

Break crops

in stubble

Resources for additional reading



Table 1: Grain yield, annual and average 3 year gross margins between 2011-2013 at Junee Reefs, in stubble retained systems (ARG was not a major problem).

	Year 1 Yield (t/ha)	Year 1 GM (\$/ha)	Year 2 Yield (t/ha)	Year 2 GM (\$/ha)	Year 3 yield (t/ha)	Year 3 GM (\$/ha)	Avg. GM (\$/ha/yr)
CWW	3.2	\$1199	3.8	\$456	4.7	\$712	\$789
LeWW	3.2	\$710	4.0	\$764	4.2	\$651	\$708
LuWW	3.5	\$455	3.9	\$821	4.4	\$745	\$674
WWW	5.2	\$511	3.7	\$442	4.5	\$676	\$543

CWW= TT canola, (wheat high N) W = wheat high input (high N), LeWW = lupin grain crop wheat (low N), and LuWW = lupins grain crop, wheat (low N).

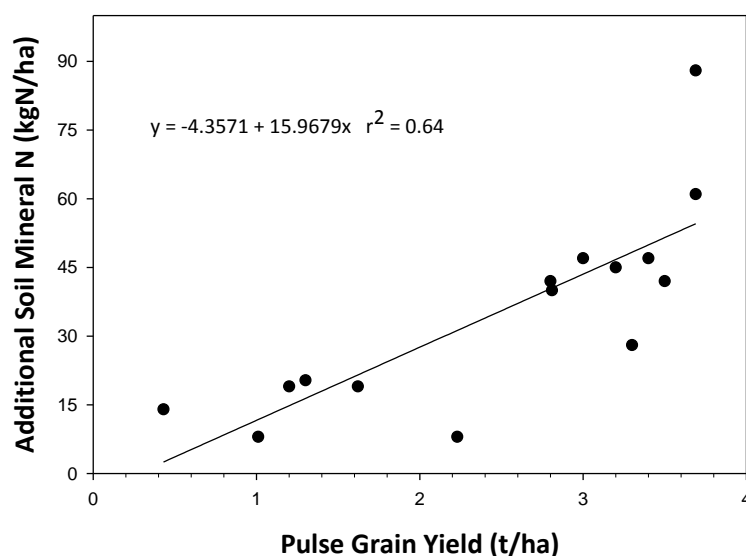
Table 2: Grain yield, annual and average 3 year gross margins between 2012-2014 at Eurongilly, in stubble retained systems (where ARG were effectively controlled).

	Year 1 Yield (t/ha)	Year 1 GM (\$/ha)	Year 2 Yield (t/ha)	Year 2 GM (\$/ha)	Year 3 yield (t/ha)	Year 3 GM (\$/ha)	Avg. GM (\$/ha/yr)
CWW	3.5	\$1259	4.7	\$533	4.5	\$858	\$883
LuCW	3.1	\$683	3.2	\$967	4.1	\$721	\$790
LuWW	3.1	\$683	5.1	\$726	3.9	\$863	\$757
WWW	3.2	\$257	5.0	\$642	4.2	\$855	\$585

C = RR canola + high N, W = wheat high input (150 plants/m² + high N) and Lu = lupin grain crop (no N). Wheat or canola in years 2 & 3 were 150plants/m², high N & high weed control.

Nutrient cycling

Figure 1: The relationship between the estimated additional soil mineral nitrogen (kgN/ha) following pulse crops compared to soil mineral nitrogen following a wheat or canola crop.



A 'double break' of fallow/Roundup Ready canola was the most effective to reduce an ARG seedbank. Lupin grain crops (spray topped)/RR canola or RR canola/Hay were also very effective and profitable (Table 3). The expensive herbicides costs (\$142/ha) associated with consecutive wheat crops reduced the ARG seedbank by year 4, but was not as effective or as profitable as sequences involving break crops or fallows (Table 3).

Table 3: Average annual gross margin over 3 years compared to ARG seedbank in one stubble retained experiment in southern NSW. (All plots were sown to wheat in year 3 and sprayed pre-em with Sakura® 850WG @ 118 g/ha & Avadex® Xtra @ 2 L/ha).

Break Crop	Crop x Input year 1	Crop x Input Year 2	Seedbank March Year 4 (seeds/m ²)	Average Annual Gross Margin (\$/ha/yr)
Double	Fallow	Canola	56	\$603
Double	Lupin (grain)	Canola	63	\$790
Double	Lupin (BM)	Canola	110	\$552
Double	RR canola	Wheat (Hay)	122	\$834
Single	Lupin (grain)	Wheat (H)	148	\$757
Single	Field pea (BM)	Wheat (H)	162	\$486
Single	RR canola	Wheat (H)	219	\$883
Nil	Wheat (H)	Wheat (H)	366	\$585
Single	RR canola	Wheat (L)	2387	\$845
Single	Field pea (BM)	Wheat (L)	3118	\$397
Single	Wheat (L)	Wheat (L)	3140	\$388

Wheat (H) sown at 150 plants/m², Sakura® 850WG @ 118 g/ha + Avadex® Xtra @ 2 L/ha; Boxer®Gold @ 2.5 L/ha and Axial® @ 150 ml/ha at 2-3 leaf.

Wheat (L) sown at 75 plants/m² and sprayed pre-em with Triflur®X @ 2L/ha + Diuron 500 @ 1 L/ha; Boxer®Gold @ 1.5 L/ha at 2-3 leaf stage.

