

# How much mud is too much mud?: Identifying practical visuals linking soil conditions to animal behaviour

## Desired outcome

A suite of practical visuals linked to lying behaviour and soil conditions in kale and fodder beet crop paddocks.

## Project objective

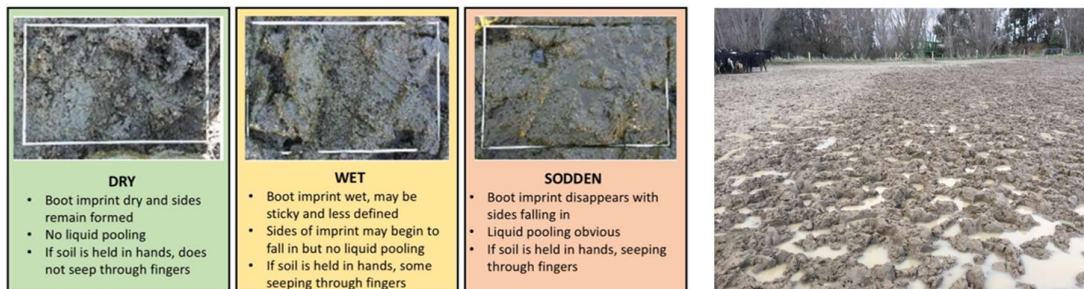
To determine how soil and weather conditions contribute to the risk of reduced lying time in dairy cows wintered on crop

## Key soil measurements

Each day Gumboot scores (Figure 12) were measured at 26 sites across the break area. Pugging depth was also measured at each site by recording how far a 30 cm plastic ruler could be pushed into the soil before it met resistance. Photos of the breaks were taken every day from the same positions in the break. If there was any visible liquid (water or urine) pooling in the close vicinity of the sampling site (within half gumboot length), this was scored as 'Yes' for surface water pooling present.

## Key Messages

**A ruler, gumboot score and presence of water pooling are good measures to estimate true mud depth and paddock wetness**



**Paddock and soil conditions resulting in low lying times**



## Key Findings

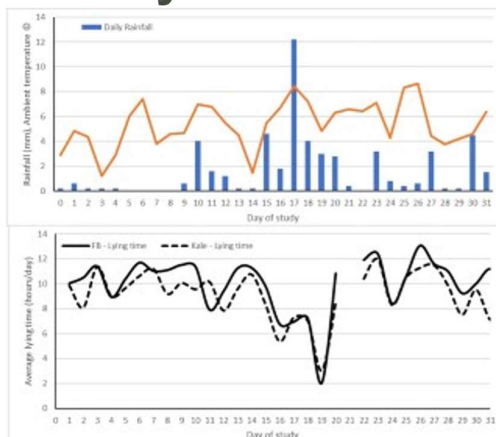
### No differences in soil conditions observed between fodder beet and kale paddocks



- pugging depth – 7.1 vs 5.5 cm
- % dry – 65 vs 66 %
- % wet – 33 vs 29 %
- % sodden – 3 vs 5 %
- % pooling – 27 vs 28 %

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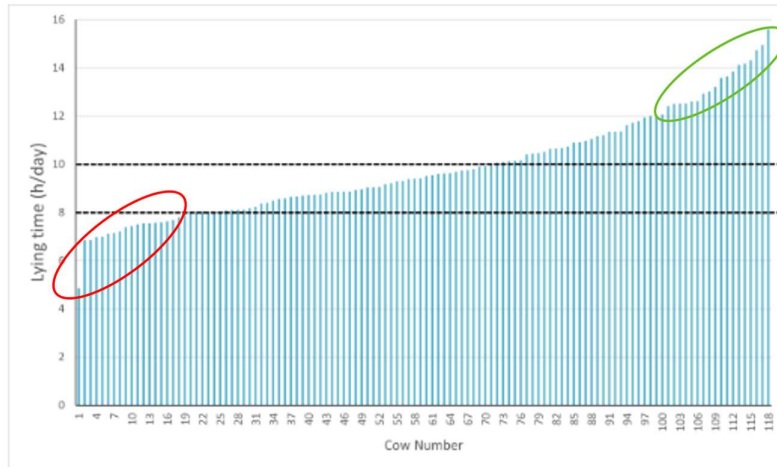
### Lying time decreased on the day of rain & the day after but rebounded two days later



