

ctf PROFILES

Case Study 3

Producer: NorthParkes Mine
(Matt Burkitt)

Location: Parkes, NSW

Soil type: Red-brown earth
and grey clays

Average annual rainfall (mm): 525

Growing season rainfall (mm): 230



Current farming enterprises

NorthParkes Mine operates a 100% farming operation covering 2500 ha which consists of equal proportions of canola, wheat, barley and pulses.

When did you commence CTF and why?

Controlled Traffic Farming commenced in 2001 and was completed by 2003 in conjunction with adoption of minimal tillage and stubble retention. The decision to convert to CTF was made on the basis of research showing increases in production, increases in efficiency and reduction in waste of inputs. Matt says that the increases in infiltration and water storage have had a large impact on soil health and capacity to grow crops.

Were there any issues that you encountered with the conversion to CTF?

Removal of some trees was necessary however the mine has an extensive tree re-planting program.

All internal fences have been removed over time to facilitate ease of management and there has been particular attention paid to the management of waterways.

Has your farming system changed since converting to CTF?

A major advantage of CTF combined with minimum tillage and stubble retention has been an overall improvement in soil conditions which has greatly increased the ability to grow good crops across the country owned by NorthParkes.

Inter-row sowing is used with three rows per metre and this has enabled the retention of even very heavy stubbles which would otherwise have been burnt.

The ability to access paddocks under wet conditions has been a significant advantage in improving timeliness of operations compared to conventional systems.

Describe your machinery set-up and any changes you had to make to convert to CTF

All cropping operations are undertaken by contractors.

Tramlines are 3 m wide. The seeder is 12 m wide with the sprayer 36 m wide. Auto steer accuracy is 2 cm.

Granulated fertiliser products are spread on 36 m widths while some compost and manure alternatives are spread on 12 m widths.

Describe any changes you have seen in terms of fuel costs and work rate

Matt describes a major advantage of CTF as being the ability to access paddocks and carry out operations in a timely manner. This is particularly useful in winter where the tramlines allow spraying and other operations to be undertaken without damage to the paddocks.

Describe any impacts CTF has had on soil characteristics

Stubble retention and minimal tillage in combination with CTF has led to better water infiltration, reduced run off and reduced erosion across the majority of the paddocks.

Sinking along tramlines at harvest has been an issue in some years. In 2016, a very wet year, there were significant issues with sinking and slippage along tramlines. Matt is unsure at this time how this problem will be rectified in the longer term but it is a considerable issue.

Describe your weed spectrum

Annual ryegrass (*Lolium rigidum*), wild oats (*Avena fatua*) and annual phalaris (*Phalaris* spp.) have been the major winter grass weeds



encountered at NorthParkes mine while sow thistle (*Sonchus oleraceus*), fleabane (*Conyza* spp.), mustards (*Sisymbrium* spp.) and wireweed (*Polygonum aviculare*) are the major winter broadleaf weeds. A wide range of summer germinating weeds can be a problem through summer fallows.

Do you have any weed resistance issues?

Annual ryegrass and wild oats resistance are some of Matt's greatest concerns. He employs a number of tactics to control these problem plants. The inclusion of field peas as a brown-manure crop has helped decrease populations while also providing a disease break. Field peas are brown-manured in late August or early September which prevents seed set of the grass weeds and also assists with fallow moisture build-up.

The brown-manure component of the rotation will be reduced to about 12.5% of cropping land and replaced with pulse grains (faba beans, chickpeas, lentils) over time.

Chaff carts are used at harvest with narrow windrow burning also used to assist in control of annual ryegrass on cereal paddocks. Matt would ideally like to use a header with an in-built Harrington seed destructor to reduce weed seed return to paddocks, ensure even residue spread and reduce the need for burning. However, at this stage the reduction in harvest speed associated with use of this type of harvester and associated increase in harvest cost is a disincentive for adoption.

Double knocks are commonly used on problem weeds such as fleabane. Are you using this tactic?

As far as possible, every attempt is made to control fleabane early in the season with a single herbicide application and so far this has been very successful.

Contractors are used for all cropping operations and the cost and logistical difficulties in organising double knock tactics have to be taken into account.

Describe the impact CTF has on your crop yields

Matt estimates that crop yields are 20-30% higher under the CTF, minimum tillage, stubble retention system operated by NorthParkes Mine compared to district average for conventional farming.

Acknowledgements:

This factsheet was supported by Central West Farming Systems and SPAA Society of Precision Agriculture Australia Inc through funding from the Grains Research and Development Corporation (GRDC) as part of project ACT00004 – Application of Control Traffic Farming (CTF) in the low rainfall zone.

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