming practice.

Saving of grass and clover seed, though not a primary activity on most farms, is nevertheless a planned one. In general the whole outlook on pasture seed harvesting has been lifted from that of a haphazard, catch crop undertaking to be indulged in at the whim of the farmer and the season to that of an operation which warrants careful attention and planning. This change in the attitude to seed production, though perhaps affected to some extent by other factors, has been the result largely of the direct influence of the certification scheme.

The effect of Certified seeds on New Zealand farming practices has been revolutionary. Better pastures with longer life and higher carrying capacity have been produced, soil fertility has been built up, resulting in increased production both of pastures and crops, greater freedom from disease of crop seed has meant a better yield, and trueness to variety has meant more uniformity and maturity with greater ease of harvesting, a factor more important since the advent of the header harvester.

The full effect of the availability of Certified seeds can never be measured, but many farmers know from the progress they have made on their own farms what the use of Certified seed has meant to them. The results achieved by the regular users of Certified seeds are the best indication of the value of the seed certification scheme to the country as a whole.

Seed-testing Station

The Seed-testing Station operated by the Extension Division is situated at Palmerston North, and as the relative values of most of the seed grown in New Zealand are determined on tests made at the Station, a large and efficient staff is necessary. The rapid development of the seed industry, particularly the export trade, has been reflected in the number of tests undertaken at the Station, increasing from 45,000 in 1942 to 93,000 in 1952. The three main kinds of tests carried out on seed are for purity, germination, and strain determination, the last being an integral part of seed certification, as is also the process of plot testing, which is done by the Grasslands Division of the Department of Scientific and Industrial Research at Palmerston North in collaboration with the Station.

The main tests during 1952 were approximately 32,000 for purity, 46,000 for germination, and 15,000 for strain determinations, and there were many incidental tests such as estimations of blind seed disease in ryegrass.

Seed samples which arrive for testing may have been drawn from the lines they represent by a Departmental officer, a merchant, or a farmer. All agricultural and horticultural seeds are represented in the samples received at the Station. The cost per test when the result is reported in certificate form is 5s. for a single test or 10s. for both purity and germina-