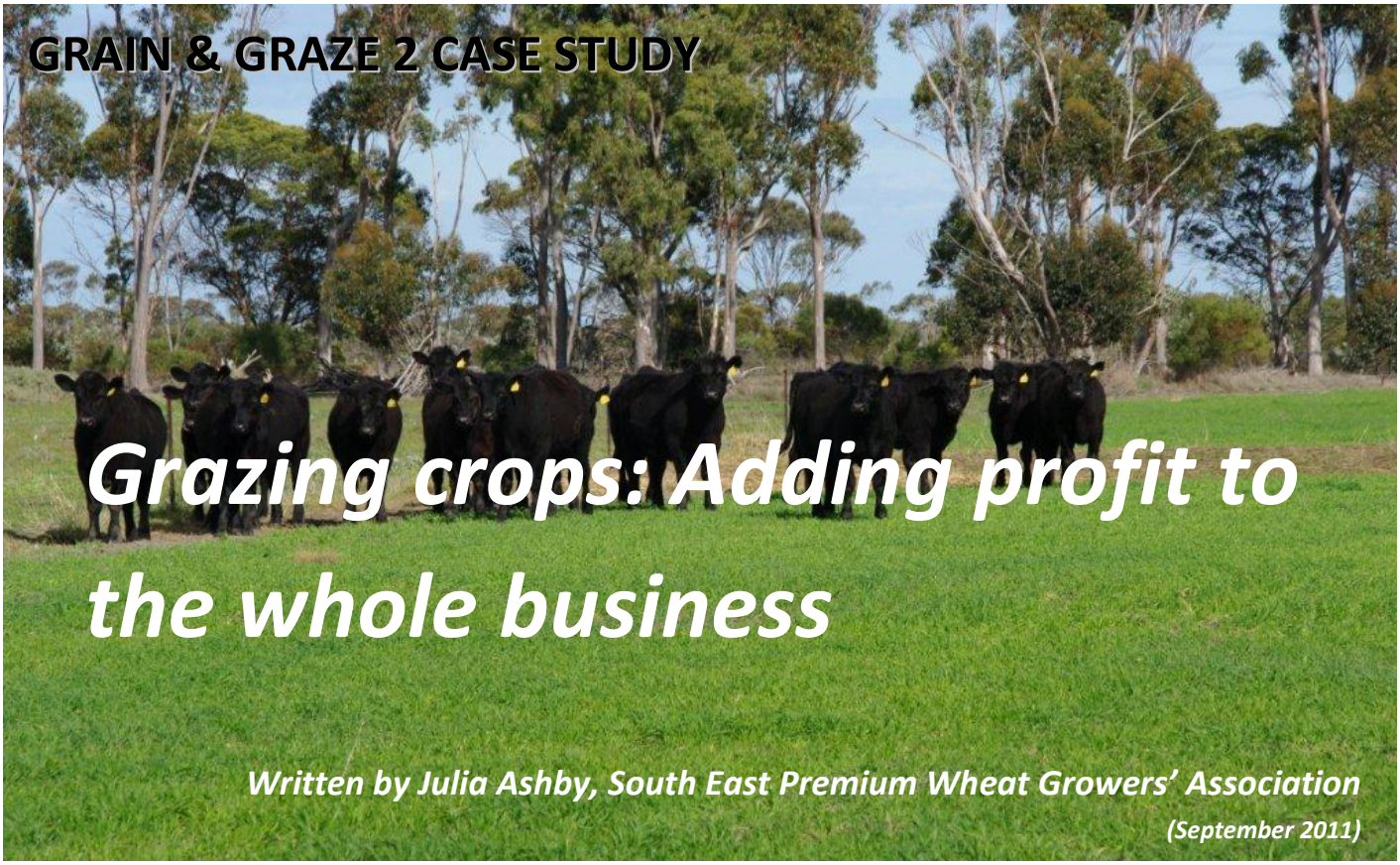
GRAIN & GRAZE 2 CASE STUDY



Grazing crops: Adding profit to the whole business

Written by Julia Ashby, South East Premium Wheat Growers' Association

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Profile

David and Sally Cox

Location: "Waterhatch Farms", Neridup, Western Australia (they also have another farm at Mt Walker but don't graze the crops).

Farm Size: 4,400 ha at 'Waterhatch' & and an additional 6,600 ha of farm and leased property.

