

Keeping wheels in their tracks

THE SOUTH AFRICAN SUGAR INDUSTRY IS EXPERIENCING A DECLINE IN YIELD OF APPROXIMATELY 0.6 TONS CANE/HA/YEAR. STOOL DAMAGE IS A MAJOR CONTRIBUTING FACTOR TO THIS YIELD LOSS. HOWEVER, INDIVIDUAL GROWERS CAN DO SOMETHING TO MAINTAIN, OR EVEN TO INCREASE, THEIR YIELDS (TONS CANE/HA). THIS ARTICLE DESCRIBES A NEW PRACTICE FOR THE SUGAR INDUSTRY WHICH WILL REDUCE THE IMPACT OF YIELD DECLINE ON GROWER PROFITABILITY.

Since the 1950s, mechanisation in the form of infield cane removal has increased steadily to the

level where it is a fairly common practice today. The resulting damage to cane accounts for between 10 and 50% yield reduction for affected stools. The reality is that a damaged stool does not recover and productivity is less the following year, even without further trampling. Damage to stools is more severe in wet soils; severity of the damage is potentially greater in irrigated areas.

The solution is not to drive over cane stools - ever! Up to now, row spacing in the sugar industry has ranged from 0.9 to 1.1 m in the higher altitudes, 1.2 to

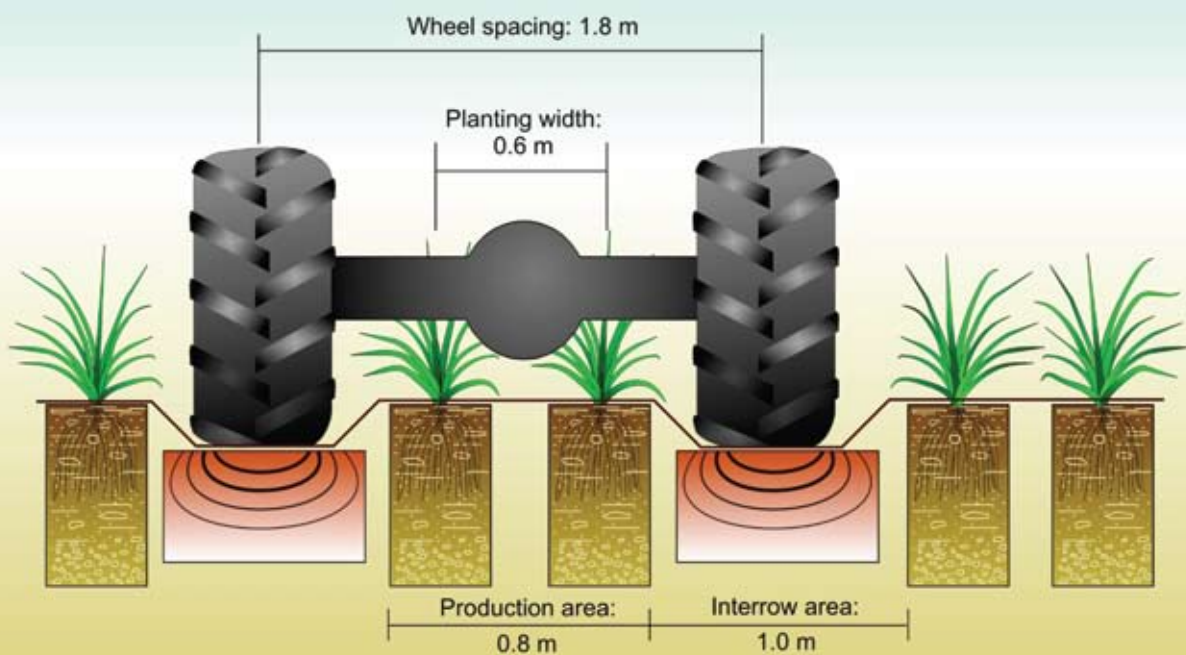


Figure 1: Tram line planting showing the interrow (wheel area) and production areas which should be kept in the same place forever.


1.3 m in the rainfed areas near the coast and 1.5 to 1.6 m in irrigated areas. Of these, only the narrower row spacing is compatible with the wheel spacing (centre to centre) of most vehicles used in sugarcane agriculture which are from 1.8 to 2.1 m. The inner spacing between the wheels can be as narrow as 1.2 m. Therefore, in most cases, the wheel traffic will travel over the cane stools.

However, both rainfed and irrigated areas can benefit significantly from a field layout that will prevent wheel damage to cane stools. The principle underlying this field design is that the wheels have a dedicated area ('traffic area' in the interrow) where they will travel year after year, and that the crop has a separate area for growing ('production area').

Row alignment should be configured by taking the space and width of wheels into account. Potentially, the row spacing on each farm could be different, but most could make use of an interrow spacing ranging from 1.0 m to 1.2 m followed by a production bed area ranging from 0.6 m to 0.8 m carrying two cane rows spaced from 0.4 to 0.6 m apart - the so-called 'tramline'. (Figure 1).

This 'controlled traffic' system has many advantages:

- keeps compaction off the crop row;
- prevents damage to the crop by vehicles;
- allows for mechanised weed control in the wider interrows;
- reduces weed competition in the narrow spacing between rows;
- improves traction as wheels travel on the same track every year;
- reduces field area impacted by traffic; and
- reduces tillage thereby using less fuel.

It is hoped that tramline row spacing will become common practice in our industry. 

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