PASTURES IN CANTERBURY

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DURING the past 9 years the use that pastures can be in, the farming rotation has been realised by the farmers of Canterbury, and they now have a much greater appreciation of the usefulness of pastures in the farming programme; further, they have consolidated their ideas on pastures and there is not that hesitancy today that was apparent earlier. Farmers have become pasture-conscious just as they have become lime conscious, and a greater proportion of them are demanding better seeds with the knowledge that without their use good permanent pastures are not possibble.

Canterbury as a whole is essentially a province devoted to arable farming and as such would not be expected to contain really-permanent pastures of the age of some of the North Island pastures; they are the exception rather than the rule. The climate does not lend itself to really-permanent pastures, the rainfall being on the average from 23 to 30in. Further, if every farmer in Canterbury went in for permanent pastures and stock, the position with grain crops would be more desperate than it is at present.

The early pioneers exploited to the full Canterbury's eminently-suitable climate for arable farming and they had a great number still have the name of being very efficient at growing almost any type of crop suited to the climate. They were not so very interested in pastures because it was considered that they were only of secondary importance, and this was probably true while the virgin fertility of the soil was in plentiful supply, but a great number of Canterbury farmers would be very thankful to have some of that virgin fertility today. The depletion of the soil was very gradual and it has been during the past 15 to 20 years that this depletion has been felt. It is not possible today to grow two or three white crops in succession and get payable yields. It is to pastures and stock that the Canterbury farmer has had to turn in an endeavour to restore some of that lost fertility, and in a great number of cases the process of building up fertility, while slow, is taking place.

Changes in Seed Mixtures

As a result of the progress made in improving pasture species, farmers now have at their command high-producing strains of perennial, Italian, and short-rotation ryegrasses, cocksfoot, white clover, cowgrass, and Montgomery red clover, and the great majority of them are putting them to good use. With the introduction of seed certification and the good prices being obtained for these seeds, there has been a gradual change in pasture mixture, farmers on suitable soils exploiting this market to the full. This of necessity meant that where in the past a mixture of ryegrass, white clover, and red clover was sown, this was changed to ryegrass and white clover or to a temporary grass such as Italian ryegrass and red clover, so that one grass or clover could be harvested without the other species hampering the ripening and harvesting of seed.

In certain areas the laying of seed is not possible because of the soil and topography, so that there have gradually been evolved three classes of pastures-pastures for grazing purposes only, pastures for seed production, and special-purpose pastures.

Pastures for grazing only are to be found in areas where the country is too steep for successful harvesting, where much cropping is being done which does not allow for both extensive cropping and the shutting up of pastures for seed to be carried out, or where some special type of farming is practised such as town-milk supply, dairying, or stud breeding. In this case the pasture mixture consists of species that will give the maximum grazing through the season and it is made up of perennial ryegrass, white clover, and red clover. On the heavier soil type some timothy is included and on the lighter soils cocksfoot and subterranean clover.

Pastures for seed production exist on a great majority of farms throughout Canterbuiy. A climate that is suited to crop production is also suited to pasture-seed production, and therefore there has been a change in the mixture so that the farmer can change to seed production if so desired. In Canterbury in most seasons it is difficult to control the feed, and in these cases this surplus feed has been turned to profitable advantage by allowing the pasture to run to seed. The mixture in this case is perennial ryegrass and white clover with sometimes crested dogstail included, as dogstail does not interfere in any way with the harvesting of seed. The general procedure is to autumn sow the pasture, utilise it in early winter and early spring for grazing, and then close the area for seed about mid-October. In the case of white clover the area is closed for seed between about the end of October. and

mid-November. After being harvested the area is again used for grazing.

Special-purpose pastures: There are areas sown for a particular purpose, such as Italian ryegrass for greenfeed and then a seed crop, or on heavy soil types timothy for summer grazing. On the lighter soils lucerne and cocksfoot are sown for grazing in spring, hay in mid-summer if the season is suitable, and autumn feed for lamb fattening. This type of special-purpose pasture can be very useful on some of the lighter soil types in Canterbury. In other cases Montgomery red clover and cocksfoot are sown for hay and seed and ultimately the area becomes a pure cocksfoot pasture and can be utilised for either seed production or grazing.

Which of the three classes of pasture is used is largely governed by the size of the farm, soil type, and rainfall. A survey of the soil types shows how they vary within very short distances, and with this variation the size of the holding varies also, as does the type of farming. As an instance, on the main south road from Dunsandel to Bankside there is a good depth of soil at Dunsandel which gradually peters out about 5 miles from Dunsandel, changing from good cropping and pasture land to light shingly country which grows mainly browntop, sweet vernal, and hairgrass. There are many examples of this variation over a good portion of the Canterbury Plains.

Three Main Soil Types

Broadly, Canterbury has three main types of soil:-

The heavy soils of, Waikari, Waikuku, Woodend, Kajanoi, Taitapu, Leeston, Southbridge, Wakanui, Eiffelton, Clandeboye, Temuka, and Willowbridge.

