

## A conservation cropping system for the South Burnett

R.J. Bateman

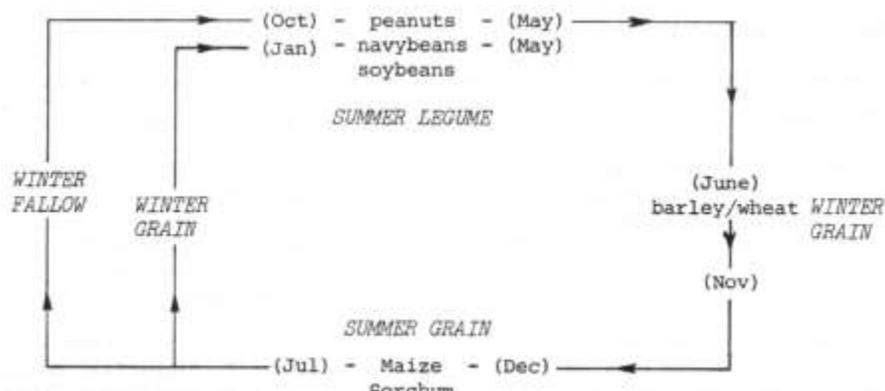
Queensland Department of Primary Industries, Kingaroy Qld 4610.

Mechanical soil conservation measures protect more than 70% of the arable krasnozem soils of the South Burnett, Queensland. However, soil erosion and fertility decline are still problems, mainly because of the cultural methods used in the annual cropping of summer row crops or winter grain. The soil is intensively cultivated prior to sowing (average of eight operations), with the predominant summer row crops being frequently interrow cultivated for weed control. Summer legume crops, with their low stubble residues and ground cover, aggravate the problem by providing less surface protection and organic matter return than grain crops.

In order to maintain the productivity of these soils, a cropping system is needed which involves fewer cultivations, and provides greater surface protection and stubble residue, than existing systems. The development of such a system, by combining stubble mulching with a rotation of the crops normally grown, has been under investigation since 1975.

Crops of peanuts, navy beans, soybeans, maize, sorghum, wheat and barley were grown under stubble mulch conditions. Machinery with stubble handling capacity was developed for tillage, sowing and interrow cultivation operations in these crops. The most suitable crop sequences were selected, based on crop growth periods, ground cover continuity, tillage and sowing feasibility and residual herbicides activity. These were then grouped into a conservation cropping system, based on a two year rotation, as shown in Table 1.

**Table 1. A Conservation Cropping System for the South Burnett - a two year rotation of summer legumes and summer and winter grains under stubble mulched conditions.**



This system maximizes ground cover over the high erosion risk period (November to March), reduces the frequency of cultivation through stubble mulching, and provides greater organic matter returns from the grain crops. The system has been successfully practised under experimental conditions, and is now being evaluated under commercial conditions by two farmers.