- On rainy days cows had fewer, shorter lying bouts
- 2 days after rain lying bout duration was longer

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## Not all cows achieved the minimum recommendation of 8 h/day lying



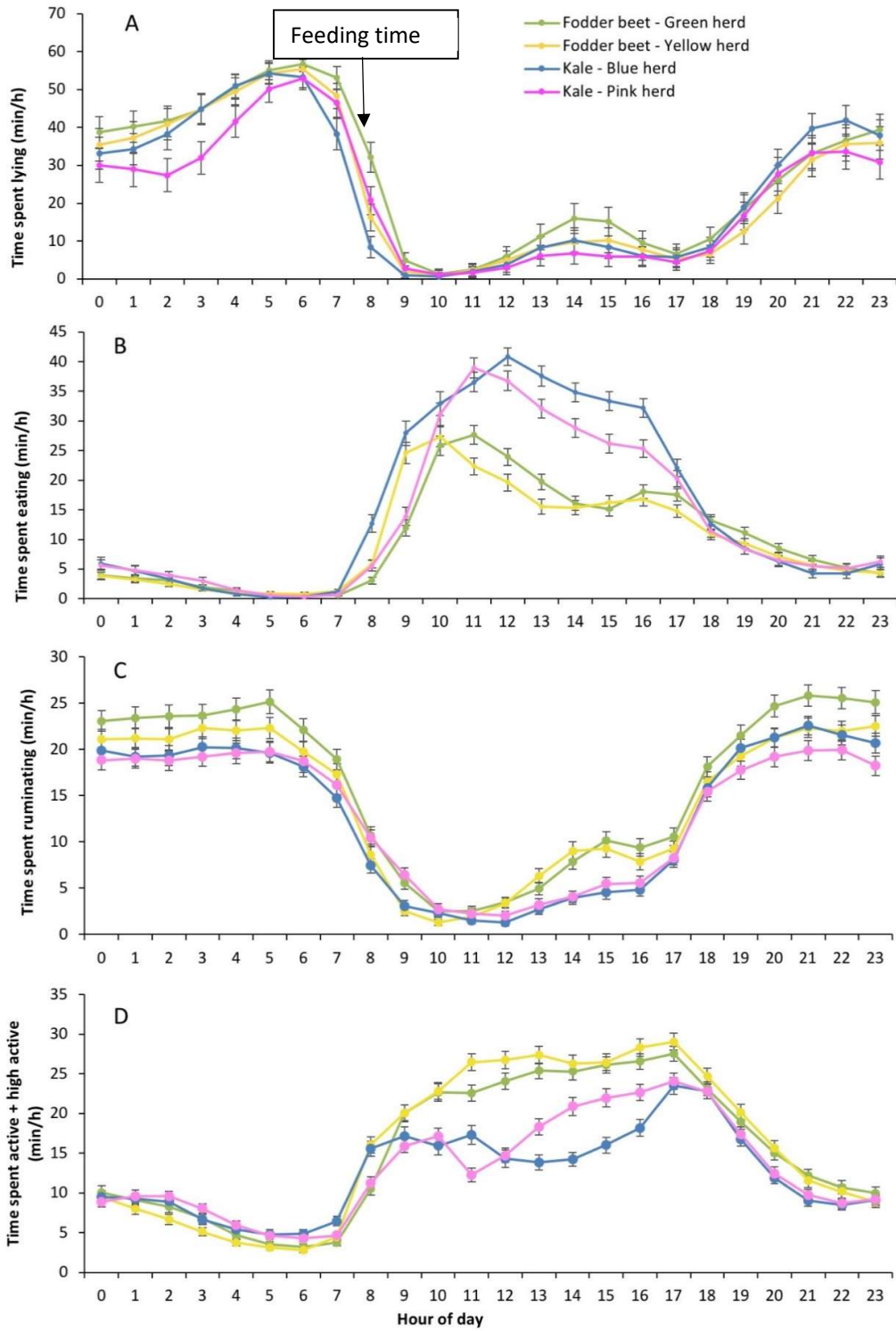
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## Younger earlier calving cows in the 'at risk' group

