

The effect of flock size and paddock complexity on following behaviour in Merino sheep¹

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Little is known about the impact of flock size on the social structures (leadership and sub-grouping) of the highly gregarious Merino sheep. As part of a larger experiment examining the capacity to manipulate flocks using 3 leaders trained to approach a stimulus for a lupin grain food reward, the present experiment examined the impact of flock size on responsiveness to leader-initiated naïve (non-trained) group movement and sub-grouping formation in small paddocks (2 ha). Two groups SM (Small Mob, n=18, 3 trained + 15 naïve) and LM (Large Mob, n=48, 3 trained + 45 naïve) were tested during Morning Grazing and Afternoon Grazing in 3 open paddocks (OPs) and 3 complex paddocks (CPs). In all 6 tests 100% of the SM followed leader initiated movement approaching within 6m of the stimulus in OPs and CPs. The number of LM group members following changed significantly with more sheep following in the OPs than the CPs (Chi-square(df3)=6.39, P=0.012). The gregarious nature of sheep, their social cohesiveness and allelomimetic behaviour seemed to facilitate group movement. Passive recruitment by leaders and associated following behaviour of naïve sheep was observed consistently in the OPs but in the LM group complexity did reduce the influence of leaders. Overall sub-grouping did not change (Chi-square (df3)=0.26, P=0.97) with group size and did not significantly alter response to leaders in the CPs or OPs. Sub-grouping in both the SM and LM CPs increased by three additional sub-groups in the afternoon compared with the morning. This may be a reflection of high pasture availability for morning grazing subsequently reducing emphasis on food gathering in the afternoon i.e.: social interactions rather than hunger needs became predominant. It seems that in small complex paddocks sub-grouping may be related more to level of social activity than to group size or paddock complexity per-se.

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