
PASPALUM AND ITS PLACE IN THE BAY OF PLENTY

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In his paper on sub-tropical grasses Mr Arnold dealt with the characteristics of paspalum and its growth requirements. I will now discuss the place of this grass in the Bay of Plenty.

Broadly, the Bay of Plenty comprises two major soil groups, the rolling pumice soils and the peaty loam swamps. The rainfall of the area varies from 50 to 80in. yearly and summer and autumn droughts are not uncommon. In spite of the wide range in soil type and rainfall, paspalum is distributed throughout most of the region, where the majority of farmers regard it as a very important constituent of their pastures.

In the Bay of Plenty paspalum usually commences its growth in late October and continues to produce until May, a period of 6 months. During this period stock are requiring a productive, rather than a maintenance, ration and paspalum forms the major part of the diet of stock.

-Coup-and' Dunlop, in work done at Ruakura, proved that 'leafy, fresh paspalum is comparable in feeding value to summer-grown, mixed dairy pasture, and that paspalum of intermediate maturity is comparable in feeding value with silage. In other words, at the worst, paspalum can be regarded as a standby fodder to replace silage in the autumn, and under conditions of good grazing management it can be a very valuable source of butterfat.

At this stage it must be stressed that paspalum must be regarded as a constituent of a mixed pasture. -Except under special circumstances no one would dream of advocating the use of paspalum as a pure sward. The ideal pasture for Bay of Plenty conditions is one dominantly short-rotation and perennial ryegrass, white clover, and paspalum, and it is felt that there are great possibilities in the use of short-rotation ryegrass and pedigree white clover as com-

panion plants to paspalum. A pasture dominant in these three species would be capable of very high production under conditions of adequate soil fertility. Such pastures can and have been attained and give excellent production. A pasture of this type needs skilled management, but the rewards of such skill- are great. The important thing is to control the vigorous summer growth of the paspalum, a growth that is one of the most 'desirable features of this grass, providing it is kept in check. The maximum feeding value is when the growth is 4 to 5in. in height, so that heavy stock concentrations are needed, plus the use of the mower to top surplus growth when necessary. It must also be remembered that leafy paspalum will make excellent silage, a possibility of this grass which has so far not been fully exploited.

Stock will not produce on rank, stalky paspalum and will rapidly drop in production if kept on this class of feed. This, of course, is a feature not confined to paspalum alone. Rank paspalum, as well as giving a poor quality fodder, will also smother out associated ryegrass and clovers, as has been found out to their cost by many dairy farmers. If a paspalum pasture is allowed to get away rank every year over a period of years, or if soil fertility drops- to a low level, the pasture will ultimately become sodbound with paspalum and very low-producing, a fault not of the grass but of the farmer.

It is not difficult to improve such a sodbound pasture. ~~The first essential is to find out why it is poor—usually because of infertile soil-conditions- or- poor management or both.~~ The soil deficiencies must be remedied; in the Bay of Plenty it is often a potash deficiency, less often a deficiency of phosphates. In many cases an amazing improvement can be made to a poor paspalum pasture by topdressing alone. Often, however, it is necessary to introduce more ryegrass and clovers, either by ploughing and resowing or by oversowing. Both methods of improvement are satisfactory and both have their place, A crop of soft turnips followed by the sowing of the new grass in the autumn-is-sound-practice,-or-else the new grass is sown after the ploughing. When oversowing is done it is essential that the surface of the paddock be well worked to provide a seed-bed, and that the soil be sufficiently moist to permit of satisfactory germination. Whatever the method adopted, the aim is not to eliminate the paspalum, but to add to it ryegrass,

both perennial and short-rotation, and white clover, the actual seed mixture depending on circumstances. It must be stressed, however, that the first stage in improving a poor paspalum pasture must be to remedy any soil deficiencies.

That good production can be obtained from a mixed pasture in which paspalum is an important constituent is shown by the following three examples of farms in the Tauranga County.

