

SHORT-ROTATION RYEGRASS IN THE AUCKLAND PROVINCE

By J. E. BELL, Fields Superintendent, Department of
Agriculture, Auckland

Short-rotation ryegrass has been fairly closely observed since its introduction to the Auckland Province about seven years ago in farmers' fields and in trials. To define its place on farms in this province it must be compared with Italian ryegrass and perennial ryegrass. These two plants have played an important part in the agricultural development of the province and high production has been obtained on those farms only where ryegrass is the dominant species in the pastures.

ITALIAN RYEGRASS

Italian ryegrass has been used for temporary pastures sown in the autumn comprising about 25lb Italian ryegrass and 6lb of red clover, the ryegrass lasting generally 'till about Christmas and the red clover producing in the summer of that season and, if left, for one, two, or more summers. This mixture plus cocksfoot has been used in sowing pioneering pastures in breaking pumice areas.

Italian ryegrass at about 5lb per acre has been a common ingredient in permanent pasture mixtures, its value lying in the great production which even this small amount will produce in the winter and early spring following sowing down. In unusual conditions where the soil is fertile and moist over the summer, Italian ryegrass, either by re-seeding or vegetatively, may become a permanent constituent of the sward. Generally, however, it dies and if too much is sown, gaps are found in the sward in the autumn.

PERENNIAL RYEGRASS

Perennial ryegrass is the chief constituent of pasture mixtures for most conditions. Where the fertility is reasonably high and grazing not unduly lax, perennial ryegrass has become permanent and is valued under these conditions for its high production. However, perennial ryegrass is less productive than Italian ryegrass and is less palatable. Nevertheless, it is permanent over a large range of con-

ditions and will withstand hard grazing and after dry summers will revive with the autumn rains.

SHORT-ROTATION RYEGRASS

Short-rotation ryegrass appears to be more like Italian Ryegrass than perennial in its Characteristics, and it scores very high marks for winter and spring production and palatability. Although somewhat more persistent than Italian, it is not nearly so persistent as perennial ryegrass. I understand that latterly short-rotation ryegrass of greater persistency has been placed on the market.

After the first year following sowing down, when it produces a very large quantity of palatable and valuable fodder for winter and spring grazing, the behaviour of short-rotation ryegrass is dependent on three factors :-

1. Fertility of the soil.
2. Moisture content of the soil in summer.
3. Closeness of grazing.

With a highly fertile soil that is moist in summer and with fairly lenient grazing, short rotation ryegrass will persist and continue to produce highly from June or July until December in each year; certainly not as highly as in the first year, but higher than perennial rye which however, produces more autumn feed. These are the identical conditions demanded by Italian ryegrass for continuation as a member of the sward, but with short-rotation ryegrass the chance of re-establishment appears greater.

The plant breeder has an unenviable task in attempting to produce plants which then may be expected to suit all manner of conditions. Short-rotation ryegrass, as the name indicates, was produced first of all for the arable districts of New Zealand where pastures are put down for periods 2 to 6 years, and it was for the shorter of these periods that the grass was bred. But the farmers of the Auckland Province, for whom the grass was not originally intended, are including it and will continue, I am sure, to include it in their pasture mixtures, which, in over 90 per cent of the cases, are meant to be permanent. They find that it produces about as highly as Italian ryegrass and so at least it can replace the 5lb of Italian ryegrass usually sown with little or no harm done. Then there is the greater chance of its re-establish-

ment in the autumn of the following year and in the years to follow and giving more highly productive and palatable feed in the winter and spring. If the chances of re-establishment are excellent, the mixture of the two ryegrasses should be 50-50 or 15lb short-rotation and 15lb perennial ryegrass; if reasonably good, then 10lb short-rotation and 20lb perennial ryegrass should be sown. The farmer is always a bit of a gambler, but he should estimate his chances before making a decision. On a fertile soil which does not dry out in the summer he should sow at least 10lb of short-rotation ryegrass. If he sows too much and the short-rotation ryegrass dies out, bare patches result and production next year will be less than if it had not been sown. Weeds and poor species such as browntop will invade the bare spaces if the fertility is low, or white clover if the fertility is high.

On soils which are liable to pug in winter, the use of Italian ryegrass has not been advocated in the past, because the high production of this grass in the first winter following laying down in autumn forced the farmer to stock the paddock more heavily than if Italian ryegrass were not sown. Under similar conditions the sowing of short-rotation ryegrass would not prove advisable.

With its high winter and spring production it should prove an ideal companion plant to paspalum on soils suitable to the growth of both plants.

Summary :

Short-rotation ryegrass has proved a valuable additional species for Auckland conditions and at least will replace the Italian ryegrass seed sown in permanent pasture mixtures. Where soil conditions are more suitable than the average, it will in addition, with advantage, replace a portion of the perennial ryegrass. It has a good place on the more fertile soils of the Auckland Province, which are well drained in winter and yet moist in summer.