

GrainCorp Oilseeds

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GrainCorp



Canola Meal for Dairy Cattle

CANOLA MEAL FOR DAIRY CATTLE

Canola meal is the major protein meal consumed within the Australian livestock industry. A premium product, canola meal is produced by Australian oilseed crushing plants, which operate international equipment under strict quality assurance parameters. The Australian market has two oilseed crushing processes - expeller or solvent extraction plants. GrainCorp Oilseeds operate both processing systems and the specification of the resulting canola meal depends upon the method from which product is produced.

The minimum protein content of canola meal varies with the protein level of the seed being crushed. Canola seed protein levels have been increasing with improvements from seed breeding, however are affected by seasonal growing conditions, with drier seasons tending to result in higher protein seed and resulting meal. The range in protein levels shown in the table occur between different crushing years and GrainCorp Oilseeds are able to confirm actual protein levels for delivery periods. Canola seed contains over 40% oil and the crushing process aims to maximise oil extraction. After initial seed heating, oil is removed through mechanical pressing in the expeller plant. The finished meal has residual oil in the range of 9-11%. For canola processed through the GrainCorp Oilseeds Numurkah solvent extraction plant, an additional oil extraction process is applied which results in the finished meal containing 2-3% oil. The higher residual oil within expeller meal results in lower levels of protein, fibre and minerals, whilst energy content is significantly increased. Whole canola seed is processed, thus the seed coat contributes to the fibre contained within canola meal. Canola meal is an ingredient that supplies energy from sugars, starch and oil for ruminant feeding whilst at the same time providing additional ADF and NDF. During the oil extraction process canola seed is heated to increase the efficiency of oil removal, this temperature is in the order 90-100°C as the meal cake leaves the expeller. The heat and pressure applied through processing results in an increase in the level of rumen undegradable protein contained within canola meal. As part of the solvent extraction process, the meal undergoes further heating which exceeds 100°C, this results in a higher level of protein protection. Data derived from cattle feeding research has identified the level of protein protection to be in the order of 35% for solvent extracted canola meal. Less work has been completed looking at expeller canola meal, a bypass protein level of 30% is recommended for use within dairy cattle feeding.



CANOLA MEAL USE IN DAIRY RATIOS

Canola meal is accepted globally as a valuable raw material for use within dairy cattle feeding. It is primarily used as a source of rumen degradable and undegradable protein. The rumen degradable protein fraction within canola meal is released gradually in line with microbial fermentation. Unlike urea, a source of non protein nitrogen, which is very soluble and rapidly released within the rumen, canola meal provides a source of nitrogen within the rumen which better matches microbial growth. The undegraded or bypass protein component of canola meal supplies essential amino acids for absorption within the small intestine. Canola meal is an ideal raw material for use in high production dairy herds where higher protein requirements need to be met or where low protein grains and roughage sources are in use. Canola meal relative to cereal grains, provides a source of energy in the form of sugars and residual oil which is not fermented as quickly within the rumen. This assists in stabilising rumen fermentation and lessens the acid load within the rumen and potential rumen pH depression. Where expeller canola meal is used, the residual oil content provides a significant advantage in terms of supplying energy.

CANOLA MEAL FOR “CALF RATION”

- Weaned calves have been shown to perform very effectively in reaching the targeted weight at mating when canola meal is used as a protein supplement.
- The combination of Rumen Degradable protein and bypass protein are important for the development of the Rumen in young calves.
- Good quality protein also promotes Skeletal growth and muscle development.

IMPORTANCE OF CANOLA IN A “LEAD FEED PROGRAM”

- Helps meet the high protein requirements of the cow in late pregnancy (particularly Bypass Protein).
- Stimulates appetite when gut space is reduced.
- Aids in the onset of milk production.

WHY CANOLA MEAL IS A MUST IN “HIGH PRODUCTION COWS”

- As Production lifts Energy requirements increase linearly while protein requirements increase exponentially.
- Negates substitution through increase in appetite.
- Aids in mobilisation of body condition in early lactation. MORE MILK = MORE BYPASS PROTEIN REQUIRED



CANOLA MEAL SPECIFICATION

CHEMICAL ANALYSIS			
NUTRIENT	UNITS	SOLVENT CANOLA MEAL	EXPELLER CANOLA MEAL
Moisture	%	10-12	10-12
Crude Protein	%	36-39	32-35
Oil	%	2-3	9-11
Crude Fibre	%	11.5	10.6
ADF	%	18.1	16.7
NDF	%	28.2	26.1
Ash	%	6.9	6.4

PROTEIN & ENERGY FOR DAIRY CATTLE FEEDING

NUTRIENT	UNITS	SOLVENT CANOLA MEAL	EXPELLER CANOLA MEAL
Crude Protein	%	36-39	32-35
Rumen Bypass (undergradability)	%	35	30
ME	MJ/kg DMB	12.2	13.5
Nem	Kcal/kg DMB	1875	2060
Neg	Kcal/kg DMB	1250	1375

MINERAL CONTENT

NUTRIENT	UNITS	SOLVENT CANOLA MEAL	EXPELLER CANOLA MEAL
Calcium	%	0.7	0.65
Phosphorus	%	1.1	1.02
Magnesium	%	0.55	0.51
Sodium	%	0.1	0.09
Potassium	%	1.25	1.16
Sulphur	%	0.85	0.79
Copper	mg/kg	6.5	6
Iron	mg/kg	190	175
Manganese	mg/kg	105	97
Zinc	mg/kg	65	60

Canola meal is a relatively good source of minerals, particularly phosphorus together with trace minerals

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FOR ANY FURTHER INFORMATION OR TECHNICAL INFORMATION REGARDING THESE PRODUCTS OR ANY OF THE CANOLA MEAL RANGE PLEASE VISIT OUR WEBSITE WWW.GRAINCORP.COM.AU, EMAIL CSOILSEEDS@GRAINCORP.COM.AU OR CALL US 03 5862 1666.

Your Local Sales Representative is: