



PUP (Proportion of Un-grazed Pasture) grazing increases margins on farm.

All industries, businesses and individuals face the never-ending pressures of the cost price squeeze. The solution is inevitably that we adapt new practices and use better technologies to create improved efficiencies to maintain profit margins. Most of the advances we make in agriculture are incremental. DAF has developed a new grazing strategy which we believe is the most transformational change we have seen in decades. The best thing about it is that it does not require any capital investment to implement.

DAF have devised a new grazing strategy called PUP which is an acronym for Proportion of Un-grazed Pasture. PUP focuses on changing two aspects of grazing management; the first being the pasture allocation and the second being the resulting post-grazing residues. The PUP grazing strategy has recently been ground-truthed on a dairy farm in the Lockyer Valley resulting in improved animal performance, pasture and economic returns that exceeded our expectations.

The ground-truthing has been conducted on Alan, Dolores, Luke and Bek Stock's dairy farm at Glenore Grove in the Lockyer Valley. The Stock's milk 110 jersey cows on an irrigated pasture-based farm. The primary strategy of this farming system is based on consuming as much home-grown feed as possible. In this system a flat 3 kilograms of grain is fed all year round.

The on-farm trialling of PUP grazing began at Stock's in September 2017 initially grazing ryegrass, then kikuyu through the summer. This trial continues today and will run through to next spring so PUP grazing on ryegrass can be fully assessed.

The results discussed in this article all relate specifically to a kikuyu-based pasture topped up with lucerne, chicory and white clover. The grazing rotation on

this pasture was set at 14 days for the traditional rotation, with the cows being presented kikuyu at 4 to 5 leaf stage, then grazing it down to a one leaf residual including the faecal patches.

The heifers follow the milkers, grazing the milker residual pasture, resulting in a paddock that looks like it has been mulched.

The Stock's wanted to see if there was a tangible difference between traditional and PUP grazing. To achieve this, their milker herd alternated grazing rotations between traditional and PUP grazing strategies every fortnight. The PUP rotation was set at a 12-day rotation, where the cows were presented with exactly the same height and quality of feed as the traditional rotation of 4 to 5 leaf kikuyu. This is shown in Table 1 below. However due to the PUP

strategy not offering areas of pasture that are contaminated with faeces, the allocation offered to the PUP herd was 20% greater than the traditional herd. This additional pasture offered resulted in an intake of 9.5kg dry matter per cow per day. This was 1.5 kg greater than the traditional strategy on the 14-day rotation.

The residual pasture remaining using the PUP rotation was greater than the traditional rotation. This higher residual comprised of pasture around faecal patches and stem. This allows the cows to consume only leaves and achieve high levels of pasture intake as they are not forced to graze contaminated pasture or stems. The heifers followed the milkers as they had previously, but interestingly, they left a higher pasture residual.

The PUP grazing system also achieved

What is PUP grazing?

PUP is the measure of the Proportion of Un-grazed Pasture remaining following grazing. It is a quick and simple way to assess if we have allocated enough pasture to fully feed cows.

continued ►

higher pasture growth rates. This occurred due to greater pasture leaf residuals boosting faster regrowth. Combined with slightly more frequent irrigation, this has resulted in the PUP grazing strategy producing a higher pasture growth rate when compared to the traditional grazing strategy. The pasture growth rates were 20% greater, allowing the Stock's to achieve a sustainable and quicker 12 day rotation under the PUP system.

These results demonstrate that allowing cows to graze a greater area increases

pasture intake per cow. Basically the cows eat just leaf, rejecting the stems. The greater residuals lead to greater pasture growth rates as irrigation frequency was increased.

The input costs for PUP increased slightly due to extra irrigation and fertiliser being applied, which is a function of the faster grazing rotation. However extra milk was produced also, so the overall daily margin for each cow within the PUP system was an extra \$0.68 per day. This equates to an extra 5 cents per litre when comparing

PUP to the traditional grazing strategy. This is a significant outcome. You can achieve this change without the need to invest in any new infrastructure, it's simply a change in the grazing allocation. If we apply PUP grazing to the average Queensland dairy farm, it's potentially an extra \$60,000 on the bottom line per annum. ■■

Table 1. Comparison of traditional grazing versus PUP grazing on kikuyu based pastures from December 2017 to January 2018.

	Traditional 14 day rotation	PUP 12 day rotation	Difference
Pasture utilisation (kg DM/ha)	870	870	0
Grazing area (ha/day)	1.0	1.2	0.2
Herd pasture utilisation (kg DM/day)	870	1044	174
Intake (kg DM/cow/day)	8.0	9.5	1.5

Table 2. The production and economic benefits of PUP grazing over traditional grazing strategies.

	Traditional	PUP	Difference
Intake (kg DM/cow/day)	8.0	9.5	1.5
Milk (L/cow/day)	12.7	14.0	1.3
Income (\$/cow/day)	8.54	9.38	0.84
Cost (\$/cow/day)	1.28	1.44	0.16
Margin over feed cost (\$/cow/day)	7.26	7.94	0.68
Margin over feed cost (c/l)			5.0



We are growing more feed; the cows are consuming more and it's of a higher quality. Not only have we seen an increase in milk production from cows consuming more, but we are also supporting more heifers utilising the stemmy residual left behind.'

So the question is, what do the Stock's think about the traditional grazing strategy versus PUP? The following is Luke Stock's comments about PUP grazing.

"Two years ago, we made the decision to move from being PMR to a full grazing farm with a kikuyu base. At the time, I didn't think our cows seemed to be hungry, although, I knew they had the potential to eat more. Unfortunately, we never seem to have the feed available for us to offer them the extra 1-2 kg of dry matter they needed to get them to full potential. PUP grazing has enabled us to do this. We are growing more feed; the cows are consuming more and it's of a higher quality. Not only have we seen an increase in milk production from cows consuming more, but we are also supporting more heifers utilising the stemmy residual left behind. I believe PUP grazing can be easily adapted to any farm that grazes cows, whether they are full grazing, partial or opportunistic. For us, what started as a trial, PUP grazing has now become common daily adoption into our grazing schedule."

For more information on PUP grazing visit:

- dairyinfo.biz/wp-content/uploads/2017/08/Northern_Horizons_July2017.pdf
- dairyinfo.biz/wp-content/uploads/2017/10/Northern_Horizons_Sept2017.pdf
- dairyinfo.biz/wp-content/uploads/2018/01/Northern_Horizons_Dec2017.pdf

