

# THE PRODUCTION OF PASTURE SEED IN CANTERBURY.

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In a country such as New Zealand where a high percentage of the arable land is in pasture the question of seed production must necessarily be one of primary importance to the farmer. Every grass paddock is a potential seed crop but whether or not it is harvested as such is governed almost entirely by the adequacy or otherwise of the grazing available to meet the needs of the stock carried. Thus it is mainly in seasons of abundant growth that it is possible to close up a paddock for seed, and the production of this important crop may be a rather haphazard proposition. Of recent years, however, type has been a factor exercising a modifying effect on this; and the supposition that our seed will meet with a ready overseas demand has stimulated the production of pasture seed and has brought about a greater concentration on methods which will produce seeds of higher quality.

Taking as a guide last year's figures from the Agricultural and Pastoral statistics, the value of the more important grass seeds represented approximately £100,000 to the Canterbury Province. Before full attention can be given to the export trade, however, local requirements must be met. Ploughing up and resowing old pastures, is a regular farm practice that requires a large quantity of seed each year. In Canterbury alone on the good farming country the practice of leaving a pasture down for only three or four years has resulted in a continuous demand for seed. Until recent years the surface sowing of bush burns in the North Island required fairly large quantities of seed annually, but as most of the suitable country has been taken up the demand in this direction has now declined.

The two provinces in New Zealand which produce the bulk of seed are Canterbury and Southland. By reason of its climate Canterbury is particularly suitable for the production of such seed crops. The excellent conditions prevailing at harvest time greatly assist in producing grass seed of very high quality and good germination. When conditions are suitable, ryegrass (perennial and Italian) cocksfoot, white and red clover and brown top are all harvested for seed in Canterbury. Perennini ryegrass on account of its outstanding qualities is one of the main constituents in pasture mixtures and it therefore takes an important place in the seed harvest. Approximately 48% of the total N.Z. production of this comes from Canterbury, and the greatest portion from the medium to heavy lands in Ellesmere Rangiora, Cust, Fernside, parts of Waikari (particularly on the flats near the township) Cheviot, Ashburton, and the counties of Levels and Waimate in South Canterbury. A proportion of the seed is produced from old pastures but better yields and cleaner seed is harvested from young pastures. In Canterbury the general practice is to sow a pasture in the autumn, either by drilling or broadcasting, to graze during the winter and spring, and to take a seed crop the following summer.

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Generally speaking, crops harvested in this way give the best yield. Another method is to sow in the spring using rape or blue lupins as a cover crop, grazing the area until the following spring and then closing the area for seed. Each district has its own method of harvesting, some use the reaper and binder, some strip, whilst others cut with the mower and stack or cart the mown, seed into the miller sweeps. Another method is to cut with the mower and windrow, and then harvest the crop with a heading machine with a pick-up attachment. This latter method is a very recent innovation and requires great care or it is likely to prove costly. Two types of crop lend themselves to this type of harvesting:

- 1) The heavy badly-lodged crop where it would be impossible to use the binder. Harvesting in this case amounts to salvaging the ruin of a good crop, and under these conditions the header with pick-up attachment can be used with advantage.
- 2) The thin crop. In this case the object is to complete the harvesting as cheaply as possible and as direct heading does the whole job in one operation it would be the most satisfactory method to adopt.

With a normal crop the use of a header is much more doubtful as it involves leaving the crop standing until sufficiently ripe which frequently entails the risk of losing seed through shelling.. On the other hand, early cutting with binder or mower must be avoided if a good sample is to be obtained.

With the introduction of certification and the increasing demand for certified seed, the growing of perennial ryegrass seed as a specialised crop became worthy of consideration by growers in the districts previously mentioned. The crop could be treated as an annual one, or by special attention to manuring with suitable fertilisers the period could be extended to two years or perhaps more, the area being grazed in between the periods of harvesting. When the area became unprofitable ploughing and re-sowing could be carried out, the main consideration being the seed crop, the grazing being of secondary importance.

