

## Lupin products for cattle and sheep

From the feed, aquaculture and food markets of Europe and Australia to expanding markets throughout Asia, Australian Sweet Lupins (*Lupinus angustifolius*) are developing a reputation as a high quality and versatile source of protein, energy and fibre.



Lupins have been used extensively in Western Australian livestock rations, both at a compound level and as a summertime supplement for cattle and sheep. Australian and international feed manufacturers state that milled lupins mix well in all types of stock rations and form excellent pellets.

Lupins are recognised as an excellent nutritional ingredient for stock and aqua feed and are rapidly gaining a reputation as a nutritious product suitable for human consumption.

Grown by grain farmers in the southern regions of Australia, lupins are a non-genetically modified plant source of concentrated protein that is low in anti-nutritional factors and with the benefit of digestible fibre.

In the Australian sheep industry, lupins are fed whole as an adjunct to forage.

The more intensive ruminant industries in Australia have shown that the processing of the whole lupin is essential to optimise nutrient utilisation. The two main forms of processing are cracking (for incorporation into compound feed rations) and flaking plus rolling (for inclusion in mash feeds).

The value of the lupin seed can be further optimised through a milling process that produces a lupin kernel product which is high in protein and a lupin hull product with superior fibre content.

Lupin hull is ideal for use in ruminant stockfeed.

### Typical Lupin Composition Analysis (% as received)

Composition Analysis	Whole Lupin	Cracked Lupin	Lupin Hull
Crude Protein	32	32	5
Crude Fat	5	5	0.9
Crude Fibre	15	15	49
NFE	36	36	34.3
Ash	2.8	2.8	2.5
Calcium	0.22	0.22	0.67
Phosphorus	0.30	0.30	0.06

Grain Pool is a leading international grain company and the largest marketer of Australian Sweet Lupins. For the cattle and sheep industries, Grain Pool offers a range of lupin products from the Australasian Lupin Processing Company which operates the newest and largest lupin processing plant in the world. With a strong focus on superior customer service, Grain Pool aims to provide its customers with the highest quality grain products to meet their individual requirements.





## Benefits of Lupins for Ruminants

- ✓ Competitively priced
- ✓ Nutritionally sound
- ✓ Versatile in application

Lupins are an attractive, alternative protein component for use with sheep, cattle and other livestock.

Unlike other grain legumes, lupins contain very low levels of starch (thus reducing the risk of lactic acidosis) and are low in anti-nutritional factors so that no heat treatment is required to make lupins palatable and nutritionally acceptable to livestock.

Lupins provide the following benefits:

- Concentrated source of protein and energy
- Lower in anti-nutritional factors than many vegetable protein sources
- Low starch content
- Consistent quality and supply

Western Australia's Department of Agriculture and Food reports that all components of the lupin seed are readily digested by ruminant animals whose resident microbes produce the enzymes needed to degrade the soluble and insoluble complex carbohydrates of the seed coat and cell wall of the kernel.

The lignin content, which limits the digestion of fibre, is very low (<1%) and so the overall digestibility of lupin seed is high at 90%.

### Energy Content of Lupins Compared with Soybean Meal (as feed basis)

Livestock Type	Whole Lupins (MJ/kg)	Soybean Meal (MJ/kg)
Cattle (ME)	12.0	13.7
Sheep (ME)	12.2	13.7

Source: WA Department of Agriculture and Food

## Versatility of Lupin Products

### Whole Lupin

Unprocessed whole lupins are dry, smooth, spherical in shape and easy to store and handle. Due to the nature of the seed coat, lupins are subject to less damage by insects and offer extended storage life.



### Cracked Lupin

Cracked whole lupins are readily accepted by dairy and beef cattle and can be incorporated into diets at up to 30% of total dry matter intake. The partial milling (cracking) of whole lupins allows for up to 99% retention of the kernel and hull while increasing the available energy and maximising digestibility.



Cracked lupins provide feed mills with an alternative to internal processing and the associated "wear and tear" on their milling equipment.

### Lupin Hull

The finely milled hull that is separated from the lupin kernel by a mechanical process offers a rich source of dietary fibre. The milled hull flows easily, minimises dust problems at feeding and can be pelleted or incorporated into formulated feed for ruminants.



CBH Grain  
GPO Box L886  
Perth, Western Australia 6842  
Telephone: +61 8 9216 6000  
Facsimile: +61 8 9481 3553  
Email: [CBHGrain-LupinMarketing@cbh.com.au](mailto:CBHGrain-LupinMarketing@cbh.com.au)  
Web: [www.cbhgrain.com.au](http://www.cbhgrain.com.au)