The medium soils of Lincoln-Leeston, Darfield, Dunsandel, Barrhill, Methven, Orari, the downlands of Timaru, and the downs of North Canterbury.

The light soils at Glasnevin, Burnham, Wmchmore, Ealing, Rangitata, and Glenavy.

Heavy Soils

The principal crops on the heavy soils are wheat, barley, peas, potatoes, and pastures. Here the establishment of pastures is in general by sowing down with the crop, usually an autumn-sown wheat crop or spring-sown barley. One of the reasons put forward for this method of sowing is that because of wheat growth it is sometimes difficult to establish good pastures on a fallow. The niixtures used include perennial ryegrass, white clover, red clover, and sometimes timothy and cocksfoot.

On some of this country that is well drained an occasional crop of red clover or white clover is taken, but in the main it is used principally for cropping and grazing, the life of some of the pastures on these soils being more than 10 years.

Medium Soils

The principal crops on the medium soils are wheat, oats, barley in certain districts, peas, potatoes, linseed, and in South Canterbury linen flax. Rape and turnips are grown for lamb fattening and chou moellier and swedes (in certain districts) for winter maintenance. It is on these soils that real mixed farming is practised-some crops, small seeds, fat lambs, and lucerne for hay.

Pastures constitute a good proportion of the farms and their life is from 4 to 6 years. The mixtures sown are of the simple type, being mainly perennial ryegrass and white clover, and are sown with a crop, with rape and turnips, and on a summer fallow. Some farmers are practising all-grass farming, growing only those crops necessary for the maintenance and fattening of stock. The general mixture is made up of from 1 to 1½ bushels of perennial ryegrass, 3 to 41b. of white clover, and sometimes crested dogstail in certain areas. On some of the larger holdings a mixture of Italian or short-rotation ryegrass and either red clover or white clover is also sown. It is usually drilled on a summer fallow, using 1 to 1½ bushels of Italian or short-rotation ryegrass and 3 to 4lb. of red or white clover. By the use of this mixture it is possible to save perennial ryegrass or white clover as well as broad red or Montgomery red clover. The red clover areas can be grazed when the perennial ryegrass or white clover is closed for seed, usually about the beginning of December. by which time it is very often possible to take a draft of lambs and in this way to relieve the feed nosition.

The Italian ryegrass-red clover pasture is verv often used if a paddock is bad with twitch. A certain amount of summer fallow, then the sowing of a quickly-growing temporary pasture enable a good return to be obtained without allowing the twitch to gain in strength before the land is put under a summer fallow again to clean up the remaining twitch.

The general practice is to take a crop of perennial ryegrass for seed the first season, white clover the second season, and graze for the remainder of the life of the pasture.

It has been found also that on this type of land liming is almost essential if any white clover crops are to he harvested. This has been illustrated in South Canterbury, where as the result of liming and

the sowing of good seeds white clover has been harvested on farms that have never previously. grown white clover for a seed crop.

In Ashburton and part of North Canterbury the lupin crop is exploited to the full and has been responsible for a great improvement in the soil fertility, enabling easier establishment of pastures.

Light Land

The light land is essentially grazing country and though some crops are grown on the best of it, in the main the crops are fodder crops for stock. Rape turnips, lupins, and greenfeed oats are the main crops and the sowing down of pasture is done with one of these crops or on a summer fallow. The most important constituent is. subterranean clover, which is sown at from 2 to 4 and sometimes 6lb. per acre with perennial ryegrass, cocksfoot, and some white clover. There is no doubt that during the past 10 years subterranean clover has proved its usefulness on this type of country, and in some areas has improved the fertility considerably. Here also liming and phosphate are necessary for successful establishment. On most of this country the pasture is drilled to ensure a good strike and also for the placement of fertiliser.

More recently successful attempts have been made to establish cocksfoot and lucerne to bridge the gap when the subterranean clover goes off. The practice is to sow 15lb. of lucerne and 8 to 10lb. of cocksfoot drilled,. either in 7in. drills or cross-drilled in late summer or early autumn-December to end of January. The sowing is allowed to establish and in spring is grazed by stock until October or later; if necessary, a hay crop is taken and the area, again used for weaning or fattening lambs in autumn. The main consideration is the management, care being taken not to graze the lucerne too close; eventually the cocksfoot gets the better of the lucerne, but in the meantime some very valuable feed has been produced as well as a build-up in the soil fertility.

It is felt that this mixture could be used more widely on some of the light plains country with definite. advantage. During the recent pasture competition it was gratifying to find some very good pastures on this type of country-better pastures for density and mixture **than on land twice its value-and it is on these areas that the greatest improvement is expected during the next decade. Admittedly the last two seasons have been good, but they will be good again and it would be a retrograde step not to attempt this improvement just because of the dangers of dry seasons.**

Greater Improvements Expected

Farmers generally are now conscious of the reliability of the better pasture species. The uncertainty of how long the pasture would last has been removed, and with adequate liming and fertiliser farmers can look forward to still better pastures, Stock numbers are increasing and it is felt that this increase will continue as the knowledge of management increases, so that the future for Canterbury pastures is bright, and greater improvements can be expected during the next 10 to 15 years.