Mixed Arable Farm on which Seed Production is Prominent

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The demand for an ample supply of pasture seeds has always existed in areas where arable farming is practised and the demand for good seed has increased with the knowledge of the influence of strain and its effect on the production and life of pastures. As a result there is now a fairly stable demand for high-quality pasture seed. Pastures are a stimulant and not a necessity to crops. Ryegrass seed production demands similar conditions of soil, climate, and contour as the production of cereals and other annual crops; it is natural that Canterbury should be the largest producer of pasture seeds, the main kinds of which are ryegrasses and clovers.

In order that the present and, if possible, the future position of pasture seed, production and its relationship to arable farming may be appreciated it is necessary to understand the facts leading up to the present situation.

Up to about 1930 the method used by Canterbury farmers for sowing pasture was to sow 200 to 300 bushels (2 or 3 bushels) per acre of "ryegrass" with 2 or 3 bushels of clover. One of the areas sown was left for ryegrass seed in the summer of the following year, and after "sufficient seed was kept for the following year's requirements the surplus was sold. Red clover was saved for seed after an early hay crop, and white clover was sometimes taken in suitable seasons from stubble areas which had been left over from the previous harvest.

In short, pasture was considered secondary to cropping, and pasture seed was taken only to save the expense of buying. This was the situation up to 1930; paddocks were sown down only to give them a spell, the use of lime was considered unnecessary, and superphosphate was still regarded by most farmers only at its best as a stimulant and not a necessity to crops.

Production of Ryegrass Seed.

Ryegrass-seed production in Canterbury received its first modern impetus with the sowings of "Hawke's Bay" ryegrass sown under contract about 1929-30. As a result of this the pendulum swung back, and the strenuous efforts of a few of this initial effort would have ended in disaster; even as it was it retarded development for some years. The pure sowing of ryegrass without clover on cropped land, without lime, and with little superphosphate was, as is well known, the cause. In fact the only feature which kept the project alive was the price, another stimulant which was ultimately to react against the true development of pasture-seed production and its relationship to arable farming.

During the boom-price period pasture seeds were produced for their return per bushel or pound of seed rather than their yield per acre. Machine-dressing loss and quality were forgotten in what can be termed the mad rush for the buried treasure of small seeds, a treasure which only a few ever found. This culminated in the collapse of the market, the causes of which were receding prices, record areas, bad harvesting conditions, and disease.

Period of Formation.

Those 15 years of alternating periods of hope and despair can be regarded now as a period of formation and development during which the true relationship between seed production and arable farming was straightened out. Lessons were being learnt and applied throughout this period which have gradually placed seed production on arable land into its true perspective.

It has been proved that, first, pasture-seed production on a catch-crop basis as a quick revenue earner is risky, and, secondly, that it is not sound practice to devote the farm wholly to seed growing and to ignore the use of livestock in arable farming.

Like any other business, whether farming or commercial, seed production resolves itself into one routine. Certain operations must be carried out annually to ensure continuity in production and revenue and to avoid failures.
Use of Built-up Fertility

The basis of sound arable farming is a constant annual supply of first-year harvestable crops and second-year paddocks of red or white clover sown under conditions suitable to the establishment and growth of pasture seed-conditions which make full use of built-up fertility by adequately-limed and fertilised land and a good fallow, and cultivation which encourage the crop and make the maximum use of the innate fertility of the land and plants and animals possess in youth.

The basis of all first-year harvests is, of course, yield, and high yield has been found to be associated with high purity and low machine-dressing loss and, in the case of the ryegrasses, good germination or less susceptibility to blind-sedd disease. These first-year harvests mean a fairly short-lived period that the paddocks are down to pasture if any area is being saved but this procedure fits in comparatively well where conditions are such that winter and fattening feed have to be grown because they are essential or as a safeguard. In order to maintain continuity it is necessary that after two seed crops, one of ryegrass and one of white clover, the paddocks are being to save older paddocks as well as newly-sown ones, of production. Though as a safeguard the pasture ratio, whether seed, sheep, or cereal, is a constant annual supply of good feed producers for the rest of their lives, which depend on the length of the rotation.

Production Programme Intensification

From this it can be seen that, provided the saving of pasture seeds on an arable farm is carried out on the proper basis, it intensifies the programme of production. Though as a rule the length of life of pasture is too short where seed production is combined in the programme, the pasture never reaches the stage of becoming worn out and unproductive. The system also ensures that the sowings of a paddock to grass becomes the first priority instead of being pushed into the background as in former days. This means that the effort goes into seeing that the procedure is successful, so that pasture establishment becomes of first priority instead of being pushed into the background in order to achieve the well-being of the livestock on the farm. Consequently the ewes and lambs suffer. Sometimes grazing is obtained elsewhere but this is not generally satisfactory.

