

Nitrogen on hill country – calculating the economics

Nitrogen (N) offers farmers a relatively cheap and effective way of growing high-quality feed for livestock. It has been used extensively in the dairy industry and is starting to gain acceptance in other farming sectors.

Nitrogen is a growth promoter and used well offers a cheap source of high-quality supplementary feed. However, the economic benefits of using nitrogen can vary, depending on several factors.

Calculating the benefit

1. Determine the cost of the product

Rate/ha x \$/tonne of product
= 65kg/ha SustaiN x \$620/T ÷ 1000 = \$40.30/ha

2. How much will you grow?

Amount of N applied/ha x response rate x utilisation
= 30 kg N/ha x 15:1 response (kg DM/kg N) x 70% utilisation
= 315 kg DM/ha

3. How much liveweight will this create

Pasture growth ÷ FCE kg DM/kg LW
= 315 kg DM ÷ 8 (lambs) = 39.37 kg extra liveweight/ha

4. How much carcass weight will this create?

Liveweight x dressing out %
= 39.37 kg x 43% = 16.93 kg CW/ha

Note: if the farmer sells lambs store, then skip step 4, and multiply their store price by the extra liveweight/ha to calculate income.

5. How much income will this create?

Carcass weight x current schedule
= 16.93 kg CW/ha x \$7/kg = \$118.51

6. How much profit will this create?

Income – expenses (product + carting & spreading costs)
= \$118.51 - \$40.30 - \$20 (truck) = \$58.21/ha

Variables

The values of some of the factors used in this example will change over time. The key variables to be aware of are:

- Cost of SustaiN
- Cost of cartage and spreading (if any)
- Response rate. In most situations a rate of 15 kg DM/kg N is easily attainable. In summer-dry hill country, rates of 20 kg DM/kg N (or higher) may be achieved
- Utilisation rate - this will vary with the setting, but in many cases 70% of the pasture grown will be used (i.e. 30% is wasted)
- Conversion of DM to liveweight
- Dressing out percentages will be affected by factors such as breed, fatness and maturity, plus method of calculation
- Meat schedules will vary by region, time of year and economic demand

'FCE' - Feed conversion efficiency
= kg DM consumed per kg product produced

Lambs + Friesian bulls	8 - 10
Ewes	12 - 15
Beef cows	12 - 18
Dairy cows	12

Table 1: Common FCE ratings for different stock classes.

Considerations that influence FCE

- Quality of feed
- Time of year i.e. winter
- Metabolic state i.e. maintenance, pregnant
- Class of stock

