

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.

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 MJME/day.

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 MJME/kg DM

Step 2

Energy required is 59 MJME/day
 Divide by the energy level of the feed
 = $59 \text{ MJME/day} \div 10.6$ (total MJME/kg DM of ration from step 1)
 = 5.57 kilograms of feed required per day DM basis

Step 3

Amount of straw required = $20\% \times 5.57$ (kilograms of feed required per day DM basis from step 2) = 1.11 kg/hd/day DM basis
 Amount of pellets required = $80\% \times 5.57$ (kilograms of feed required per day DM basis from step 2) = 4.46 kg/hd/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.
 Straw = 1.11 (kilograms of straw/hd/day DM basis) $\div 90\%$ = 1.2 kg/hd/day as fed
 Pellets = 4.46 (kilograms of straw/hd/day DM basis) $\div 90\%$ = 4 kg/hd/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 NDF value.

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

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