

TYPICAL ANALYSIS OF FEEDS AND PRODUCTS

This table gives an estimate of the nutrient content of various feeds and products. It can be used to calculate the nutrient gains and loss in a nutrient budget. These results are typical of the product, but for more accurate calculations, a feed test can be performed on your own samples. To convert kg/tonne to %, divide value by 10.

FEED	NITROGEN	PHOSPHORUS	POTASSIUM	SULFUR	CALCIUM	MAGNESIUM
kg/tonne dry feed						
oats	17.0	3.2	4.1	2.3	1.0	1.4
wheat	22.0	3.8	4.7	2.2	0.4	1.6
barley	18.0	3.8	4.8	1.7	0.6	1.5
corn	15.0	2.8	3.6	1.2	0.2	1.6
sorghum	21.0	3.2	3.9	1.8	0.4	1.4
lucerne hay	35.0	2.3	17.4	2.0	13.3	1.3
clover hay	30.0	2.2	12	2.7	11.4	2.0
oaten hay	25.0	2.3	20.0	2.0	2.9	2.0
wheaten hay	25	1.8	10.0	2.0	2.5	1.5
* ryegrass hay	30	3.0	20.0	3.0	4.0	3.0
maize silage	14.4	2.7	9.2	1.2	2.6	2.9
canola meal	59.8	12	12.5	6.2	8.0	4.6
copra meal	41.1	6.7	12	3.7	2.1	3.9
cottonseed meal	67.8	14.1	16.5	4.7	2.3	6.4
sunflower meal	75.2	10.3	10.6	3.3	4.3	7.5
linseed seeds	40	5.5	8.4	2.5	2.3	4.3
lupin	51.5	3.0	8.1	2.3	2.2	1.6
field pea	36.8	3.4	9.1	1.8	0.7	1.2
faba bean	38.8	4.1	9.6	1.3	1.2	1.0
wheat bran	27.5	13.8	13.7	2.4	1.5	6.5
wheat straw	5.9	0.8	6.7	1.8	1.6	1.2
molasses	9.4	1.1	40.2	4.6	10.5	4.7
brewer's grain	38.4	6.0	1.0	2.4	1.0	2.6
PRODUCT (AS IS)	NITROGEN	PHOSPHORUS	POTASSIUM	SULFUR	CALCIUM	MAGNESIUM
# 500 kg livestock	11	3.5	1	1	7	
1000 litres milk	5	0.9	1.4	0.3	1.2	0.1
100 kg fleece	14	<0.1	1.8	2.8		

https://www.dpi.nsw.gov.au/data/assets/pdf_file/0008/166562/Fertilisers-for-pastures.pdf

STEPS TO CALCULATE A NUTRIENT BUDGET

1. Measure areas of each paddock (hectares)
2. Keep records of inputs of feed and fertiliser
3. Calculate amount of nutrient imported as fertiliser from the bag's label or the table on page 31

Nutrient imported as fertiliser kg = tonnes fertiliser x nutrient content (%) x 10

4. Calculate amount of nutrient in each feed from its analysis or the table on page 32

Nutrient imported as feed kg = tonnes ingredient x nutrient content (kg/t)

5. Add results from step 3 and 4
6. Calculate amount of nutrient lost as product from the table on page 32 or other reference material

Nutrient exported = tonnes product x nutrient content (kg/t)

7. Subtract exported nutrient (step 6) from imports (step 5) to estimate balance
8. Divide by area (hectares) of the farming operation

The following nutrient budgets show how particular farming practices affect nutrient balances (expressed as kg/ha). A separate budget for each type of land use history is useful when deciding fertiliser needs.

SCENARIO 1

Maize silage paddock, fertilised with 15 m³ /ha (6 tonne) poultry litter, producing 18 tonne/ha maize silage dry matter.

NUTRIENT	INPUTS (POULTRY MANURE)	OUTPUTS (MAIZE SILAGE)	BALANCE (kg/ha)
nitrogen	156	259	-103
phosphorus	108	49	59
potassium	60	166	-106
sulfur	36	22	14
calcium	150	47	103
magnesium	30	52	-22

This paddock will require additional inputs of nitrogen, potassium and magnesium in subsequent years to prevent rundown of nutrients stored in the soil. On the other hand, these amounts could be applied as bagged fertiliser prior to sowing to ensure that sufficient quantities are available for the crop.

If we use the above references and take ryegrass hay (*) for this scenario vs grazing (#).

Cutting ryegrass hay, at estimated production of 5tonne/ha against having 500kg livestock/ha (10 dry sheep at 50kg) with no nutrient inputs.

Nutrient removed (kg/ha)	Ryegrass hay 5t/ha	500kg livestock/ha (10 dry sheep at 50kg)
nitrogen	150kg	11kg
phosphorus	15kg	3.5kg
potassium	100kg	1kg
sulphur	15kg	1kg
calcium	20kg	7kg

This is only one scenario and the information used, and other scenarios are available at https://www.dpi.nsw.gov.au/data/assets/pdf_file/0008/166562/Fertilisers-for-pastures.pdf

There are many variables to the nutrients removed during farm practices, a soil test and tissue test should be conducted to evaluate your nutrient requirements.

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