

grazing and numerous fires. Blue couch has replaced all the sown grasses. The pasture has always been stocked heavily and has had only two short spells of destocking for two months over the 16 years. The pasture received Mo super at 500 kg ha⁻¹ at sowing, and 250 kg ha⁻¹ in 1970 and 1972, but has not been fertilized since then. The pasture will be fertilized with super this year.

Lotononis growth has been good in all years with adequate rainfall, it provides good feed in spring and in late summer but not quite so good in mid-summer. The pasture turns off fat cattle at 2½ years of age and has doubled the carrying capacity of the paddock without increasing the cost per beast area. The cattle gain weight well all summer and do not lose weight in winter. The pasture is in good condition with high soil seed reserves of Lotononis of 7000 seeds m⁻² where we are now and up to 30000 m⁻² on another area nearby. There has been some spread of Lotononis to the rest of the property.

TURF FARMING

E. SMITH

“The Overflow”, Beaudesert

The rolling hills, with deep, sandy soils are well suited to turf farming. The area here used to be speargrass and green couch, but is now almost pure blue couch which we believe spread from the old tennis court. Turf farming is an intensive operation, in which we manage two cuts per year but could increase to three cuts if necessary. The area is irrigated weekly, mown 2-3 times per week, and given 16-20 bags of fertilizer per hectare per cut.

A specialized cutter/roller machine and a pallet loading system were demonstrated.

PESTS AND DISEASES OF TURF

I. K. HUGHES

DPI, Entomology and Plant Pathology Branch, Indooroopilly

The meeting was given a short but thorough description of the many turf diseases and pests, and their remedies. This information was summarized in a several page handout which is available from the Department of Primary Industries on request.

The field meeting concluded with a vote of thanks from Mr Robert Harrison to the property owners, speakers, and those who provided four-wheel transport.

The A.G.M. and an evening barbeque followed the field meeting. The retiring President, Mr Michael Joyce gave an address “From Progress to Poverty”.

BOOK REVIEW

Nitrogen Cycling in Ecosystems of Latin America and the Caribbean. Editors G. P. Robertson, R. Herrera and T. Rosswall. Martinus Nijhoff/Fr. E. Junk Publishers. The Hague, Boston and London, 1982. 430 pp. Price N/A

Generally biological experimentation is confined to a small part of a larger ecosystem. There is considerable merit in bringing together a large number of scientists, who have as their general interest nitrogen transformations in biological systems, to obtain some consensus on the state of the art in quantifying nitrogen cycling at the level of an ecosystem.

This book provides a hard copy of the proceedings of a workshop on Nitrogen Cycling in the Ecosystems of Latin America and the Caribbean held in March 1981 at CIAT. As these proceedings had been previously published in *Plant and Soil*, Volume 67, 1982, it is a little disappointing that the editors had not reorganized the sequence of papers so that the book could be divided into logical sections, the first of which should deal with papers on general N transformation processes and biological N fixation, followed by sections which grouped papers on N cycling into seven major ecosystems, *viz.* shifting agriculture, sugar cane, cereals and grain crops, tree crops, savannas and shrub-lands, forests, and flooded and aquatic ecosystems. Each section could have been preceded by a short introduction describing the soils, climate and extent of these ecosystems in Latin America and the Caribbean and each section followed by the respective work group reports, which are grouped at the end of the book.

There are 35 papers presented, some of which are general reviews of an ecosystem and some which report the results of specific experiments aimed at measuring N fluxes and N pool sizes in monospecific crop systems. The general aim of most papers was to attempt to estimate a N budget for each of the ecosystems described. These attempts were generally successful and high-lighted the extent of quantitative information available for each system but in some instances the variation in values obtained by different researchers when measuring the same system brought in to question the reliability of the data. The papers also provide some insights into the scope for improvement in N efficiency within a system through the maximization of N flow to economic output while minimizing unproductive N losses, particularly those which are damaging to the environment. Most papers provided only a static mean annual budget for N flows in the system with only two papers considering computer modelling of dynamic N flows in the system.

The papers presented covered a wide range of ecosystems, for example an Amazonian rainforest and a crop of garlic. However, as similar compartments and transfer pathways were used in drawing up the N budgets of different systems it is interesting to compare the wide range of N contents in various compartments. For example the N contained in the above-ground biomass varied from a low of 10 kg ha^{-1} in a savanna grassland up to a massive 1100 kg ha^{-1} in an Amazonian forest. Similarly the level of biological N fixation varied from an insignificant amount in some ecosystems to $1000 \text{ kg ha}^{-1} \text{ year}^{-1}$ with lucerne. It is apparent from the papers presented that native communities or ecosystems have moved towards an equilibrium situation where net N inputs into the system are at a low level. By contrast grain cropping and tree cropping systems require large inputs of either fertilizer, biologically fixed N, or in one paper untreated sewage. These latter systems are also characterized by large losses of N, including leaching to important groundwaters, and therefore produce a less stable and potentially more harmful system than natural ecosystems.

It is inevitable that with a large number of papers contributed by different authors there is some repetition of basic N transformation processes in several papers. In producing the proceedings in a book I feel the editors should have taken the liberty of introducing cross-references where the same or similar pathways or ecosystems were described in different papers. They should have also removed the confusion in terminology introduced by some authors when talking about N concentration and N content, and mistakes in converting units from one measuring system to another.

However, for the nitrogen specialist particularly and general agricultural practitioner as well, there are hours of absorbing reading in this book and if nothing else it will broaden everybody's horizon.

D. A. IVORY