Annual Rainfall: 450 mm

Soil Type: Sandy gravels, gravelly loams, loam over clay.

Enterprises: Crop 10,000 ha (all farms), graze 2,000 ha, 400 ha pasture & livestock (only at Neridup farm) – 1,200 Angus breeders (cow/ calf units) and 800 young stock (June 2012 calving).

Grazing crops has been part of the Cox's farm business for more than ten years.

With no scientific information, David first opened the gates for their cattle to graze their crops following a shortage of feed and in an effort to fill the winter feed gap.

Awarded a Nuffield scholarship in 2005, David had the opportunity to further investigate the science behind grazing crops without a yield reduction, in both Oaklahoma and Texas in the United States.

David, armed with the key to grazing crops, ("removal of livestock at first hollow stem"), bought the idea back to Australia and adopted it on his Neridup farm.

Another study tour to New South Wales in 2008, through the Grower Group Alliance exposed David to grazing canola and the timing of removal and effect of grazing on flowering dates.

Grazing crops is now a permanent part of David's farm business which has enabled the Cox's to quadruple their stocking rates and increase the profitability of their June calving cattle enterprise.

David said they target $1,000/ha gross income for each enterprise and they are now able to achieve that by grazing crops.

In 2011 the Cox's managed to once again increase their cattle numbers, as well as cropping 90% of the entire farm.

"We are now able to sell the hay that we produce, rather than feed it out, and crop more of the farm while running a relatively risk free livestock operation in what would normally be a tight autumn-winter period," David said.

Grazing Crops

The Cox's grow grain varieties that are best suited for grain production in their environment and adapt their management to suit their grazing requirements.

They grow Mace and Bonnie Rock wheat, Tornado and ATR 409 (Triazine Tolerant) canola, Urambie (dual purpose and long season variety) and Baudin barley. However following disease pressure in 2011 it was replaced with Hindmarsh in 2012.

ABOVE: Dave selling his concept of grazing crops at a Grain and Graze field day.

Most paddocks of wheat and barley are grazed by livestock along with the occasional paddock of canola, as David has found that the cereal crops provide more than enough feed for the cattle.

David said they work on a rotation of canola, barley, canola, wheat and ensure that it is for the benefit of the cropping enterprise not grazing. However, he said it was important to have clean and grass free paddocks as they have found that wheat with any amount of ryegrass should not be grazed, as it struggles to compete post grazing."

Planning for crops to be grazed revolves around the number of cattle that need to be catered for and the Cox's know that once they put a cereal crop in the ground, they will have an abundance of feed in 4 weeks' time. Canola crops are ready to graze a little later, at around 6-8 weeks after seeding.

David said if he has 500 cow/calf units then he will find the cleanest and wettest paddock that he can plant 500 ha of crop in at the end of April, early May.

"With the early sown crops we usually get about 6-8 weeks of grazing at 12-15 DSE and we have found that it will produce up to 2 tonnes/ha dry matter (DM). The later sown, the less grazing as with June crops we get about 4 weeks and late June it is reduced to 2 weeks of grazing and produces about 600 kg/ha DM."

Livestock are introduced to crops as soon as the plant is anchored well enough and when the feed on offer (FOO) suits the stock group, at the stocking rate of one cow-calf/ha (12DSE). Cattle are moved around continuously to graze crops until mid-August, when pastures have recovered to support the stocking rates.

"We graze big mobs of cattle hard over the whole paddock to ensure the crop remain evens as we have found if we used small mobs it created unevenness and delayed flowering."

In 2011 cattle grazed an early sown barley paddock from the 1st of June, where they calved, for six weeks prior to being moved to another crop paddock to graze for another six weeks. David said the length of grazing was dependent on the time of sowing of the crop.

Generally, David aims to remove cattle from the later sown barley crops by the middle of August or by early July for canola, to allow the crops to recover and commence flowering in August. David said this brings the crops back in line with other crops that haven't been grazed.

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"Perhaps one paddock in every four there may be a slight yield penalty of 200 kg/ha but we feel that is a small price to pay when we have quadrupled our stocking rate and we are running a profitable livestock operation."

ABOVE: Cows happily grazing cereal crops.

David said the crops recover well after grazing and they continue to put out new leaves.

