

Pasture legume establishment after rice

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A long term pasture phase based on subterranean clover (*Trifolium subterraneum*) has traditionally been used in rice rotations. However, the intensification of rice growing in the south-west irrigation areas of N.S.W. has led to shortened pasture phases, prompting a need for more suitable pasture types. New clover species are now available but appropriate establishment techniques for use in the rice rotation have not yet been developed. The aim of this work was to determine the best establishment techniques for the main pasture legumes grown in this situation.

Methods

Four pasture legumes (Table 1) and six sowing methods (Table 2) were compared in a replicated field experiment (4 reps x 1.25 x 5m plots) on Birganbigil clay loam (Dr2.23) following a rice crop.

Table 1. Pasture legumes

T.subterraneum cv. Trikkala

T.resupinatum cv. Maral

T.balansae cv. Paradana

T.repens cv. Haifa

Table 2. Sowing methods

A. Aerial sown before draining rice

B. Aerial sown after draining rice

C. Sod sown into standing rice stubble

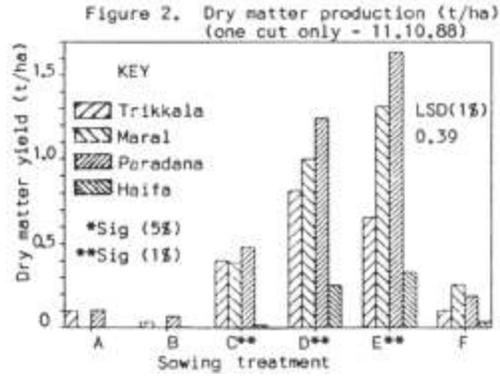
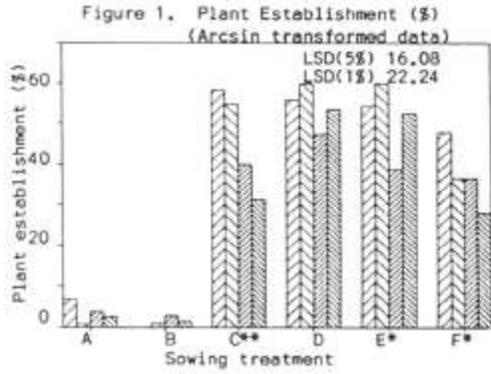
D. Sod sown after flagleaf burn

E. Sod sown after slash & burn

F. Sod sown after burn & cultivation

Aerial sown plots were hand sown at commercial rates before rice harvest (April). Sod sown treatments were sown post-harvest with a triple disc cone seeder (June). Plant numbers were counted during winter and spring. Dry matter was measured in October.

Results and discussion



Aerial sowing into rice before harvest (A,B) was unsuccessful due to the density of the canopy. Removal of rice straw at harvest improved establishment significantly due to greater light penetration and increased evaporation of excess moisture. Within sod sown treatments (C-F) establishment was not greatly improved by burning stubble, except for Haifa. However, early spring dry matter yields increased significantly. Paradana, Maral and Trikkela showed a significant yield advantage over Haifa for treatments C,D and E, indicating the early vigour of these annual varieties. Establishment and yield of all varieties was reduced by cultivation (F) which produced large clods from the wet ground and a more variable (deeper) sowing depth.