

EXOTIC PASTURE SPECIES UNDER GRAZING ON A MULGA SOIL

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A site close to Charleville was cleared in June 1975. It carried a dense mulga (*Acacia aneura*) scrub with a scattering of emergent poplar box (*Eucalyptus populnea*) and silver leafed ironbark (*E. melanophloia*) plus some sandalwood (*Eremophila mitchellii*) and ironwood (*Acacia excelsa*). Eight exotic grasses (*Antheophora pubescens* (CPI43713), *Cenchrus ciliaris* (Q10077, Q10087, and cv. Biloela), *Eragrostis chloromelas* (CPI30374), *E. curvula* (CPI30379), *Schmidtia bulbosa* (CPI43715 and Q10092)), one exotic legume (*Stylosanthes fruticosa* (CPI40615)) and one native grass (*Thyridolepis mitchelliana*) were sown in early November 1975 into 0.5 ha plots with two replications. Germinating rains fell mid-December 1975 and establishment was excellent. As well there were two unsown paddocks.

Grazing commenced in March 1977 with four wethers per 0.5 ha paddock. Grazing lasts until the paddocks are well eaten down and stock are losing condition. The sheep are weighed in and out of each paddock.

To date it has been noted that *T. mitchelliana* has the best quality feed judged by sheep liveweight changes but poor yield. *A. pubescens* has good quality and moderate yield. *E. chloromelas* fair to good quality and good yield and the buffels only fair quality and good yield with cv. Biloela the best. *S. bulbosa* tend to be denser under the box trees and the buffels especially Q10087 are concentrated on the windrow burns. All species including *S. fruticosa* are quite tolerant of the heavy intermittent grazing. The *Eragrostis* spp. show excellent early spring growth when moisture is available and all but *E. curvula* and *S. fruticosa* flower and set seed well under the intermittent grazing. All paddocks have thinned badly during the prolonged run of dry summers since 1978.

BOOK REVIEW

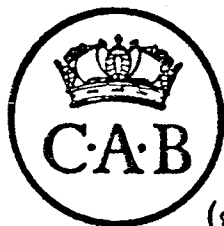
Nitrogen fixation in Legumes—ED. J. M. VINCENT (1982) ISBN 0 12 721980 3
Academic Press: Sydney. 288 pp. A\$26.60

This publication is based on the proceedings of an International Seminar held in Australia in 1980 and sponsored by the Australian Development Assistance Bureau and the University of Sydney. There are twenty-two chapters, twenty-one of which are based on the lectures given by fifteen Australian contributors, most of whom are well known for their contributions to knowledge of the Rhizobium—legume symbiosis. Chapter twenty-two is a collation prepared by the editor from the submissions of twenty-four participants from thirteen countries about the situation of nodulated legumes in their own country.

The publication contains a great wealth of useful information on all aspects of the Rhizobium—legume symbiosis. The editor, in his preface makes the statement that "the contributions have a practical flavour designated — to help less experienced workers get a start . . ." Individually, each chapter has been very thoughtfully prepared so that not only will the less experienced benefit from it, but the experienced worker is also provided with food for thought. Each of the authors has drawn from experience to describe in detail how the symbionts can be handled to best effect and many have mentioned traps for the uninitiated so that they can be avoided. Very many useful technical details have been given. One novel suggestion that was made by one of the authors, was to use vodka, tequila, whisky etc. as substitutes for alcohol in the surface sterilization of nodules and the flaming of forceps. He is obviously widely travelled

judging by the nature of the substitutes. Nodules flambé anyone? In the opening chapter, the editor reminds the reader that the symbiosis "is a many-sided phenomenon which demands the application of many skills for its understanding and more successful utilization." It is this multi-disciplinary approach that is seen in the succeeding chapters which deal with such topics as the detection, enumeration, isolation, collection and groupings of rhizobia; inoculant selection, production and use, and legume establishment, and mineral nutrition. There is some evidence of cross referencing among the individual chapters. Each of the chapters is well referenced but one criticism I have is that the titles of the papers referenced are not given and only the first page number of each reference is provided. This deficiency can often be annoying when a reader tries to obtain the original. Typographical errors are very few. One of the most glaring is the incorrect spelling of phosphorus on page 100. It has a useful index. The book is excellent value and is highly recommended for research workers and teachers concerned with the *Rhizobium*—legume symbiosis, and other plant-microbe interactions.

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