

Using peas and beans as protein supplements for cattle rations

David Hendy, independent ruminant nutritionist

Not only do peas and beans provide a valuable source of protein and energy for ruminant rations, they are also beneficial in crop rotations because they fix nitrogen in the soil. Growing leguminous crops has become even more desirable due to the introduction of the 'greening' part of the new Basic Payment Scheme. It has been predicted that by 2015/16 the planting of peas and beans will have increased by 15% and 30% respectively from 2014/15 levels.



Nutritional Values

Peas and beans are predominantly included in rations as a protein source, but they will also provide a good supply of energy and starch.

Peas are high in protein, moderate in starch and low in fibre. Modern varieties contain fewer anti-nutritional factors than older ones.

Beans are high in protein, moderate in starch and low in fibre. They are higher in energy than peas.

Typical analysis of peas and beans (% DM unless otherwise stated)

Nutritional values*	Peas (%)	Beans (%)
Dry Matter (% DM in FW)	86	86
Metabolised Energy (ME), MJ/kg DM	12.8	13.8
Crude Protein (CP)	24	29
Neutral Detergent Fibre (NDF)	19	17
Oil	2	2
Starch	47	43
Sugars	6	4

* Nutritional composition varies so getting your own sample analysed is always recommended

Inclusion rates

While peas and beans can be used universally in ruminant diets, virtually all legumes contain low levels of toxic compounds including enzyme inhibitors and tannins, therefore it's important that recommended inclusion rates are followed. Some processing methods can help to reduce the effect of these toxins, including crimping the legumes when harvested at a low dry matter or treating with propionic acid.

Maximum inclusion levels of peas and beans for various categories of livestock:

Inclusion (%)	Beef	Calves	Ewes	Lambs
Peas	50	15	50	15
Beans	30	15	30	15

Beans and peas contain high levels of phosphorous and magnesium but low levels of calcium, therefore careful consideration should be given to mineral supplementation. The use of high calcium minerals and adequate inclusion of limestone flour will help to alleviate any problems, but if in doubt seek professional nutritional advice.

Correct storage

Both peas and beans can quickly go rancid if not stored properly. It is advisable to store them below 15% dry matter in a dry, covered, vermin free building or bin.

In conclusion, peas and beans are a valuable source of protein in ruminant rations and with the introduction of the Basic Payment Scheme it is likely that they will become more available. However, care must be taken to ensure inclusion levels are adhered to and they are processed effectively to maximise their feed value.