

DOWNLANDS FARMING

By G. J. SLATER (read by W. C. STAFFORD).

I would like first to give a brief outline of my farming operations. The area of my farm is 703 acres of slightly undulating clay downs situated at Hilton, 5 miles west of Geraldine. There is about 6in. of soil over a fairly stiff subsoil of clay and ironstone and the soil is deficient in both lime and phosphates. This country reverts quickly to browntop and sweet vernal when it is not farmed to capacity. The rainfall averages 30 to 35ins per annum. The ploughable area of the farm is 650 acres, and like a good deal of similar country, it has grown too much crop in the past.

When taking over the property nearly 5 years ago the target I set was to have the whole area sown out to new pasture within 10 years. This target will be reached in the eighth year, 2 years ahead of time. Two rotations are carried out, both of which are very simple:

1. Old grass to roots to rape to wheat - fallow - grass.
2. Old grass to linen flax to wheat - fallow - grass.

The old lea of browntop and sweet vernal is ploughed with a digger plough in early winter and reduced to a seed-bed with disc harrows, and grub harrows in spring, for root crop or linen flax. The cultivation following roots is to surface work in preparation for sowing rape and after the rape to deep plough for wheat.

After wheat, the stubble is burned off and deep ploughed in March-April and fallowed till the following February for the sowing of pasture. This, the sowing of new grass, is made the key item. The cultivation is thorough; 2 tons of carbonate of lime is broadcast on the fallow, the seed-bed is well prepared, and seed mixture is sown with 3cwt of 6:1 ammoniated superphosphate in $3\frac{1}{2}$ in. centre drills.

The seed mixture is $1\frac{1}{4}$ to $1\frac{1}{2}$ bushels of perennial ryegrass or short-rotation ryegrass, 31b. white clover, 31b. of crested dogtail, with the inclusion this

last season of 31b. of cocksfoot and 31b. of timothy per acre.

As I stated previously, we are beating the target of the 10 years plan on this first round of improvement by some 2 years. This has been dictated by certain factors some of which we all come up against when development calls for greatly increased stock and other factors common to the past decade of high cost-price structure, particularly when all improvement must be done out of revenue earned off the farm.

On this type of country most of us are the better advised to breed our own replacement stock and be able to meet the increase as required.

Our flock at the starting point was 700 Romney cross ewes and 200 ewe hoggets. The position at this stage is 1200 ewes and 600 ewe hoggets, and the aim at the end of the first round of the rotation is to have a flock of 1800 ewes and still keep as many of the ewe lambs through as possible to allow for heavier culling than has been possible so far.

We have had to keep all the suitable ewe lambs produced to build the flock up to the present stage. This has been possible only out of revenue because of the buoyant market conditions of the past few years, and is to my mind a fit and proper time to attempt this practice.

Because of being on the one hand short of stock each year, and on the other hand having fairly stable prices for grain, linen flax, linseed and grass and clover seeds, the policy has been to double up on the ploughing of the old grass in the early years, and to cash in on the linen flax, wheat and ryegrass and clover seed, and at the same time to increase steadily the sheep numbers.

With the smaller area that is at present being ploughed up and which will continue for the rest of the rotation (about 50 acres a year). and the greatly increased sheep numbers to be carried, winter feed in the form of roots could well take up all the area that is being ploughed out of lea. But attention has been turned to silage and during last winter silage was fed with hay to the 1200 ewes all winter and supplemented only in the last few weeks of pregnancy by moosenuts.

The death-rate has been no more than usual with a much less rate of stillborn lambs. The time taken to feed out silage would easily be cancelled out by

break-fencing roots and turning the flock on and off daily.

With more experience in the making of silage from the best of grass and clover, I feel confident that the high peak of summer and spring production from young grass pasture can be used in the winter to much better advantage to the overall, build-up of fertility.

This brings me to the stage of making a statement of what I think may become the second great phase of increased production on our more stable clay soils with an annual rainfall of 25ins. and over, particularly in the cold winter-dormant Canterbury, Otago and Southland: the use of artificial nitrogen more especially in the newer forms such as nitro lime, nitro chalk and nitro phos.

On clay downs that maintain a fairly even production one year with the other and not in the main influenced by drought conditions of the plains, the main thing limiting production after the lime and phosphate factor has been attended to is our winter conditions. The use of nitrogen on autumn-sown and autumn-saved or spelled pasture will induce late autumn and early spring growth, but before nitrogen can be used extensively there is no doubt that the lime and phosphate requirements must be adequately satisfied. The trend towards earlier lambing gives lambs a chance to fatten before grass goes off in late December. Aftermath of silage and seed crops can be made use of for the weaning of lambs.

There is little doubt that an immense increase in production of actual grass can be ours by the adoption of approved methods and a sound rotation. Unless, however, full utilisation is made of the feed produced, another very serious problem arises. This is the unthriftiness of lambs and grossly fat ewes which follow the heavy stocking that becomes necessary.