

Replicate 2 had a sandy texture and marginally lower pH compared to Replicate 1.

Canola was the only crop type in this demonstration that was not influenced by spatial variation in soil and weed burden. This is because canola is a more competitive crop. The cabbaging canola competed for sunlight and nutrients by shading the germinating weeds.

All other crop types were heavily influenced by the presence of broadleaf weeds such as double gee, turnip, capeweed, thistles and grasses.

This underlines the need to adequately manage weeds both pre and post emergent. Chickpeas was the crop most influenced by weed burden.

Combined average yields (Figure 2), indicate that canola remains the most competitive break crop option at this site.

But given sufficient post emergent weed control, field peas and vetch have a potential fit as a legume option for a farming system in this region.

Economic analysis

Assessment of enterprise profitability was conducted on the results from a single season, across each replicate, with the combined economic performance shown in Table 4.

Figure 3 summarises operating profit as earnings before interest and tax (EBIT).

The value of nitrogen or updated disease status

has not been factored into this analysis but will be adjusted for the wheat phase in 2019.

The highest earning crop demonstrated by this project was canola, with an operating profit of \$382 per hectare.

Field peas also yielded a positive operating profit at \$194 per hectare but was not as profitable as canola due to the lower yield.

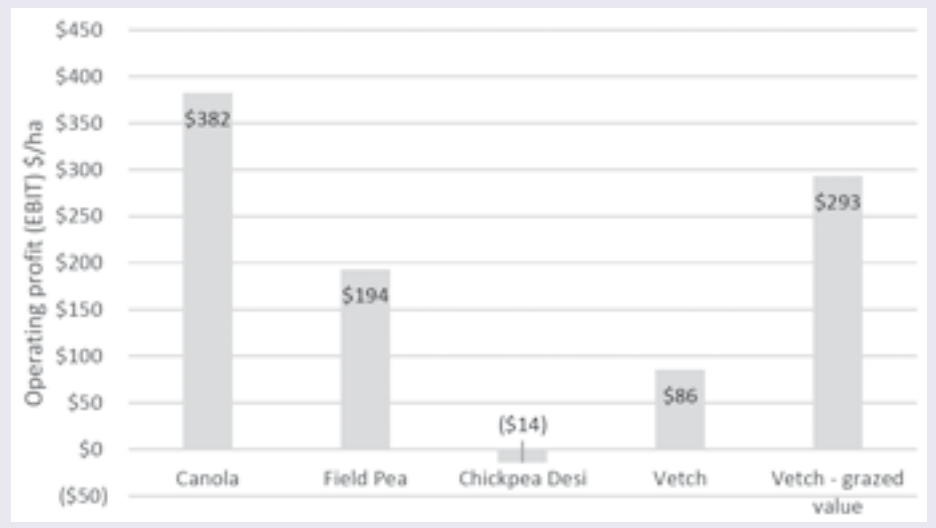
Chickpeas were affected by poor yields and quality due to the weed burden, resulting in a loss of \$14 per hectare.

The grain value of vetch achieved a modest \$86 per hectare operating profit.

The role of vetch in the rotation

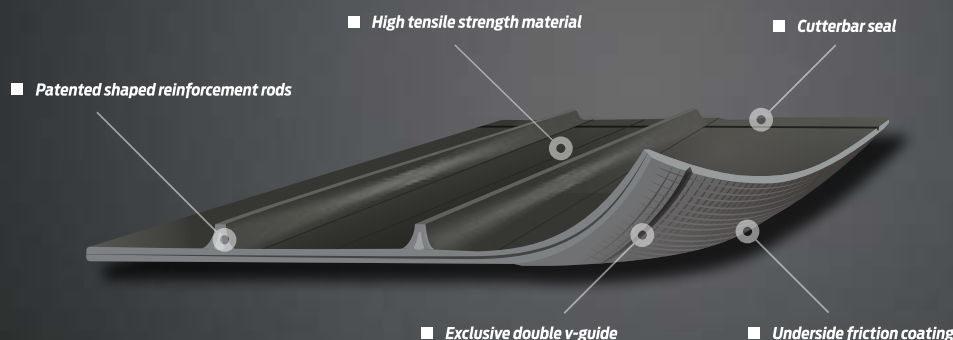
Vetch is a legume pasture species and will often

Figure 3: Combined enterprise operating profit (\$/ha) before interest and tax (EBIT), 2018



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be grazed, brown manured or cut for forage hay. The variety demonstrated at Dalwallinu, Volga, is a multi-purpose variety where livestock producers can maximise their returns from grazing both crop biomass and grain. A vetch grazing value has been calculated in Table 4.