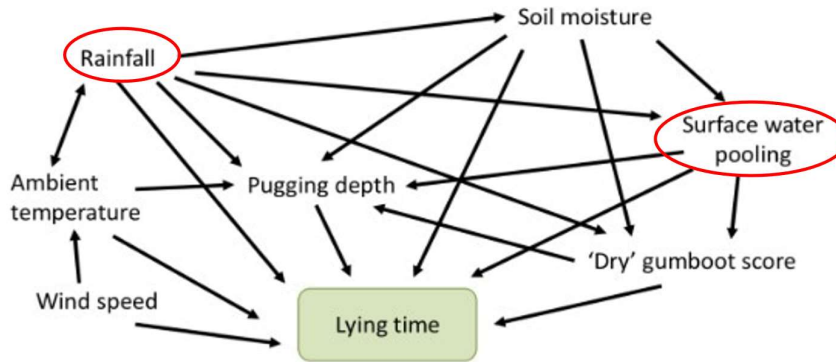
	Days pre-calving	Age	BCS
Less than 8 hrs lying	<b>47</b>	<b>3.8</b>	4.9
8-10 hrs lying	59	4.8	4.9
10-12 hrs lying	54	5.8	4.9
Greater than 12 hrs lying	58	7.1	5.0

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**Kale cows spent more time eating while fodder beet cows were more active and ruminated more.**



# Many interacting factors affect lying but **surface pooling** appears most useful and this is closely linked to **rainfall**



## What can **you** do this winter for better wintering outcomes?

- Complete your winter management plan with your team for ALL your crop paddocks
- Develop a contingency plan/Plan B and know the triggers for implementing it

### Crop Paddock Setup and grazing information

#### Pdk 37

Mob: Std FB Lights/heifers

No. in mob: 101

Estimated yield: 21 T DM/ha

Grazing order: After pdk 49

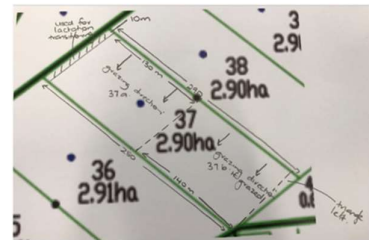
Feed allocation: 9.8 kg fodder beet plus 3.3 kg **baileage**

Bales per break: 1.5

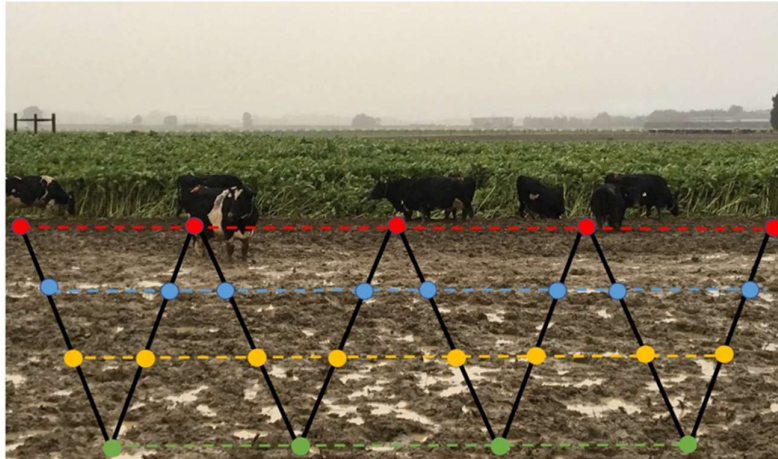
Approximate No. days grazing: 30 days grazing each half (less what is used for lactating cows)

#### Critical Notes:

- Normal sized bales of **baileage**
- Split into 37a and 37b with 37a closest to pdk 33
- Possible that 37b will be lifted for spring as wet end of pdk
- Opened up with milkers grazing parallel with the laneway for 10 m before turning to winter grazing direction (towards pdk 36)



## Set paddocks up to **protect the area closest to the feed face** from pugging during weather events



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## Indicators for implementing your “Plan B”

- Amount and number of consecutive days of rain - > 2 days cows will be getting tired
- Proportion of the paddock with water pooling
  - >17% of available area → herd average lying less than 10 hrs/day
  - >80% of available area → herd average lying less than 8 hrs/day

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# What Plan B's are others using?

- Saving drier crop paddocks on the farm with shelter
- Saving sheltered areas within a paddock for grazing later
- Yards/laneways with rubber matting for short periods
- Feed-pads/stand-off pads
- Tree blocks if available
- Grass strips in crop pdks



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**We have one opportunity to get  
crop wintering right and it is  
this winter**



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