

Pasture yield and disappearance mapping to enhance grazing efficiency

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Mapping of pasture characteristics including availability and disappearance with grazing is valuable to improve grazing management and efficiency in intensively grazed pastures (Dennis *et al.* 2015). Many non-destructive methods exist that estimate pasture dry matter yield (DMY; Trotter *et al.* 2010). The aim of this current study was to estimate spatial variability of grazing intensity of cattle in drought effected pasture. All procedures were approved by the Animal Ethics Committee of CSIRO FD McMaster Laboratory Chiswick (Animal Research Authority 18/20).

Eight 1.25 ha paddocks within a 10-ha paddock with mixed temperate grasses were grazed by two groups of 20 Angus heifers at weekly intervals. After the eight paddocks had been grazed over a 4-week period (P1), weekly grazing of each paddock was repeated over a second 4-week period (P2). Sward height (SH) was measured using a non-destructive method with a Utility Task Vehicle (UTV)-towed C-Dax Pasture Meter XC1® (C-Dax Ltd, Palmerston North, New Zealand; Greenwood *et al.* 2017). Calibration cuts (12, 50 cm² quadrats per paddock) were also made pre- and post-grazing for every paddock during P1 and P2. DMY (kg/ha) was calculated from calibration equations based on combined pre- and post-grazing values for P1 and P2, respectively.

Mean (\pm SD) SH for all eight paddocks were 78.5 (27.6) mm pre-grazing and 46.9 (18.1) mm post-grazing during P1, and 40.5 (14.3) mm pre-grazing and 32.6 (10.2) mm post-grazing during P2. Mean (\pm SD) starting pasture mass was 2,841 (865.1) kg DM/ha and 1,892 (713.0) kg DM/ha for P1 and P2, respectively. DMY disappearance variability maps were generated using geostatistical methods (see examples in Figure 1 (a) and (b)) from pre- and post-grazing DM availability to determine grazing intensity.

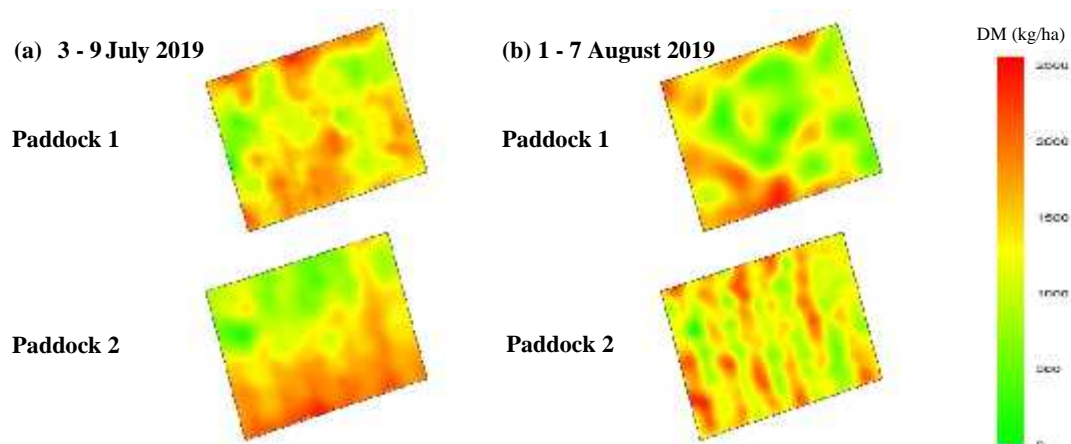


Figure 1. Interpolated maps of disappearance (kg DM/ha) for two paddocks during (a) P1 and (b) P2.

Mapping the spatial variability successfully identified differences in grazing intensity within paddocks during a phase and between phases. The Pasture Meter XC-1 took about 20-min per 1.25 ha paddock, which can be much reduced by using wider run spacing. Further research will be conducted to assess the strategic value of pasture availability and disappearance mapping for grazing management decision making in the extensive livestock industries.

References

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