Italian ryegrass is sown extensively in Canterbury and in more recent years is taking the place of oats as a green crop. Approximately 80% of the Italian seed is produced in Canterbury. It is generally sown with the two-fold object of providing supplementary fodder during the winter and spring months and affording a seed crop later. As such it is treated as an annual, and sowing takes place as early in the autumn as possible. The grass is grazed fairly heavily during the winter and spring, then closed for seed about late October or early November, depending on the season. The yields from Italian are usually good and cases have been known where two crops of seed have been obtained in the one season. The crop is harvested in the same manner as perennial ryegrass. One precaution to be observed is not to close up the area too soon. Italian is often sown on the medium to heavy land with the idea of producing a maximum of feed. If the areas are closed too soon on this class of land a heavy tangled growth with difficult harvesting and poor seed sample will be the result.

The recent introduction of certification of Italian ryegrass should help to eliminate some of the inferior strains at present grown. The amount of grazing obtained from this seed has been good, but growers have been rather disappointed with the low yields in the past season. This may have been largely or wholly due to the dry season experienced, and further evidence will be necessary before any definite information is available on this point.

Cocksfoot: The harvesting of cocksfoot for seed is confined to two localities, the Akaroa Peninsula and the Plains country below Ashburton, which two localities produce approximately 95% of the cocksfoot seed in New Zealand. The Akaroa strain has shown itself to be definitely superior to the Danish, being much more leafy and less "stemmy". This strain and the very high reputation of the Akaroa-grown seed were built up when the Akaroa Peninsula was devoted almost entirely to dairying and cattle-grazing. The decline in the price of butterfat was partly responsible for a marked increase in the number of sheep grazed, and the effect of this is clearly in evidence in the pastures, the sheep having eaten back the cocksfoot much harder than did the cattle and this has resulted in other species coming more into prominence. Cocksfoot for seed production needs to be grazed very lightly, if at all, if the best yields are to be obtained. On account of the steep nature of the country, harvesting on the Peninsula must be done by hand and is therefore expensive. The outcome of this has been to sow Akaroa seed on the Plains country, particularly in the Ashburton county where it does very well, and to harvest a seed crop. Samples of this seed have been sent forward for test and have attained the type standards set for certification. The Cocksfoot seed grown on the Akaroa Peninsula has a reputation of always being clean and bright but the quality of the Plains seed varies considerably according to the type of land on which it is grown, so that if the Plains grower wishes to compete seriously with the Akaroa producer it will be necessary to study methods and conditions to achieve this object.

If an export trade is to be built up in cocksfoot seed it is essential that every effort be made to produce the seed at a reasonable price. With modern methods and machinery the growers on the Plains are in a position to produce cocksfoot much more economically than are the Akaroa producers, and the point arises whether it would not be advisable for them to concentrate on these methods and develop them to the fullest extent with the object of producing a high quality article with the minimum cost.

White Clover: The area of white clover harvested in Canterbury varies from 1000 to 2000 acres annually; and the value of this crop to the farmer on last year's figures was approximately \$18,000 to \$20,000. The harvesting of white clover for seed is even more incalculable than is the case with ryegrass. In addition to the question of adequate grazing, climatic conditions pay a large part in determining the ultimate end of the crop. Clover is largely dependent on the moisture supply in the autumn and spring and freedom from frosts, particularly in late November. The Ellesmere and Rangiora-Kaipoi districts produce the bulk of the white clover seed. In the Ellesmere district it is fairly widespread but in the Rangiora district it is confined mainly to the land on the seaward side of the Rangiora township, that is, Woodend, Waikuku, and Kaipoi. In other districts the area harvested varies according to the season.

Taking the past season as an example, quite a fair amount of clover was harvested in the Halkett-Courtenay and Swannanoa district with some good yields. On the other hand the yields in the Rangiora district were disappointing in some cases and exceptionally good in others, due mainly to the time of closing the areas for seed. Even in what might be termed the "good" clover districts a further element of uncertainty exists, and that arises from the fact that as a general rule the clover is not sown but usually comes as a volunteer crop either after oats or wheat. If a good strike results all is well, the paddock is left and a seed crop is harvested. Quite often, however, a good stand is left down a second year for a further seed crop but the grass-grub and dry weather take their toll, weeds invade the area and a poor crop results. This condition might possibly be avoided if ryegrass were broadcast on the wheat or oat crop when it is about 4 to 5 inches in height.

With the advent of certification and the price obtainable for certified seed, growers are now paying more attention to the systematic establishment of white clover, seed of the right type being sown in the early autumn along with either perennial rye or Italian to act as a cover, or sown in the spring with rye in the young wheat crop. This latter method seems to find favour with quite a number of farmers and is quite a good one provided weather conditions are not too dry in mid-summer.