Improving the Land

From experience it appears that seed production is less, complicated when the farm on which it is practised is on what can be termed a rising plane of fertility. The difficulty is more the improving of the land so that the seed can be grown rather than the actual growing of the seed, which is more or less the result of experience from season to season. Under low-fertility conditions it is difficult to obtain harvestable pasture and payables crops, and in the case of ryegrass it is well known that it takes quite a bit of the ground. At the other end of the plane, that is, under high-fertility conditions, it is difficult to obtain pasture and payables crops, because of the actual growing of the seed, which is more or less the result of experience from season to season. Under high-fertility conditions it is again difficult to obtain harvestable pasture because of too much growth and consequently poor opening of seed under harvesting conditions. It must be remembered that the grasses and clovers used for seed must be different than for seed for leaf rather than for seed; they, like high-fertility conditions, making leaf to the detriment of the seed.

The creating of this upward trend of fertility is therefore as necessary in seed production as it is in every phase of farming if success is to be achieved. The beginning of a set rotation, including seed production on arable farms in Canterbury, will be governed by the set-up of the individual farm, in which consideration has to be given to contour, fertility, and previous farming.

On a farm where a rotation that includes roots and fodder crops, peas, linseed, and linseed flax out of lea ground followed by contouring, this is made with the establishment of pasture for seed production after the cereal crop. The basis is a fallow from autumn to autumn, coupled with...
good cultivation, adequate liming, a liberal manuring, and the use of a good seed mixture. Good husbandry gained through experience under average conditions should enable payable pasture and seed crops to be obtained.

The annual area sown to new pasture should correspond as near as practicable to the annual area broken up out of old pasture, which for all practicable purposes can be taken as a tenth of the farm. Once ploughed, the area will be out of grass for approximately 3 years. This means about three-tenths of the farm is under cultivated crops and fallow, a tenth in first-year ryegrass for seed, and a tenth in second harvest as white or red clover for seed. This amounts in all to about half the holding, leaving the other half for grazing purposes in 2- to 3-year-old pasture.

The stocking of the grazing pasture should be up to full capacity, reliance being placed on the supporting feed to be obtained from the first- and second-year seed stands in times of scarcity, etc. With this well-spread programme of work there will be few idle moments, but it is one that is well within the capacity of a modern farm.

The practice adopted by the writer for pasture establishment, with the aim of producing as great a yield of quality seed as possible from the area, can be summarised as follows:

Thorough preparation of the seed-bed with good cultivation is necessary after a lengthy fallow. The final working of the seed-bed should be of a surface nature only, and at least 1 ton of carbonate of lime should be applied before the firming of the seed-bed. It will be seen that in combing seed, soil and pasture it is necessary to sow in late summer or autumn so that the initial vigour will be carried through and the highest possible yield of ryegrass seed will be obtained.

Methods of sowing the seed vary. Where perennial ryegrass is being used broadcasting a mixture of 30 lb. of perennial ryegrass with 3 lb. of white clover and 2 lb. of crested dog's-tail per acre is generally favoured. When Italian ryegrass is sown it is usually drilled at the rate of 2 lb. together with 4 lb. of broad or Montgomery red clover. For short-rotation ryegrass used either with red or white clover, drilling and broadcasting seem to find equal favour. The method used by the writer is to drill a bushel of ryegrass with a liberal sowing of superphosphate and to broadcast about 2 bushels of ryegrass with 3 lb. of white clover or 4 lb. of red clover and 2 lb. of crested dog's tail through the front box of the drill in late February or early March.

In seed production it is, of course, essential that the highest grade of Certified seed obtainable is used in all the species sown in the mixtures.

The management of the newly-sown areas in autumn and early winter is to stock as soon as possible and to graze off quickly and allow time for recovery. In spring before the closing of the area the practice is not to hard graze, but rather to lighten the grazing just to keep the flabby top off and give the plants a chance to bring every tiller to a seed head. Finally, the stock should be taken off when definite signs of heads are appearing. By this time growth will have reached a height of 6 in. or more and will almost certainly mean a lodged crop, which, according to an old saying, ”rumed noman.” With these conditions high yields result, with which are associated higher germination.

The treatment of the final closing up of a white clover area is somewhat different; treatment can be harsher and shutting up later. On average meagre, clay subsoils a good sprinkling of flowers appears before closing of the areas. The right time to shut up the seed-production areas is learnt from experience and a thorough understanding of the soil type and rainfall.

For the first 2 or 3 years after the beginning of such a programme there appears to be nothing but hard work and heavy expenditure in fuel, fertilisers, lime, and seed. But once the rotation begins to take shape enthusiasm begins to increase. The result of the work begins to show in an improved holding and increased returns, the farmer begins to see that he is making progress, every step is of interest, and it takes a major upset for anything to fall out of place in the cycle.