The following assumptions have been made;

- One DSE consumes 1 kg dry matter (DM) per day.
- At the end of grazing there is budgeted to be 1000 kg DM per hectare remaining in order to retain enough cover to avoid paddock damage.
- In this example this means of the 3000 kg grown, 2000 kg would be consumed. From this 2000 kg consumed, lamb and wool production has been calculated and represents income.
- It is assumed that there would be single bearing ewes on this paddock which would turn off a lamb as well as a fleece.
- Average sale price of sheep is \$122.
- Average wool cut is 5.39 kg per head at an average price of \$10.57 per kg.
- The dry matter figure is only a visual assessment and information taken from this analysis needs to be considered with caution.

For livestock producers considering a legume species in the rotation, the Dalwallinu demonstration site indicated that grazed vetch provides significant economic advantage to both lamb and wool enterprises with a calculated operating profit of \$293 per hectare.

To sum up

To successfully grow a legume crop in the Dalwallinu region, suitable agronomic and management practices must be considered.

Adequate pre and post emergent control of weeds in pulse crops is required to limit the impact on crop yield and quality.

Matching crop soil requirements with soil type and using the right harvesting equipment/settings to avoid yield losses are also important in the planning for – and success of – a legume crop.

Results from the 2018 trial at the Dalwallinu site show that canola remains a highly profitable non-cereal crop option within our local rotations.

Table 4: Assessment of enterprise profitability at the Dalwallinu site from a single season (2018)

Crop enterprise		Canola	Field pea	Chickpea (desi)	Vetch	Vetch grazing value
Yield	t/ha	1.49	1.11	0.79	1.12	3.00
Carrying capacity for 150 days	DSE				13.33	4.8
Annualised carrying capacity	DSE					5.48
Average grain price (FIS)	\$/t	\$582	\$600	\$600	\$500	
Income	\$/ha	\$865	\$664	\$476	\$558	\$758
Variable operating costs	\$/ha					
Seed, treatment & EPR's	\$/ha	\$53	\$2	\$61	\$91	\$61
Grain freight (Up Country)	\$/ha	\$26	\$34	\$25	\$18	\$29
Grain handling charges	\$/ha	\$16	\$23	\$16	\$11	\$16
Crop contract	\$/ha	\$35	\$35	\$35	\$35	\$35
Other crop costs & crop insurance	\$/ha	\$22	\$22	\$22	\$22	\$22
Wages (Gross)	\$/ha	\$28	\$28	\$28	\$28	\$28
R&M mach/plant/vehicles	\$/ha	\$42	\$42	\$42	\$42	\$42
Fuel & oil	\$/ha	\$27	\$27	\$27	\$27	\$27
Fertiliser, lime & gypsum	\$/ha	\$60	\$104	\$45	\$45	\$45
Pesticide	\$/ha	\$35	\$32	\$36	\$38	\$35
Variable operating costs	\$/ha	\$349	\$337	\$358	\$339	\$295
Operating gross margin	\$/ha	\$515	\$327	\$119	\$219	\$463
Fixed operating costs	\$/ha	\$133	\$133	\$133	\$133	\$170
Total operating costs	\$/ha	\$482	\$470	\$491	\$472	\$465
Operating profit (BIT)	\$/ha	\$382	\$194	-\$372	-\$253	\$293
Finance costs	\$/ha	\$36	\$36	\$36	\$36	\$56
Earnings before tax (EBT)	\$/ha	\$346	\$158	-\$50	-\$289	\$237
Earnings before tax (EBT)	\$/ha	\$346	\$158	-\$50	\$50	\$237

Where soil type permits, field peas have an economic fit within the farming system. Further work is required to determine the suitability of chickpeas in a rotation.

While vetch performed well, the ability to control the weed burden must be considered prior to planting. Where stock are a part of the farm program, the grazing value of vetch needs to be considered beyond the value of grain.

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Liebe Group research is showing that adequate pre and post emergent weed control is critical for maintaining yield potential and quality of grain legume crops in the region.