As mentioned above, Italian ryegrass is used quite often, but if the paddock is required for more than two years the question arises as to whether it would not be better to use perennial rye at about  $\frac{1}{2}$  bushel per acre, then there would be a likelihood of eventually obtaining a good pasture with prospects of more than say two clover crops. Cocksfoot is not a good grass to sow if white clover is required for seed purposes as it makes growth at a period when the clover is ripening and results in greater bulk to handle at threshing time.

The type of clover being certified to by the Department is a very leafy type and growers find that their greatest difficulty is to know just when to close the paddock for seed. If the season is rather damp the clover keeps growing and produces only a light seed crop of inferior quality. On the other hand, a relatively dry season such as the last one was most favourable and some good yields and fine samples were secured.

This suggests a possibility that might be worthy of consideration by growers on the medium type of clover land. On this class of country there will not be the heavy growth to deal with as is the case on the heavier land, and fair yields of good quality seed should be obtainable.

When growing a particular type of clover the problem of volunteer growth must always be considered. Some growers on the heavy land have sown their clover in wide rows with the intention of intercultivating to keep down volunteer growth. Many growers have expressed the opinion that volunteer clover is not so much in evidence now in some localities as it was in former years. This may be due to continuous cropping and close grazing which prevents the clover from seeding. Sowing is now being carried out extensively on these areas and this offers a splendid chance for the establishment of the best types.

Several methods are used for harvesting the clover crop, namely the mower, side-delivery, windrow harvester and the stripper! All these methods have their merit, the deciding factor being the weather conditions at the time of harvest. Given suitable weather the crop can be harvested efficiently with good quality seed resulting.

Red Clover: The Canterbury Province produces approximately 35/40% of the red clover seed of this country, Marlborough being the largest producer. The average yield in Canterbury is approximately 140 lbs. per acre, which represents a considerable sum to the farmer. Red clover is sown fairly extensively on the wheat land, the usual practice being to sow broadcast in the spring, together with Italian or perennial ryegrass, on the young wheat crop. After the wheat is harvested the paddock produces a certain amount of autumn feed and is very valuable in that it provides feed at a time when other species are dormant. The following spring an early cut of hay is taken, followed by a seed crop, which is usually harvested in February or March - depending on how early the area was closed for seed - the usual method of harvest being with the side-delivery,

More recently a type of clover known as Montgomeryshire red clover has been introduced with the object of getting a more permanent type suitable for pasture mixtures. This clover has been sown extensively in South Canterbury and is doing remarkably well in that district. When it was first introduced it was stated that only a hay crop or a seed crop could be taken, but under local conditions on the heavier land some growers have been taking an early crop of hay and later a seed crop. It is too early yet to say whether this will prove to be good practice or not. If it does prove to be successful then Montgomeryshire Red should have a definitely bright future. On the other hand if a seed crop only can be produced, the growing of such a crop will have to be a special venture entirely separate from the production of hay for stock requirements.

Brown Top: The production of this class of seed has advanced greatly during recent years. To the farmer along the foothills of Canterbury it represents a considerable income annually. It is rather a seasonal crop, rainfall playing an important part in determining the future harvest, wet spring and summer weather conditions generally being necessary for the production of a satisfactory seed crop. The main localities producing brown top are Hororata, Methven, Mt. Somers, and the foothills of South Canterbury. The usual method of harvesting is by the use of the stripper although in some cases the binder has been used. The keeping down of harvesting costs is essential as the yield is light, averaging approximately 20/35 lbs of machine-dressed seed per acre.

In reviewing all these crops two points are outstanding: The first is that the cost of production must be kept low to allow of a satisfactory margin of profit to the producer, and to permit our seed to be exported and sold abroad on a competitive market at a reasonable cost; the second is that the production of pasture seed is fast becoming a definite project on many farms, instead of seed being saved only in years when a surplus of feed is available. This specialisation in seed production is highly desirable.

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and should be encouraged. It will result in raising the standard of our seeds, their purity and their quality and will generally assist in encouraging the spread of the desirable types.

In conclusion I would like to stress the wonderful possibilities of Canterbury as a producer of all classes of clover and grass seed. I see no reason why - with modern methods of harvesting and the up-to-date machinery in use for cleaning seed - Canterbury should not in time become the premier province in New Zealand for the production of seeds of excellent quality and high germination.

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