Improved permanent forages for dry season grazing in northern Australia 2. Oversowing adapted species into native pastures

J.H. Wildin

Queensland Department of Primary Industries, Rockhampton, 4700.

Throughout. northern Australia beef production in terms of reproduction, growth and fattening depends largely on rainfall. The low quality native pasture iv the dry season is a serious animal production constraint which can be alleviated by augmentation of the native resources with higher quality permanent forages. The option of oversowing adapted exotic legumes and grasses into uncultivated native pastures is considered in this paper.

Suitable areas.

A practice which has proved commercially successful is 'develop the most productive country first'. This applies to properties with a mosaic of soils/topography/vegetation types. In northern Australia soil N and P are the main limiting nutrients. Adapted persistent legumes can fix and supply some of the required nitrogen. However without adequate soil P the sown legume may not supply the grazing stock its requirements for reproduction and growth. While P supplementation may be implemented, oversowing should initially be aimed at those areas with surface soil bicarbonate P levels higher than 10 ppm. Those more fertile paddocks where timber has already been cleared would be logical areas for augmentation by oversowing. Fertiliser and maintenance costs on such areas should be considered in relation to beef production benefits.

Suitable species

The emphasis to date has been with adapted, persistent legumes species such as Verano stylo (St^{y}losanthes hamata) (1) and Seca (a. cabra.) in the north with fine-stem stylo (5. guianensis var irtermedia). Archer axillaris (Macrotvloma axillare) and Siratro (Macrovtilium atropurpureum) in coastal scuthern areas. Two new exotic legumes Glenn jointvetch (Aschvnomone americana) and Wynn cassia (Cassia rotundifolia) are proving to be well adapted to damp and well drained sites respectively. Increases in beef production over the untreated native pasture have been in terms of better calving rates, higher stocking rates, fewer mortalities and better liveweight gains of growing stock where the treated native pasture has had in excess of 30% legume composition and the forage in excess of 0.13% P. Both legume N and adequate P are essential in the diet for benefits to beef production.

Stoloniferous grasses which persist under stocking pressures detrimental to the native species are needed. This ensures that a ground cover is maintained for soil conservation and weed control purposes. Indian bluegrass (Bothriochloa pertusa) (naturalised on 200 COO ha in the Bowen-Collinsville-Charters Towers district) has established, persisted and is still spreading on well drained low fertility soils where black speargrass (Heteropogon contortus) was the dominant native grass. Along the coastal strip of central Queensland, on the low fertility clay soils where waterlogging in the wet season can extend for several months, Angleton grass (Dichanthium aristatum), Sheda grass (D. annulatum) and paspalum (Paspalum dilatatum) have become naturalised on 25 000 ha without cultivation and without deliberate seeding. These grasses have improved beef production where they are presently adapted. Without loss in per head production, stocking rates have increased over the native pastures by twofold with Bothriochloa pertusa and by threefold with Dichanthium aristatuD pastures.

Research needed.

A wider range of disease and pest free legumes adapted to oversowing without a cultivated seedbed is desirable. Seed production of Hothriochloa pertusa and Dichanthium aristatum has been commercialised, but other competitive, palatable stoloniferous grasses and accessions adapted to rapid colonisation in

less productive native pastures need to be evaluated. Urochloa mosambicensis and U. bolbodes where adapted also deserve attention in native pasture augmentation by oversowing.

1. Wildin, J.H (1981). XIV International Grassland Congress, Lexington, Kentucky, U.S.A. p. 300.