

2018

BROWNLOW HILL CASE STUDY:
PRODUCTION REPORT

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Brownlow Hill production systems are based on the two main land types found on the property 1) river flats characterised by deep alluvial soils and 2) shale hills on lower and upper slopes.

1. River flats

The river flats have been farmed for well over 100 years. Originally the alluvial plains would have been subject to occasional flooding and deposit of nutrient rich soil and organic matter that made this parcel of land so productive. As the upper catchments of the Nepean River have now been damned the incidence of flooding is reduced and hence nutrient load recharge is not as frequent. The soils are said to be up to ten metres deep.

Dairy

Dairy cattle have been the main stay of the Downes' enterprise for a long time. Until deregulation this was their principal form of income. Two dairies still operate on the property. Both are the traditional walk through type with limited infrastructure compared to a modern rotary dairy. The cows are milked twice a day with an average of 23 litres per milking.

The cows graze on 3 x 40 hectare strip grazed paddocks using electric fencing. Occasionally they will graze Lucerne paddocks, and the strict grazing regime ensures parasitic worms don't impact herd health. They are checked twice a day. Access to drinking water is from the unfenced creeks or rivers, dams or bore water from troughs. Dung beetles are active all year round, ensuring the efficient recycling of cow dung.

The cattle aren't vaccinated and require no drenching to manage lice. They don't suffer from bloat most likely due to modified rumen and gut bacteria that allow them to handle the rich pasture. They don't require lick blocks or trace element mixes.

The heifers are naturally mated and manually pregnancy tested. The calves are cared for in shelter behind the dairy, on milk exclusively for two weeks, then with access to water. From one month they are fed scratchy hay then move onto a bran/pollard mix plus milk from six weeks. The calves are weaned at twelve weeks.

The cows have been fed a range of supplements over the years - currently they are fed brewers grain and mill run pellets from a local supplier.

Cropping

One third of the Brownlow Hill property of 440 hectares is irrigated. Lucerne makes up 133 hectares, seasonal crops roughly 242 hectares and the balance is planted to perennials. In the past, double cropping of summer and winter crops started to depreciate the soils so Edgar introduced chicken manure in the mid 1980's as a way of increasing nutrient matter and an alternative to chemical fertilisers. As the price of chicken manure increased Edgar looked for alternative sources of nutrient matter. Stable waste from local suppliers was a cheap and effective way of introducing carbon and nitrogen into the soils. This has proved to be a windfall, increasing yields by 20% to 30% and effectively improving the water holding capacity of the soils.

Lucerne is a cash crop with low production costs and an active growing season of ten months, enabling eight cuts per annum. At \$15 a bale and thirty small bales to the hectare this is one perennial that continues to deliver profits. Local horse racing stables and hobby farms drive demand, ensuring the continuing strong run of sales.

After four or five seasons the stable waste starts to lose nutrient load and Edgar follows this with a seasonal crop before allowing the land to lie fallow. The cycle starts again with a light till of the soil to incorporate more stable waste, then several more tills to manage weeds prior to sewing the next Lucerne crop. Herbicides and insecticides are not applied to the crop, and the Downes rely on ecosystem services such as the five permanent bee hives on Brownlow Hill, which encourage pollination.

Summer and winter cropping includes short rotations of Italian Rye and oats followed by summer planting of millet. The focus on soil vitality through minimal tilling, stable waste and no chemical inputs has changed the colour of the soil from light terracotta to dark chocolate. As a result, the Downes could apply for organic status in the future, and so tap into the growing consumer demand for chemical free foods.

Irrigation on the river flats

The entire floodplain was previously drained which led to a lowering of the water table and the watercourses becoming incised. A series of weirs has partially improved hydrology of the landscape. Brownlow Hill sits in a rain shadow between eastern sections of the Great Dividing Range and the Blue Mountains to the west and the average rainfall is 715 mm per year with significant variations around that from year to year. The rainfall determines when to sow.

A K-line system is now used to irrigate the crops because the previous sub surface irrigation blocked after five years. The K-line system is cheap and easily relocated behind a quad bike.

2. Shale hills

Beef cattle are grazed on the lower and mid slopes of predominantly native pastures in the hills area, and as a result, the area remains relatively free from woody weed infestation. The cattle access water from dams or creeks and are moved regularly. The availability of grey water at some point in the future may make this country more productive, but the land is currently lightly grazed and the cattle are checked weekly.

The upper slopes are the preserve of Bio Banking. The endangered grassy woodland ecological community has been set aside to ensure biodiversity. Each hectare generates around eight credits, depending on the significance of the vegetation community. Fencing rules preclude the use of barbed wire on Bio Banking sites, and they also present a danger to the cows' udders. A weed eradication and management plan is required to provide an inventory of noxious and environmental weeds on the site, as well as to undertake primary and secondary weeding. The cattle are permitted to crash graze the Bio Banking sites infrequently in order to keep woody weed regrowth down.