



## The economics of irrigated dual-purpose winter crops shows stellar returns

### Analysis for irrigated grazing cereals and canola

#### KEY MESSAGES

- High livestock prices have added a new dimension to irrigated cropping revenue through long-season, dual purpose (grain and grazing) crops.
- Grain only crops sown early failed to exceed break-even thresholds on a \$/ML gross margin analysis
- All hard-grazed crops sown at two separate dates in March and April achieved break-even \$/ML returns across all treatments of wheat, barley and canola
- Grazing can be a good agronomic strategy if growers are concerned the crops are too advanced and there is minimal risk that stock will damage irrigation layouts.

#### ABOUT THE RESEARCH

As part of the *Smarter Irrigation for Profit Phase 2 project*, Central West Farming Systems (CWFS), in partnership with Grains Research and Development Corporation (GRDC), NSW Department of Primary Industries and the Federal Department of Agriculture, Fisheries and Forestry aims to improve the capability of growers and extension staff to use irrigation information and tools and make cost-effective irrigation decisions through on-farm demonstration<sup>1</sup>.

#### DUAL PURPOSE WINTER CROPS — Assessing crop options for optimal water use

When access to irrigation water is limited or constrained, the question often asked is: if long-season crops are planted early and grazed, what are the expected per mega litre (ML) and per hectare (ha) returns? With livestock prices in 2021 eclipsing all forecasts and breaking new ground, water use involving alternative revenue from traditional grain-only harvest, uncover new opportunities, particularly for those in mixed farming businesses.

Understanding grazing management, stocking rates, water budgets, crop options (e.g. cereal vs canola) overlaid with starting soil moisture and seasonal outlook are choices that require detailed budgeting to realise the value of water. The alternative case is selling water into the open market.

The Lachlan Valley (NSW) demonstration incorporated four crop types – Hyola 970CL canola, La Trobe barley, DS Bennett wheat and LongReach Kittyhawk wheat with three crop outcomes – grain only (nil graze), biomass only (hard graze, terminated October) and grain and graze (light graze) with two times of sowing (TOS) – TOS1 13<sup>th</sup> March and TOS2 20<sup>th</sup> April 2020.

Water use between the species was measured using capacitance probes at 50cm, 60cm and 70cm. There was some variation among crops, with canola showing the highest water use from the end of September.

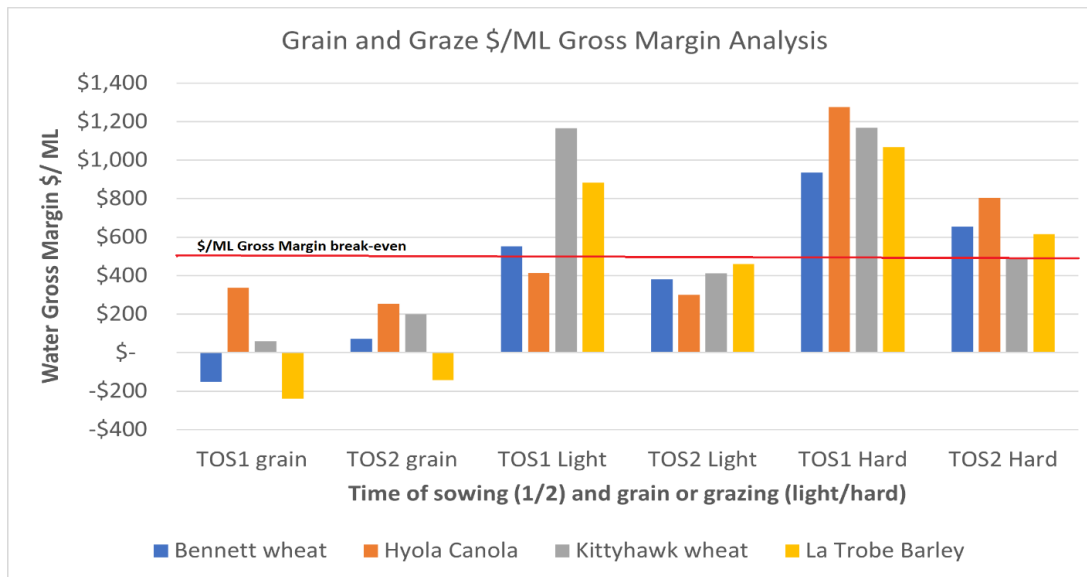
***With livestock prices at historical highs, dual-purpose crops can diversify income and take advantage of early stored soil moisture or irrigation water.***

<sup>1</sup> <https://smarterirrigation.com.au/industry/grains/>



**Results**

The per hectare and per ML Gross Margin analyses were calculated and compared with the value of water on the open market (at that given point in time) to establish a grow/sell decision matrix. I.e. Did the enterprise gross margin exceed the \$485 / ML achievable on the water market for the 1.5 ML applied? The figure below shows the different crop species (colour-coded) with Time of Sowing (TOS) 1 or 2 with either grain, light grazing or hard grazing. The treatments found a clear economic benefit to graze hard and recover grain with all per ML returns achieving break-even or highly profitable per ML outcomes. Conversely, irrigation gross margins favoured a ‘sell’ option for grain only crops when applying market values to commodity yields.



**Figure 1 irrigation water Gross Margin analysis in the Lachlan Valley, NSW for a range of sowing times and crop species**

**Conclusion**

The recent upward trend in livestock prices and the option of early grazing, dual purpose species can be highly profitable alternatives for irrigators. Considering grazing income alone, the best crop choice and grazing treatment was TOS1 hard grazed Hyola 970CL canola because it had a longer growing period to produce large amounts of highly digestible biomass. Selling water at the start of the year appeared to be the better option against all nil-grazed treatments, TOS2 lightly grazed cereals, and TOS1+2 lightly grazed Hyola 970CL canola. Using grazing to manage the development of crops is a good strategy to optimise irrigation water, if growers are concerned the crops are too advanced and there is minimal risk that livestock will damage the irrigation layout.

*The strategy to maintain livestock production, dual-purpose crops have been useful alternative for those in the high rainfall zone, and can be equally applied to mixed farming irrigators seeking optimal \$/ML water use*

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