The first is situated near Tauranga, on Oropi medium sand soil type, and is 180 acres in area. The pastures are dominantly perennial ryegrass, white clover, cocksfoot, and paspalum; short-rotational ryegrass has also been introduced on to some of the paddocks in recent years. The country is undulating to hilly and the property is by no means an easy one to work; 110 cows are milked, their production under herd test being 38,000lb. of butterfat last season. The farmer also winters 40 heifers, 40 yearlings, and carries 250 breeding ewes; 100 per cent lambs are fattened on the mothers, average weights being 331b. Sixty acres of hay and silage are cut yearly; rotational grazing is practised, the electric fence being used for grazing until early summer. Paddocks average about 6 acres in area and surplus summer growth is controlled by topping. If one cow in milk is treated as one stock unit and all other stock are converted to stock units, the total stock carried are 191 stock units, and with the average cow production at 3451b. of butterfat (herd test returns) or 3271b. factory returns, the production per acre is equivalent to 3461b. butterfat per acre based on factory returns.

On another farm in the Te Puke district on Paengaroa medium sand soil type, the area of 450 acres is in a pasture dominantly perennial ryegrass, paspalum, cocksfoot, and white clover. The property is on easy rolling country, dropping down to river flats, and lies well to the sun and is well watered and well subdivided. The winter carrying capacity is 1810 breeding ewes, 180 ewe hoggets, 80 rams, 150 in-calf Polled Angus, 140 P.A. weaner calves, 40 18-months heifers, 50 steers, and 10 bulls. The lambing is 100 per cent of which 60 per cent are fattened off the mothers, and the balance fattened on grass (dominantly paspalum at this time of the year), lamb weights being about 321b. The farmer cuts 19 acres of hay and 22 acres of silage and also has 20 acres of pampas grass and 10 acres of swedes and chow

moellier. The average size of each paddock is 15 acres. The farmer set stocks his ewes from lambing until the lambs are away, after which they are rotationally grazed. The cattle are mob stocked on to paddocks to control surplus feed during the flush of the season and rotationally grazed during the winter. If all stock carried on this property are converted to ewes, the total carried is 3515 ewes or 8 ewes per acre.

The third example is also a farm in the Te Puke district on the Oropi medium sand soil type. It is 57 acres in area, of which 42 acres are flat tableland and the balance steep sidling. The farm is worked in two sections, 48 cows and their replacements being run on the 42 acres and 76 breeding ewes on the sidling. This season the farmer has started off milking 52 cows. The dairy pastures consist of perennial and short-rotational ryegrass, paspalum, white clover, and cocksfoot, and the sidling is dominantly paspalum and white clover with fair perennial ryegrass. Several of the cow paddocks have a considerable amount of prairie grass. The dairying area is subdivided into 16 paddocks and the sidling into 3 paddocks. Rotational grazing is practised throughout the season and the electric fence is used until November. The farm is topdressed twice yearly with a total of 5cwt. of superphosphate and $\frac{1}{2}$ cwt. of potash per acre. Most of the calving takes place in July and August, although this year there are a number of late calvers. The stock are generally healthy and the farm has experienced very little bloat. Every year 18 acres are cut for hay or silage. ~~The farmer buys 1000 bales of hay each year: no hand feeding is done.~~ Every spring about half the breeding ewes (those with twin lambs) are run on the dairy pastures from mid-August to the end of October. All lambs are sent away fat at 331b. weight. In addition to the milking cows the farm carries 4 2-year-olds, 7 yearlings, and 3 bulls, and the yearlings are run on the sidling in the autumn. Last season 21 calves were reared until the end of January, accounting for about 7501b. of butterfat, and in addition 30 heifers belonging to a neighbour were carried on these 15 acres for a month. Last season's butterfat production (factory returns) was 17,829lb., so that the per acre production from the 42 acres of dairy country was 4251b.

It is stressed that the three examples quoted are not necessarily the three highest-producing farms in

the Tauranga County. They have been selected as being well-managed units on which paspalum is very well controlled and where this grass plays an important part in the farm production programme. None of these farmers would be without this grass, which they value highly. From the facts given it is evident that satisfactory production can be obtained from pastures on which paspalum is one of the major constituents, and that this grass should be used in those districts to which it is suited. Of major importance here would be the Bay of Plenty and the North Auckland Peninsula. As far as other areas of the Auckland Province are concerned, it is considered that paspalum may also fill a useful place as a summer and autumn producer, especially if the levels of soil fertility and management were lifted to encourage this grass to produce to maximum capacity.