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PASTURES FOR THE PASTORAL AREAS

By D. G. WILCOX and K. FITZGERALD, Advisers, North West Division

The pastoral areas lie generally outside the zone where cultivated crops are grown. The rainfall is erratic and the basic pastures for sheep and cattle consist of native plants. In some favoured areas however, and in particular situations, sown pasture species are becoming increasingly important.

TWO BROAD DIVISIONS can be recognised in the pastoral zone. The summer rainfall area dominated by grass species, and the winter rainfall area where shrubs and trees are important but where grass and herbage still supply the principal part of the feed intake.

In general the summer rainfall area lies north of the Tropic of Capricorn. In the far North Kimberleys, annual rainfall as high as 40 inches can be expected, tapering to 10 inches or less inland near Onslow.

The winter rainfall area receives between 8 to 10 inches of rain each year. Half of this may fall in the summer in the northern section, but near Yalgoo and Kalgoorlie winter rainfall is much more reliable and predominates.

Managing natural pastures

Techniques for managing natural pastures have been developed within the Department for both summer and winter.
rainfall zones. The techniques are based on the recognition of susceptible phases of the plants, life cycles and their inclusion into the management system in such a way that the pastures can develop at these critical times.

The establishment in spinifex country in the Pilbara, of a system of burning and deferment which allowed more nutritious and palatable grasses to persist was the first of a number of recommendations for proper land use.

In the mulga, or winter rainfall zone, it has been shown that perennial grass pastures need deferment for periods of 6 or even 12 months after rains if they are to regain vigour and persist. Shrublands, such as saltbush pastures, need up to two complete growing seasons protection from grazing if they are to rehabilitate. After rehabilitation of the pasture a moderate use, together with occasional relief from grazing, will maintain productivity.

In the southern part of the mulga zone, clearing of the upper layer of trees has been shown to increase pasture productivity at least twofold. Although this practice is only recommended where the soils are deep enough to support perennial grasses, future work will aim at the introduction of new species into this class of country.

The history of settlement of the pastoral areas does not extend further back than 1861, but even in this short period there has been a serious decline in productivity and durability. This has been due to a combination of over use, poor seasons and uncontrolled grazing. The most impressive examples of deterioration can be found in the Ord River and Gascoyne River catchments and on the claypans of the north-west coast as the illustrations show. But these are only extreme cases of a condition which is widespread over the area and which is becoming increasingly serious since there has been little change in husbandry methods and vegetation management.

Pasture rehabilitation
Where degradation has reached the stage where all the perennial plants have been removed, rehabilitation by reseeding large areas with new species is the only possible solution. This is because natural seed reserves are seriously depleted and the seed beds are poor.
On the Ord River Catchment extensive degraded areas have been ploughed and sown with Cenchrus species (buffel and Birdwood grasses) and with Kapok bush (Aerva javanica). Similar treatment of frontage country on the Fitzroy River has resulted in good pastures capable of carrying up to a beast to five acres. Comparable methods will also have to be adopted on parts of the Gascoyne catchment where all the perennial plants have been removed.

**Introduced pastures**

Low nutritive value, particularly in terms of protein, characterises most mature, native pastures in pastoral areas of both the summer and winter rainfall regions. Attempts to overcome this problem in the Kimberley area have been made by the establishment of improved pastures with introduced species.

**Townsville lucerne**

In the higher rainfall areas Townsville lucerne pastures can be established and provide a high protein diet for dry season grazing at carrying capacities estimated at one beast to five acres. Although previously restricted to the 30 to 35-inch rainfall belt, recent selections of early maturing strains of Townsville lucerne have been grown on 25 inches. It appears likely that selections will be made for even lower rainfall areas.

Establishment costs for large-scale planting of Townsville lucerne pastures have still to be accurately determined for the Kimberleys. However, on the basis of Northern Territory and Queensland experience, coupled with small-scale plantings in North Kimberley, a figure of $6.50 per acre appears realistic. At this figure, and in view of existing beef prices, capital for large-scale plantings of Townsville lucerne might not be readily available.
Kapok Bush, a valuable high protein introduction

until more information on establishment costs, carrying capacities and daily weight gains have been obtained and assessed.

Dressings of up to 1 cwt. superphosphate per acre are necessary for the successful establishment of Townsville lucerne on Kimberley soils tested so far, and establishment has been improved by applying ½-cwt. per acre of urea at the time of seeding. A response to molybdenum has been obtained.

Other introduced species

A range of legumes including siratro, phasey bean, cow pea and Dolichis species has been successfully established on both the red basaltic and grey sandy soils of the higher rainfall areas of North Kimberley. These could be useful in future pasture improvement programmes.

Grain and fodder sorghums have been grown experimentally on natural rainfall as a potential source of horse feed. However, it is doubtful whether they could be grown economically as pastures for cattle because of their high requirement of both nitrogen and phosphorus fertilisers, as well as added clearing and cultivation costs.

Improved pastures of birdwood grass and kapok bush have been established experimentally on red sandy Pindan country near Derby and Broome, following the removal of wattle scrub and the applications of phosphatic fertilisers. There are several million acres of this class of

Fodder sorghums growing on Pindan in the West Kimberley
country in Kimberley and a large proportion receives better than 20 inches of rain annually.

The establishment of a large modern meatworks at Broome and a smaller killing centre at Derby has focussed attention on the pindan country as a potential fattening area adjacent to the works. Establishment costs carrying capacities and methods of suppressing wattle regrowth are therefore being investigated to determine the economics of pasture improvement on the pindan.

Vastly improved carrying capacities have resulted from the introduction of buffel and birdwood grasses into degraded areas along the De Grey River near Port Hedland and the Fitzroy River frontage in Kimberley.

The chance establishment of kapok bush (*Aerva javanica*) into the North-West, and its more deliberate introduction into Kimberley, has provided a very valuable pasture species. Its high protein content (up to 21 per cent.), its ability to retain comparatively high levels of protein even when mature, coupled with the fact that stock do not normally graze it until late in the season, makes it a valuable component of the pasture when the native species are at their lowest.

Kapok bush tolerates a wide range of soil types but favours the calcareous country. Once established it spreads rapidly and has already proved itself a valuable coloniser on bare and degraded country.

**Conclusion**

The improvement of pastures through the establishment of suitable introduced species has its place in the future of the pastoral areas. However, the greatest impact will come from better utilisation of native species and their preservation for future generations through proper stocking practices and conservation of the range resource. Further information on grazing management of pastures in the pastoral areas is available from the Department of Agriculture.

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**BRANDS ACT**

Farmers and sheep owners must ensure that lambs forwarded to market are branded and earmarked.

Inspectors at Midland Saleyards have recently reported that increasing numbers of last season's lambs are being marketed without being correctly branded and earmarked.

Generally speaking, nearly all lambs now being sold are no longer classed as "suckers", they being in most cases well over six months of age.

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M. R. GARDINER,
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