

# Basic ration/diet formulation

Ration formulation is important to ensure you are meeting the requirements of the animals you are feeding.

Two important factors are protein and energy.

It is important to remember when calculating feed rations that ruminants require minimum 10% roughage in the ration and if the risk of acidosis is high then 20% roughage should be considered.



*NOTE: It is important to remember that not all animals and environments are the same and diet formulations should be used as a guide. Monitor livestock performance/condition score and adjust rations accordingly and consult a livestock nutritionist.*

## More information

Series of fact sheets for farmers to manage livestock and farm finances in dry times.

**Landscape South Australia**  
– Northern and Yorke | Dry times

<https://www.landscape.sa.gov.au/ny/land-and-coast/land-management/dry-times>

## Exercise

Formulate a ration to grow out a steer weighing 200 kg at a target growth rate of 1 kg per head per day requiring 59 megajoules of metabolisable energy (MJME).

### STEP 1

Energy in the ration = Straw (20% ration x 5 MJME/kg) + cattle pellets (80% ration x 12 MJME/kg)

$$= 5 \times 20\% + 12 \times 80\%$$

$$= 10.6 \text{ MJME/kg dry matter (DM)}$$

### STEP 2

Energy required is 59 MJME/day

Divide by the energy level of the feed

$$= 59 \text{ MJME/day} \div 10.6 \text{ (total MJME/kg DM of ration from step 1)}$$

$$= 5.57 \text{ kilograms of feed required per day DM basis}$$

### STEP 3

Amount of straw required = 20% x 5.57 (kilograms of feed required per day DM basis from step 2)

$$= 1.11 \text{ kg/head/day DM basis}$$

Amount of pellets required = 80% x 5.57

(kilograms of feed required per day DM basis from step 2)

$$= 4.46 \text{ kg/head/day DM basis}$$

### STEP 4

Then calculate to an as fed basis (which is how you feed it) and divide by the dry matter content.

$$\text{Straw} = 1.11 \text{ (kilograms of straw/hd/day DM basis)} \div 90\% \\ = 1.2 \text{ kg/head/day as fed}$$

$$\text{Pellets} = 4.46 \text{ (kilograms of straw/head/day DM basis)} \div 90\% \\ = 4 \text{ kg/head/day as fed}$$

You then need to check that fibre and mineral requirements are being met. You also need to check that the animal's daily consumption is not being exceeded particularly when the feed ingredients in the diet/ration are of low quality and have a high neutral detergent fibre value.



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