

# Establishment of Paspalum: Lupin Varieties

SEASONAL NOTES Contributed

by the EXTENSION DIVISION

**O**N moist soils in the warm northern districts of New Zealand paspalum is a valuable producer of summer and autumn feed. If paspalum is combined with perennial ryegrass and white clover and the sward maintained in that condition by controlled grazing and adequate manuring, the grass can make a valuable contribution to summer dairy production without loss of production in winter and spring when paspalum is dormant. On the other hand, pure swards of paspalum have a very low winter and spring production and, except on the very richest land, soon become sod bound if neither white or subterranean clovers nor *Lotus major* is an important constituent of the pasture.

**P**ASPALUM belongs to a group of plants most of which are natives of tropical or semi-tropical climates. Therefore it will thrive only in a district having a warm summer and a fairly high annual rainfall. Nor will it stand severe winter frosts, so its use is confined largely to the warmer areas of Auckland, Poverty Bay, Hawkes Bay, and Taranaki Provinces.

Though paspalum is a most vigorous summer and autumn producer when properly managed, it is not an easy species to get established in the normal autumn-sown pasture mixture. The seed varies considerably in germination, much of it being very poor, particularly New Zealand-saved seed, and consequently farmers are advised to sow the better-germinating Australian seed. In all cases they should insist on being supplied with seed of a satisfactory standard of germination.

## Slowness of Germination

Paspalum seed is rather slow to germinate, and the young seedlings require warm soil conditions if they are to come away quickly. They are very susceptible to frost injury and are easily smothered by more rapidly-growing species in the mixture.

Because of these factors, many farmers have had disappointing results from paspalum sown in autumn, frequently having to wait several years before much of this grass is seen. Experiments at Warkworth, Northland, in which paspalum was autumn sown in a mixture containing ryegrass seed showed little or no paspalum until the second spring afterward. In this trial it was evident that the establishment of the paspalum was greatly affected by the quantity of ryegrass seed sown—the greater the quantity of ryegrass, the poorer was the establishment of paspalum. This experimental evidence was confirmed in a similar trial at Taumarunui.

At first glance the obvious solution would appear to be to sow down the pasture mixture in spring rather than in autumn, but certain factors limit the success of this practice. In most districts spring sowing is done in September or early October, when annual weeds are starting to appear. In districts subject to heavy annual weed infestation the success of a spring-sown pasture is jeopardised by weeds, the growth of which frequently is so heavy as to smother out many of the pasture species. Again, if ryegrass is included in the mixture in any quantity, it will create the same smothering effect as it does when sown in autumn.

## Trials with New Methods

Of recent years several new methods of establishing paspalum have been tried with very encouraging results. These are all based on the knowledge that paspalum seed requires a warm, moist seed-bed for satisfactory germination and that the seedlings cannot stand heavy competition from associated species.

The first of these methods is to sow paspalum seed pure in November or early December, following it with the



Except on the very richest swamp land, paspalum pastures soon become sod bound and unproductive unless the grass is associated with clover. The maintenance of a paspalum-ryegrass-white clover sward requires regulated stocking to control the heavy summer and autumn growth, and the application of fertilisers (and lime when necessary) to maintain white clover in association with the grasses.

balance of the pasture-seed mixture in the next autumn as an oversowing. Paspalum is sown on a well-worked seed-bed at the rate of 6 to 8 lb. per acre. The seedlings have excellent conditions for germination and ample room to develop. This method has given good results in several cases, but an improvement would be the inclusion of 3 to 4 lb. of red clover seed with the paspalum seed. The clover gives some protection to the young paspalum as well as providing nitrogen for the seedlings. On soils especially suited to red clover excellent grazing can be obtained from the area in late summer and early autumn, and conditions are ideal for surface working the ground in late February or early March before the balance of the seed mixture is sown.

Another method tried with success is to sow paspalum and red clover with seed for a swede crop. By the time the swedes are properly in leaf the paspalum is well established and with the red clover provides a valuable supplement to the swedes in the following winter. After the swedes have been fed off the paddock is grazed in the normal farm grazing programme and provides good feed in the following late summer and early autumn, after which it is renovated with the balance of the pasture mixture.

Excellent results have also followed the sowing of paspalum with soft turnips or rape. If the seed is sown early, or if the resultant crop is to be fed off before March, the balance of the grass and clover species may be autumn sown.

On an established farm on which paspalum is already present in some of the paddocks this grass will soon show up over the whole area and its establishment and spread offer little difficulty, but on the farm where there is little or no paspalum the methods of establishing this grass described can be of value. In cases where they have been tried farmers have found that strong, healthy paspalum is present within 3 months of the seed being sown.

The introduction of paspalum into an all-grass farm which contains none of this species, and on which no ploughing is to be done, presents another problem. Attempts to oversow pastures with paspalum have not been very