"Once the cattle are removed we apply granular Nitrogen (N) as calculated by the N rich strips plus an extra 10 units for all grazed crops. This allows for the removal of nutrients from grazing and ensures that we maintain grain protein for the cereal crops come harvest time."

"For wheat and barley crops, we wait for 2-3 new leaves to sprout before we go in with a fungicide and broadleaf spray. For canola we apply a grass selective and atrazine top-up within seven days of stock removal."

However, bearing in mind stock withholding periods, David said they were limited in chemicals that can be used prior to grazing.

"Sometimes when we have a heavily infested radish and/or capeweed paddock, we use a spray/graze strategy where we use a registered Amine spray to sweeten the plants up."

"After seven days we let the cattle into the paddock to graze the crop and they help with the weed infestation as they really favour the plants."

"Otherwise we hold back most of our herbicides and fungicides until after grazing," David said.

The Cox's find by August the pasture paddocks are well and truly spelled and they are able to carry the cattle at a stocking rate of two cow/calf units/ha, until weaning or when stubbles become available.

Livestock

"Without grazing crops we would have a stocking rate on some of our properties as low as 0.5 cow/calf unit/ha (6 DSE) and be vulnerable to adverse seasonal conditions."

David said with the massive amount of feed available through grazing crops they were able to safeguard the stocking rate they aimed at which was 2 cow/calf units/ha (30 DSE).

He said the district average was about 0.5 cow/calf unit/ha which returned up to $300/ha gross income but with their higher stocking rate, they were now looking at $1,200/ha.

"We don't have to feed hay or pellets to fill the winter feed gap, we use the crop to inject dry matter into the cattle which brings us way out in front."

"We don't have the expense of feed, we still get good yields from the crops and we are able to achieve

excellent calving rates, milk production and conception rates."

"In 2010, the Esperance region had a dry autumn which translated to poor conception rates and light weaning weights across the district, however despite this, we managed a 95% conception rate.We attributed this to the cows calving in June and joining them on good quality pasture that had been given time to recover while stock grazed the crops," David said.

In 2010 the Cox's grazed 150 ha Baudin barley crop sown in late April, from the 1st of June, with 150 cows that calved over a six week period. They required no supplementary feeding and the cows removed 1 tonne DM/ha. They were moved to another barley paddock on the 20th of July where they remained until early August. From here they were put into a pasture paddock at a stocking rate of 2 cow/calve units/ha. The pasture was stripped grazed and the cattle removed 5 tonnes of DM through until December when the calves were weaned.

An example of 200 younger steers - the Cox's ran them at 1 steer / ha on stubble until an April sown barley crop was ready and continued to graze crops through until the 10th August 2011 when they were sent for slaughter. They achieved a live weight gain of 1.5 kg/head/day and dressed out at 300 kg with a live weight of 600kg.

David said this was literally a free lunch for these cattle as they had not been carried on pasture for more than 12 months.

ABOVE: Grazed canola on left and ungrazed on the right.

Benefits

Originally David set out to graze crops to fill the winter feed gap but along the way he has discovered numerous other benefits for both the cropping and cattle enterprise.

"In grazing barley crops, there is basic canopy management which can assist with aphid control and disease management, especially powdery mildew."

"Quite often we have found that we require one less fungicide spray for those barley crops that have been grazed."

"For canola, the removal of the canopy assists in weed control when you apply grass sprays and grazing also removes the bulk of the crop and lowers its height, which makes swathing and harvesting easier."

"With cereal crops we have found there is less straw at harvest which makes stubble management much

easier as the bulk of the crop has been removed with grazing," David said.

"I believe it also attributes to better grain quality in terms of grain size and lower screenings with better control of disease throughout the growing season."

He said the benefits to the cattle enterprise are simple as it allowed them to run up to four times their normal stocking rate, while removing the risks of seasonal variation.

"If we weren't grazing crops and had a less than perfect start to the season, we would have to destock, buy in expensive feed and settle for lower weaning weights and poor conception rates."

Challenges

While David is buoyed with enthusiasm for grazing crops he said the increase in stocking rates and overall cattle numbers had put pressure on infrastructure, especially watering points.

"We are now spending money on increasing our water supplies and sub-dividing paddocks to better manage grazing."

In the future, David plans to continue to investigate the suitability of different grain varieties to fill the identified feed gap.

Acknowledgments

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