

## Roadways and Gardens

*Dan Bloomer and James Powrie, LandWISE*

David Clark knew the soil in his vegetable garden looked much better than on the same soils in his farm paddocks. He decided to see what improvements he could make on the farm.

Conventional cropping had left the heavy clays compacted, with poor soil structure and few earthworms. The soil required regular heavy cultivation with disc rippers.

Controlled traffic farming (CTF) and reduced tillage were adopted to manage compaction. Guided by RTK-GPS and auto-steer, the same wheel tracks called tramlines are used for every operation and never cultivated. These are the roadways in the system.

The soils are improving and earthworms are now common. It is now possible to work your hand into the soil between rows. This is the garden.

The John Deere combine harvester has a three-metre wheel track and all other equipment has been standardised to this. Tractor front axle extensions match extended single rear wheels.

All cultivation, planting, fertilising, weeding and harvesting equipment is matched, with twelve 30" rows having a total implement width of nine metres. The harvester auger was extended so the jockey bin travels on a parallel tramline for unloading.

With adoption of CTF, the tractor fleet at Opou reduced from five to two and reduced from 750hp to 550hp. Less resistance travelling on the compacted tracks means less energy is required.

Fuel use has halved. The fuel tanker driver asked



where else they were buying it! Better agrichemical and fertiliser application accuracy has also led to fewer overlaps and misses and savings in these resources.

A 12-row hooded sprayer can apply different inter-row and in-row herbicides in a single operation. Broad acre spraying is done with a 27-metre boom – three sets of 12 rows.

The aligned equipment means compacted tracks have reduced to 16% of paddock area. Because compaction is restricted to tracks, less cultivation is required. No-till maize is proving a success and yields are increasing. Natural soil structure is being restored. Root penetration, water storage and drainage appear better.



*Twelve rows of matching equipment and GPS guidance means better soils, less fuel and less time in the tractor*



Strip tillage is used where compaction is evident, mainly in the headlands. Ideally strip tillage is completed in autumn and left fallow until the following spring. Maize is then direct seeded without further cultivation.

The RTK-GPS is so accurate seed could be drilled directly into the line of the previous crop plants but this gave poor establishment and greater variability. To avoid this the planting line is moved 75mm to one side. The following year it is moved to the other side of the year one row.

“Less fuel, less labour and better soils have made this change a sound investment for Opou. The system is simpler and cheaper, yields are good and our soil is in better shape,” says David.

*David and Libby Clark farm at Opou Station near Gisborne.*

*With traffic controlled, Opou soils are in excellent condition*



*CTF is a serious business – don't take your ute in the paddock*