

## Lucerne as a Key Component of Northern Farming Systems

### Experience from North West NSW

David Anderson and his parents Robert and Rosemary run their family's mixed farming property Maneroo, south east of Moree in northern NSW.

The Andersons have been running a minimal till crop rotation program in combination with a sheep and cattle grazing operation for over 80 years and they are seeing some really positive results in their soils and in disease and weed management.

The soils are primarily deep cracking clays (grey vertosols) with coarser red-brown earths (brown vertosols) on the north-east of the property.

The preferred rotation on Maneroo includes wheat, chickpeas, canola and wheat followed by an extended lucerne phase which may run from 3 to 6 years depending on the seasons and the quality of the lucerne stand. If conditions allow sorghum may also be included in the rotation.

The minimal till approach adopted nearly 15 years ago, and the resultant stubble retention has enhanced soil structure and moisture holding capacity, reducing the need for specific sowing rainfall. Additionally there is the added benefit of stubble holding the soil together and minimising the potential for erosion following heavy summer rainfall.

David believes this rotation has enabled them to effectively target weeds and diseases. It has also had some really positive impacts on soil organic carbon and on the nutritional status of their soils.

'From a disease perspective we have found that the extended pasture phase coupled with a chickpea and canola crop between wheat minimises the carryover of cereal disease spores, thus providing an effective disease break.' David said.

As a key part of the disease break the lucerne is kept grass free for the first few years, as the stand matures grasses are allowed in to boost the feed volume and add soil Carbon.

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Improvements in soil health are encouraging. Soil structure, nutritional status and soil carbon levels are increasing.

David says; 'We believe that the extended lucerne phase has been a key contributor to improved soil mineral Nitrogen levels in our soils. We still utilise fertilisers in our cropping phases, but we are not totally dependent on applied Nitrogen for grain yield or protein.'

These results are not unexpected; a long term wheat pasture trial run by NSW Agriculture from 1966 to 2001 found similar results (Agnote DPI-429, Feb 2003). The trial found that lucerne in a cereal crop rotation increased wheat production and protein levels, maintained soil health and fertility and reduced Nitrogen fertiliser costs.



### References:

Border Rivers Grain and Graze: Maneroo Case Study.

Lucerne boosts cereals in crop rotations: Agnote: DPI-429, Feb 2003, ISSN 1034-6848