Implications of the use of grazing sheep on kiwi fruit orchard

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Introduction In the southern part of Brazil there is an important area of kiwi fruit, mainly cultivated by small farmers. The use of sheep under trees of kiwi fruits could be an interesting alternative for small farmers to reduce their mowing costs, to improve their income and to provide meat for the farmers' family. However there is a lack of information about the damage that the animals could cause to kiwi fruit plants. The objective of this study was to monitor the effect of the use of sheep on a kiwi fruit orchard.

Material and methods The study was carried out from 12 July to 18 Sept. 2001 in a 1.0 ha kiwi fruit orchard at the Experimental Station of Caxias do Sul, FEPAGRO, RS, Brazil. Ten corriedale pregnant ewes with average liveweight of 46 kg were grazed on this area. Grass availability and the damaged caused by the sheep were assessed three times (12 July, 24 Aug. and 18 Sept.) during this period. The grassland was sampled by cutting ten quadrats (0.4 x 0.6 m) to ground level. The damage caused on the plant trunks was visually assessed through the number of trees that were gnawed by sheep. Two areas of approximately 15 m^2 (5 x 3 m) were isolated from animal grazing to verify the development of the grassland without the access of sheep.

Results and discussion The dry matter (DM) yield of the grassland fell from almost 5,000 kg/ha to about 728 kg/ha in 68 d (Figure 1). The number of plants damaged did not increase until the DM herbage mass fell below 1,000 kg/ha. Therefore, the increase in the number of damaged plants seemed to be related to the low amount of herbage mass available in the last assessment period. In this period, the animals might have been looking for new sources of food, gnawing the trunks of the trees. According to Rattray *et al*. (1987), pasture cover below 1,000 kg/ha limits pasture intake by sheep.

However even when the herbage mass was reasonably high, the animals had still gnawed some plants. This suggests that pasture cover is not the only variable that influences the decision by sheep to gnaw trunks of plants. There may be similarities to studies when more than one pasture species is offered (Poli *et al.*, 1997). The ruminants are always sampling what is available and thus consume a mixed diet, but when availability is reduced, the animals change their strategy and graze randomly.

Conclusions The results of the present study demonstrates that the amount of grass offered was not enough to avoid the animals damaging kiwi fruit plants. Although the sheep were good grass mowers and a potential source of income for small farmers, it is important to ensure high pasture cover and to protect plant trunks when using sheep in kiwi fruit orchards.

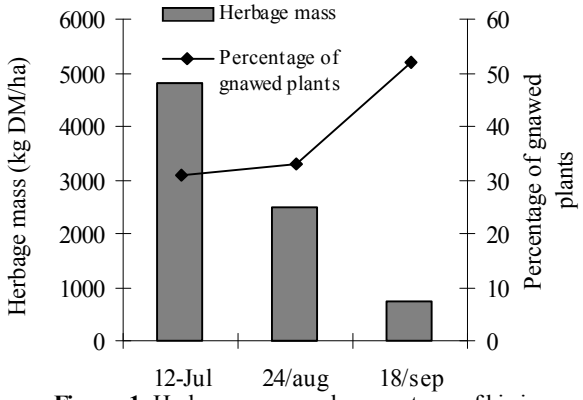

Figure 1 Herbage mass and percentage of kiwi fruit plants gnawed by sheep on an orchard, Caxias do Sul, RS, Brazil

References

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