

Soils and Irrigation Management

5. Soil Management (SO5 - 0801)

Soil Compaction:

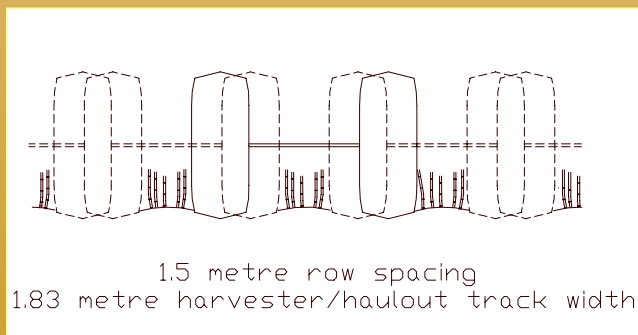
Under the current harvesting system, the inter-row is run over at least twice by the harvester and usually more often by the haulout.

Up to 60 % of a block may be run over by wheels or tracks during harvesting, although trials have shown that up to 95% of the area can be compacted.

Compaction of the soil can lead to a number of adverse affects:

- Restriction of rain or irrigation water entering and moving through the soil. This can lead to waterlogging, erosion and runoff.
- Restricted root growth making it harder for the plants to access water and nutrients.
- Increased costs of production (fuel, labour, fertiliser, irrigation) or reduced yields if these inputs are not increased.

The poor matching of row spacings with machinery width (row spacing usually being 1.5 metres and equipment width being 1.8 metres), often results in stool damage, which can lead to gaps in the following ratoons.



Tillage:

The consequence of frequent and aggressive cultivation is a reduction in soil organic matter. Organic matter leads to improved soil structure and helps maintain overall good soil health.

The more organic matter is degraded, the less resilient will be the soil and the more reliant we will become on artificial 'fixes' such as chemicals and fertilisers.

Practices such as a pasture fallow with no tillage and slashing of grasses will improve soil health by returning large amounts of organic matter to the soil. Bare fallowing does not provide this addition of organic matter and therefore is not as beneficial.

Using soybeans or other legumes as fallow crops is only usually of benefit when the fallow is managed properly and grown as a crop. More dry matter is produced and more nitrogen is returned with improved management.

Table 1: Plant cane yield (t/ha) for ploughout replant cane compared to cane planted after a break.

Site	Plough-out/ replant	Break	% Yield increase
Bundaberg	112	128	14
Mackay	60	114	84
Burdekin	118	154	31
Ingham	48	71	51
Tully	44	75	58

Sources: Manual of Canegrowing, BSES, 2000, Chapter 8.
Brian Robotham. BSES Bundaberg. 2001.

For more information, please ring your local Rural Water Use Efficiency Officer.

The Rural Water Use Efficiency Initiative is a joint venture between BSES, CANEGROWERS and the Queensland Government through the Department of Natural Resources and Mines.

