



## The challenges of the New Zealand Feed Budget model in subtropical regions: application of a forage planning model in a modal property

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Subtropical regions have great floristic diversity and forage production throughout the year, being a good source of food for low-cost production of ruminants. However, this forage production shows great variability according to the period of the year, making it essential to adapt the quality and quantity of forage according to the animals' nutritional demands. The objective of this study was to analyze the use of New Zealand (NZ) Feed Budget model for cattle and sheep in the subtropical region of Brazil, including the native grasslands of Pampa biome. The model is made up of different input variables: type and amount of food available (e.g. paddock area, pasture growth rate, forage nutritional quality); animal species; animal physiological stage; and animal nutritional requirements. The modeling was processed using Excel® software spreadsheets. Data collection took place on 96 ha of a beef and sheep property located in the municipality of Encruzilhada do Sul (30°23'28,1" S, 52°28'02,3"W), Brazil. The results throughout the year demonstrated that the average herbage mass per hectare (average pasture cover) was 1,390.81 kg DM/ha. When calculating the dry matter (DM) intake required by the herds, in relation to the forage mass presented, deficits were observed only in the months of March, April and December. This deficit happened due to the increase of stocking rate. Most of the time the herbage mass produced provided sufficient amount of DM and metabolizable energy (ME) to fulfill the animal demands. However, when the herbage intake was calculated, it was observed that the animals were unable to ingest sufficient amount of nutrients to cover their demands due to their physical limitations. This result shows that the use of NZ Feed Budget model in a subtropical region can have limited use when considering the ME balance, mainly due to the low pasture quality. Greater problem was observed when the animals had greater energy demand. It can be concluded that the use of the forage planning model, according to the "New Zealand Feed Budget", in subtropical regions, with great floristic diversity and dominated with tropical grasses, allows farmers to clearly identify moments of excess and deficit of forage mass. However, this model needs to be carefully used in subtropical grasslands to predict a feed budget taking into account sheep and cattle energy supply and demand

**Keywords:** energy needs; model; native pasture; Pampa biome; ruminants.

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