CULTURAL PRACTICES INFLUENCING LEGUME ESTABLISHMENT AND PERSISTENCE IN AUSTRALIA

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SUMMARY

Establishment, fertilizer, irrigation, mowing and pasture renovation practices that influence the persistence of important pasture and hay legumes in Australia are reviewed. Establishment requirements in high rainfall or irrigated environments are well known and, when adopted, give adequate establishment. Establishment and regeneration of annual temperate legumes in ley pastures are often constrained by cropping practices and by herbicides required for weed control. Low-cost legume establishment either by surface-sowing or by undersowing a crop can be unreliable. Fertilizer practices required to establish and maintain legumes in pastures are broadly known, although improved efficiency of fertilizer use is needed. Legume persistence in surface irrigated pastures is mainly limited by poor drainage and salinity although there are management practices that can increase the legume content of these pastures. Untimely mowing of annuals when they are seeding or too frequent mowing of lucerne decreases persistence, but mowing practices that minimize these effects are known. Mechanical renovation to encourage legumes is rarely practiced.

INTRODUCTION

Legume persistence in pastures or hay crops is often modified by cultural practices that influence establishment, plant survival and, in the case of annuals, self-regeneration. This paper overviews important cultural practices currently used by Australian farmers and graziers and notes situations where these may limit the productive persistence of legumes. Emphasis is given to practices associated with pasture establishment and regeneration, fertilizer use, irrigation, mowing, and pasture renovation.

LEGUME ESTABLISHMENT AND REGENERATION

The factors influencing pasture establishment in Australia have been recently reviewed (Campbell et al., 1987; Carter, 1987; Cook et al., 1987). We focus on the main problems associated with current commercial practices within the following pasture situations: intensive, cereal belt, and extensive pastures.