
SHORT-ROTATION RYEGRASS

(Address by L. CORKILL at W. H. James's Farm)

Short-rotation ryegrass (or H1 as it is still commonly called) was produced by the Grasslands Division of the Department of Scientific and Industrial Research with the idea of combining the good features of Italian and perennial ryegrass—from Italian, rapid establishment, high winter and early spring production, and good palatability; from perennial, relative permanence. It is, in fact, a fair compromise between these two species. It resembles more closely its Italian parent than its perennial. It establishes rapidly, is very palatable to stock, grows vigorously in the winter and early spring, and is relatively low producing in the late summer and early autumn, but is longer lived than Italian.

This strain of ryegrass was first released as H1 ryegrass in 1943. At that time we realised that there was plenty of scope for improvement, at least in one important character—the ability to persist in a pasture. It was certainly much more persistent than the Certified Italian ryegrass on the market at that time, but still there was too great a proportion of short-lived individuals in the strain. Since its release we have been working on producing a more persistent strain which still retains the very important features of the original strain.

In 1946 we produced a strain greatly improved from the point of view of persistency. The following figures indicate its persistency relative to the earlier strains. The figures give the percentage survival based on single plant counts in the 3rd year:-

Original H1	%
1945 strain	39
1946 strain	46
Certified perennial ryegrass .	81
	97

—We have at Grasslands a 7-year-old pasture of this strain which has never reseeded and is still dominantly short-rotation ryegrass. This strain, although so much more persistent than the original H1, still retains its important characteristics of great initial

vigour, high winter and early spring production, and palatability. It is now available to the farmer as "Certified short-rotation ryegrass" in any of the certification grades.

Now, although these figures indicate that the present short-rotation ryegrass is inherently practically as persistent as perennial ryegrass, a word of warning as to its limitations is required. Management is an extremely important factor in its persistency. Under continuous really hard grazing it will be eaten out. Neither is very lax management combined with periodic hard grazing ideal for its continued survival, for under this treatment its very vigorous growth reduces the vigour of the all-important clovers so that the grass becomes starved for nitrogen and weakened. Ideally, new pastures should be grazed frequently without allowing a big bulk of grass to develop. By such treatment the slower establishing clovers are encouraged to develop along with the grass. After the establishment phase intermittent grazing is the ideal without grazing very hard or allowing the pasture to become really rank. Necessity, of course, may often prevent the consistent adoption of this ideal management; for example, autumn or winter saved pastures, which to obtain bulk when required must of necessity be allowed to become rank and for full utilisation are grazed off in, breaks with the use of the electric fence. Short-rotation ryegrass is ideal for this purpose, as it is a good winter producer, does not winter burn, and retains its palatability even when the growth is rank. Then again it may be necessary to use very mature growth for bloat control-rationing the feed by the electric fence.

Another important factor in the survival of short-rotation ryegrass is soil moisture. It is not as persistent as perennial ryegrass under summer drought conditions on light soils.

How should short-rotation ryegrass be used in seeds mixtures? Remember its important attributes are high winter and early spring production, so it can materially assist in spreading seasonal pasture production. It can be used for special-purpose pastures or as a constituent of a general mixture. A good special-purpose mixture could be 30lb. of Certified short-rotation ryegrass, 2lb. of Certified white clover, and 4lb. of Certified cowgrass-the short-rotation for winter and early spring production and the clovers for late summer production. But it is futile to use this mix-

ture, as I have seen it used in Northland, on land that is so wet in the winter that it cannot be grazed., You will finish up with a mass of short-rotation which has prevented the establishment of the white clover, and in the late summer scattered red clover and short-rotation plants. On the other hand, if this special-purpose mixture is grazed correctly, it will provide high winter production from the short-rotation ryegrass and good late summer growth from the red clover.

In a general pasture mixture short-rotation ryegrass can do a lot toward increasing seasonal production because of its good winter growth. In Northland, with its paucity of good winter growing grasses, its relatively mild winter, and its abundance of summer growers, it should be particularly useful. The standard mixture could be something like :-Certified short-rotation ryegrass 10lb., Certified perennial ryegrass. 15lb., Certified white clover 2lb., Certified cowgrass. 3lb. Other species could of course be included if required; for example, 4 or 5lb. of cocksfoot would be a useful addition on soils which dry out in the summer.

Grasses in general are more difficult than clovers to establish by oversowing in already established pastures, but of the grasses short-rotation ryegrass is one, of the best in this respect. On many Northland farms where a plough-up policy may not be feasible oversowing does offer possibilities of pasture improvement. In many districts of New Zealand short-rotation ryegrass has been successfully established in a pasture from oversowings of 5 to 10lb. of seed per acre. But to obtain success by this method on a dense paspalum turf is not so easy. Drastic harrowing to produce some sort of seed-bed and to reduce the paspalum competition is probably the first requisite for success. Experimentation by the farmer himself would probably pay a good dividend, for there is no doubt that production in Northland could be greatly increased if the feed position in the late winter and early spring were improved. Short-rotation ryegrass has the potentiality to do just that.