

Is continuous wheat viable?

By Harm van Rees, CropFacts P/L

Is the rule that wheat on wheat is not a viable crop rotation still valid? Continuous wheat was not considered a viable option due to a build up of root diseases (Take-all and Eelworm or CCN). The risks of continuous wheat cropping have been reduced with the introduction of new wheat varieties, which have resistance and tolerance to diseases such as Eelworm. Agronomic practices, which target the elimination of barley and brome grass out of pastures and crops, have lowered the risk of Take-all.

We know that cereals are safe crops in our dry environment, whereas higher cost crops such as canola and pulses run the risk of low yields in dry seasons.

A comparison of two adjacent paddocks in the Charlton district shows that continuous wheat can be a viable option as long as a few management practices are closely adhered to.

The two paddocks (64 ha each) are located 20km north-east of Charlton. The soils are even across both paddocks and consist of a red duplex soil with a clay-loam topsoil and clay in the subsoil. Rainfall in the Charlton district has been significantly lower than average over the last five years (average Growing Season Rainfall, April to October, for the area is 285mm) (see Table 1).

In the last five years wheat has been grown each year in the North paddocks, whilst in the south paddock a rotation of lentils, canola, wheat, wheat followed by barley have been grown. The performance of the cereals has been excellent (WUE above 15kg/mm/ha), whilst the yields for lentils and canola were poor (due to the very dry season in which they were grown) (see Table 1).

Table 1. Rainfall, crop type, yield (t/ha) and WUE (kg/mm/ha) for two paddocks.

	GSR mm	North paddock			South paddock		
		crop	yield	WUE	crop	yield	WUE
1997	214	wheat	1.9	18	lentils	0	0
1998	227	wheat	1.8	15	canola	0.9	7
1999	241	wheat	3.1	24	wheat	3.0	23
2000	283	wheat	2.6	15	wheat	2.5	15
2001	215	wheat	2.2	21	barley	2.4	19

The inputs in both paddocks have been very modest. Fertiliser inputs have been simple with either MAP or MAPZn at 50kg/ha and urea is spread by the seeder at 100kg/ha (average cost of \$66/ha). Herbicide cost has averaged \$25/ha and the main herbicide mix on the cereals has been Jaguar + LVE + Ally and Topik in some years all at low rates. Seed costs have averaged \$21/ha (which includes cleaning, pickling and the purchase of new seed in some years). The continuous wheat paddock has been burnt every year but the paddock is not cultivated (sowing is the only soil disturbance operation). The crops have been sown before the middle of May even if that meant that they were dry sown.

Protein levels have been excellent. The continuous wheat paddock has been in Krichauff wheat for the last three years and has averaged 11% protein.

How about the financial performance – is it a viable option? The cost of leasing the land, inputs and all contract operations are included as costs. The main income has been from the

crops with the only time that sheep returned an income was on the failed lentils in 1997. The financial returns have been very good (see Table 2).

Table 2. Gross margin (\$/ha) and Return on costs (%) for both paddocks

	Gross margin (\$/ha)		Return on costs (%)	
	North paddock	South paddock	North paddock	South paddock
1997	55	-276	20.1	-96.2
1998	-49	13	-15.8	4.2
1999	28	57	8.0	17.6
2000	138	131	42.4	40.3
2001	184	221	67.2	78.7

The average return on costs over the five years for both paddocks was 18.7%. This is an excellent return considering the dry years (every year has been below average growing season rainfall). The excellent prices paid for grain in 2000 and 2001 have made a large difference in the viability of this operation.

Continuous wheat can be a profitable exercise but there are three rules that should be followed:

1. Barley grass must be removed for at least two years prior to starting the wheat rotation
2. Stubble must be burnt (the risk of disease carry over is too high)
3. Crop must be inspected every September for weeds and root diseases; if weeds and disease levels are too high then wheat is not an option the following year.

The highest risk with continuous wheat is an inability to adequately control ryegrass. Trifluralin will have to be used in one of the paddocks in 2002 because there is a low level of ryegrass building up. Other weeds such as mustard, radish and white iron weed have become easier to control. Wild oat control in wheat can also be quite cheap with Topik or WildCat.

Continuous wheat has worked in the Charlton district over the past below average rainfall seasons. It has been a relatively low risk option and has provided a better return compared to growing pulses and canola in rotation with wheat. Whether continuous wheat will be as successful in other areas with different weather patterns, soil types and disease pressure should be investigated.