Kazakhstan increasing trade ties with China

■ By Peter McMeekin

KAZAKHSTAN – one of the most important grain producers and exporters in the world – announced in mid-September that it was aiming to triple its wheat exports to China to as much as two million tonnes (mt) annually, but no time frame was charted to reach the goal.

This announcement came in the same week that the USDA released its latest global supply and demand estimates and in Kazakhstan it cut the 2019–20 season wheat production by 1.5 to 11.5 mt. This is down from 14 mt last season, 14.8 in 2017–18 and well below the record of 22.7 mt produced in 2011–12. The decrease was blamed on deteriorating crop conditions after a sustained spell of dry weather ahead of harvest.

The USDA also decreased Kazakh exports by 1.3 to 5.2 mt on the back of the lower production number. To balance the books, the USDA increased 2019–20 opening stocks by 200,000 tonnes, meaning that ending stocks were unchanged at 1.26 mt.

The Kazakhstan Ministry of Agriculture said that harvest is currently in full swing across all grain-producing regions of the country and it expected to export around 7.0 mt of grain and flour in the 2019–20 marketing year. The Central Asian nation is the world's second-largest exporter of flour behind Turkey.

China is already a major importer of oil, gas and metals from Kazakhstan and in addition to wheat, the government said that they were looking to increase exports of barley, salt, meat, poultry and dairy products to China. Interestingly, Beijing only approved imports of Kazakh barley in late November last year, the same week that the anti-dumping probe was announced into barley imports from Australia.

Kazakh barley production is expected to be 3.9 mt this year – 1.7 per cent lower than last season's record crop. Iran continues to be the biggest importer of Kazakh barley, consistently buying upwards of 80 per cent of production each year.

The last republic to depart the Soviet Union in 1991, Kazakhstan is rich in natural resources and has enormous economic potential. It is the ninth largest country in the world with an area of 2.725 million square kilometres. But with a population of only 18.5 million, it has one of the lowest populated densities in the world at just seven people per square kilometre.

The agricultural sectors' share of GDP is around six per cent, but like many of the former Soviet Union countries, Kazakhstan has enormous agricultural potential. The country is well endowed with fertile land but, like Australia, suffers environmental handicaps such as water availability and a harsh climate.

The total area suitable for primary production, including crops, pastures and grazing, notably the steppes, is approximately



Peter McMeekin.

222 million hectares. But only around 24 million hectares – predominantly in the north of the country – is arable and suitable for broadacre cropping.

Kazakhstan is a landlocked country, despite its access to the Caspian Sea. Remoteness from global markets and lack of direct access to ports are significant obstacles for grain exports.

Most Kazakh exports have traditionally been transported by road to neighbouring importers such as Uzbekistan, Tajikistan, Afghanistan and China or barged across the Caspian Sea to the Caucasian countries of Azerbaijan, Armenia and Georgia.

Alternatively, grain exports make their way to Russian and Georgian ports on the Black Sea for shipment to international buyers such as Italy, Turkey, Tunisia and Sweden.

Increased trade relations between China and their Asian neighbours has been a focus for Beijing in recent years as they attempt to shore up alternative supply origins and pathways in the face of the trade war with the US and increased trade tensions with several other key suppliers.

China's Belt and Road Initiative game-changer

This is where China's Belt and Road Initiative (BRI) has the potential to be a game-changer for trade amongst many Central Asian countries, especially Kazakhstan. This ambitious project was the brainchild of Chinese President Xi Jinping. It focuses on improving connectivity and cooperation among numerous countries spread across the continents of Asia, Europe and Africa.

The initiative was announced in 2013 with the purpose of restoring the ancient Silk Road. The scheme involves building a big network of roads, railways, maritime ports, power grids, oil and gas pipelines, and associated infrastructure projects.

Five railway routes and six international highways currently pass through Kazakhstan, connecting China and other Asian countries with Europe and the Middle East. But China wants to improve the speed and efficiency of freight movements and Kazakhstan features highly in the routing of a number of proposed BRI land transport corridors.

In addition to improving trade pathways and reducing the cost of imports, the multi-trillion-dollar initiative is expected to open up and create new markets for Chinese exports and those of many Central Asian states.

While China pitches the initiative as an all-inclusive project for regional development, many nations perceive it as a strategic move by the Asian powerhouse to achieve significance and control at a regional level, and to play a more significant role at the global level, by building and controlling a China-focused trading network.

