

Fact sheet

Rangeland goat supplementation calculator

Overview

The Rangeland goat least-cost supplementation calculator was developed to allow Rangeland goat producers to compare the costs of supplements to reach a target live weight. The calculator is based on estimates and live weight gains derived from pen feeding studies with entire, male Rangeland goats.



Key points

- At low supplement allowances live weight gain, young entire male Rangeland goats are more responsive to a protein meal, however at higher supplement allowances this class of goat is more responsive to a starch-based supplement.
- High rates of live weight gain (150 to 200g/day; 1 to 1.4kg/week) are achievable for young entire male Rangeland goats with ad libitum access to a high ME and high CP concentrate ration, and a source of roughage and water.
- The relative-cost Rangeland goat supplement calculator demonstrates that the least-cost supplement may not always be the most beneficial in terms of the number of days and total feed costs to achieve a target live weight. These decisions will be based on local availability and prices of feeds. The calculator provides producers with a tool that will assist them to make more informed decisions on the relative benefits of various supplements.
- The Rangeland goat supplementation calculator will allow producers to assess the relative costs of the various supplements on a cent/day, \$/kg additional live weight or a \$ to reach target live weights.

Background

Traditionally Rangeland goats have been raised on native vegetation with little or no access to improved forages or supplements. This may result in slow and inconsistent growth rates of young goats targeted for slaughter. However, to improve consistency and reach target weights, investment in alternative management practices including the provision of supplements to increase live weight gain of goats managed behind exclusion fences may be a viable option for Rangeland goat producers.

The decision on which supplement to use will depend on:

- the local and seasonal availability of the supplement
- cost of supplement (including freight)
- growth rate in response to supplement type
- level of intake
- the quality and quantity of the existing basal diet (i.e. the deficiency which the supplement will address) which will determine the likely productivity response to a supplement.

Recent research determined the likely response of live weight gain of young entire male Rangeland goats fed a low-quality basal diet to a range of:

- different proteins (lucerne, whole cottonseed, cottonseed meal)
- energy (wheat and sorghum grains, commercial pellets) based supplements.

This information was used to develop a simple-to-use relative-cost of supplement calculator to assist producers make more informed decisions on the relative production, and economic response of different supplementation strategies of young entire male Rangeland goats

What is supplementation?

Supplementation refers to the supply of small quantities of feeds provided to animals that address the specific nutrient deficiency in the basal diet. Typically, protein or energy are supplemented but mineral deficiencies, such as phosphorus, may be relevant in some regions. By addressing this nutrient deficiency, nutrient intake and live weight gain will increase. Supplementation is only effective when sufficient biomass of the basal feed is available. Ideally, supplementation will stimulate intake of the basal diet, and this may occur at low supplement intakes. However, as supplement intake increases a substitution effect is more commonly observed where the supplement replaces a proportion of the basal feed in the diet.

Why supplement goats?

This project found that young entire male Rangeland goats fed dry season Mitchell grass hay alone essentially maintained live weight. These animals will not meet target growth rates until the quality of the available feed is increased either through a change in season or the introduction of higher quality feeds to address the nutrient deficiency in the basal diet. Live weight gain of these goats increased as the intake of most of the supplements increased, however the rate of live weight gain, the maximum live weight gain and the efficiency of use of supplements for live weight gain varied depending on the supplement fed.

How can producers decide which supplement to use?

Producers can use the Rangeland goat supplementation calculator tool developed from this project to assess the relative costs of the various supplements on a cent/day, \$/kg additional live weight or a \$ to reach the target live weight basis. It is important to note that there are some limitations to the calculator, and they are outlined in the excel workbook of the tool. The relative-cost of supplement calculator demonstrates that the least-cost supplement may not always be the most beneficial in terms of number of days and total feed costs to achieve a target live weight. The decisions producers make will be based on local availability and prices of feeds, and the calculator will assist them to make more informed decisions on the relative costs of various supplements.

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Resources:

- View additional information on the Rangeland goat supplementation calculator at mla.com.au/extension-training-and-tools/tools-calculators/rangeland-goat-supplementation-calculator/
- Download the Rangeland goat supplementation calculator at mla.com.au/extension-training-and-tools/tools-calculators/rangeland-goat-supplementation-calculator/ and watch three informative videos explaining why to supplement goats, the research and key research findings behind the Rangeland goat supplementation calculator and how to use the calculator.

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