Like Kazakhstan, Russia is also looking to take advantage of the changing international trade flows emanating from the US-China trade war by increasing grain exports to China. Russia is the world's biggest exporter of wheat, and it expects Beijing to approve imports of wheat from all production regions of Russia within a year.

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Is Australia losing relevance as a global wheat exporter?

■ By Peter McMeekin

THE Australian Bureau of Statistics released their July export data in mid-September and the grain numbers undoubtedly reflect the effects of last year's drought and the many dilemmas for Australian exporters this year.

Wheat exports for July came in at 737,000 tonnes. This was up from the June number of just 585,000 tonnes but well down on the 1.227 million tonnes (mt) exported in May.

Not surprisingly, Western Australia and South Australia accounted for almost the entire volume, shipping 494,000 tonnes and 216,000 tonnes respectively. The balance of 27,000 tonnes were container shipments from east coast ports.

In terms of destinations, Yemen, Vietnam and Japan were the biggest in July taking 113,000 tonnes, 109,000 tonnes and 83,000 tonnes respectively. In June it was the Philippines, followed by South Korea and Japan with 216,000 tonnes, 86,000 tonnes and 81,000 tonnes respectively.

Year-to-date wheat exports now stand at 7.457 mt with 57 per cent, or 5.286 mt, shipped in the January 2019 to June 2019 window. Western Australia made up the lion's share of Australia's wheat production last year, and at a pinch under 6 mt, the state accounts for more than 80 per cent of national wheat exports this season.

South Australian wheat shipments stand at 1.102 mt since the beginning of October last year or around 15 per cent of national wheat exports. Total east coast wheat exports for the marketing year stand at just 355,000 tonnes – mainly in containers.

Barley exports

Exports of barley in July totalled 209,000 tonnes, almost double the June shipments, with Western Australia making up more than 99 per cent of that volume. Malting barley made up 39 per cent of the July exports, and feed barley made up 61 per cent.

Japan was the biggest importer of Australia barley in July with 105,000 tonnes shipped, followed by China at 62,000 tonnes.

Total exports of barley for the 2018–19 marketing year stand at a healthy 3.459 mt. December 2018 is the biggest month thus far at 1.107 mt, more than double the next closest month. The

split between malting barley and feed barley is almost equal with 1.751 mt exported as malting and 1.708 mt exported as feed.

Western Australia has exported 3.143 mt of barley this season, almost 91 per cent of total Australian barley exports. At 279,000 tonnes South Australian exports make up most of the balance, and Victoria has chimed in with 37,000 tonnes of containerised trade.

Interestingly, China has been the biggest destination for Australia barley in the October 2018 to July 2019 window. They have taken 2.231 mt, or almost 71 per cent of total Australian barley trade to international clients. This is despite the ongoing anti-dumping investigation, which appears no closer to a resolution.

The investigation commenced in November last year, and the final decision of the 12-month inquiry is due in November this year. But Beijing can extend the investigation by a further six months, to May 2020, if they feel it is required.

While the potential outcomes remain uncertain, it appears that the Chinese government have their hands full on other fronts and are happy to let market speculation and confusion reign in the Australian market until a decision is announced.

Canola exports

On the canola front, July exports totalled 39,000 tonnes, with one 33,000 tonnes cargo loaded out of Western Australia and small parcels of container business out of both Victoria and South Australia.

Marketing season canola exports currently total 1.447 mt, with 79 per cent shipped from Western Australian ports and 14 per cent from South Australian ports.

With a run of poor sorghum crops in northern New South Wales and Queensland, sorghum exports total a paltry 62,000 tonnes for the first 10 months of the marketing season. This is well behind last year and a long way short of the record 1.6 mt exported in 2013–14.

Last year may have been bad, but this season's production outlook is not looking any better as the late winter dry continues into the spring. There are good pockets in most states, but widespread rains are required now, and then follow up falls for at least the next month to arrest the deterioration.

Australia has lost significant market share and relevance as a global wheat exporter as a result of last year's drought and the considerable fall in the continent's exportable surplus.

A repeat of last year is a free leg up for the likes of Argentina and the Black Sea origins who have filled the void into Australia's traditional Asian wheat consumers.

We have even seen export values out of both regions fall in recent weeks as the plight of the 2019 Australian harvest gets factored into global supply and demand calculations.

One thing is for sure, winning back that business in the face of similar competition will not be easy when Australian production recovers.

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