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Canola Meal for Lamb & Breeding Ewe Feeding

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Canola meal is the major protein meal used within the Australian livestock industries, this being due to the demand for canola oil and the production of meal through the oilseed crushing process. The Australian market has two differing oilseed crushing processes in the form of expeller or solvent extraction plants. GrainCorp Oilseeds operate both processing systems and the specification of the resulting canola meal depends upon the plant from which product is supplied.

During the oil extraction process canola seed is heated to increase the efficiency of oil removal, this temperature is in the order 90-100ºC 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 100ºC, this results in a higher level of protein protection. Data derived from ruminant 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 sheep feeding. Canola meal is a relatively good source of minerals, particularly phosphorus together with trace minerals.

CANOLA MEAL USE IN LAMB FEEDLOT RATIONS

High protein requirement

Because the growth of young lambs is mostly lean muscle (protein) rather than fat, protein supply is critical. As lambs get older, they deposit more fat, thus their requirement for protein diminishes. Lamb protein requirements are also higher with higher energy rations typically used for feedlot use. With a high energy ration and lightweight lambs, the protein requirement is 18-19%.

For the majority of lambs being fed, a protein requirement of 16% is commonly used in commercial rations. Rations for young lambs should not contain urea, as young lambs are very susceptible to urea toxicity. Canola meal is an ideal protein source for lamb feeding, with research work identifying high levels can be included in rations without affecting lamb feed intake.

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 younger stock 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, carbohydrates 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.

CANOLA MEAL USE IN BREEDING

Ewe Feeding

In pregnant ewes, most of the growth of the developing lamb occurs in the last 50 days before birth. Either a lack of feed or low quality pasture availability will negatively impact on the birth weight of the lamb (decreasing likely survival, particularly in twins) and increase the possibility of ewe mortality at birth. Through the use of supplementary feeding, increasing ewe feed intake during late pregnancy has a greater impact on lamb birth weight, than nutrition in early pregnancy. Birth weight is a key factor for lamb survival; increasing birth weight in twin Merino lambs by 0.25kg can result in a 10% increase in survival.

If pasture supply limits ewe intake, then feed supplements are needed and should be a balance of energy (>12 MJ/kg) and protein (12-14%). Maintaining adequate ewe condition is especially important where there is likely to be poor weather conditions and/or low pasture feed availability at lambing.

Following birth, the ewe's energy and protein requirement increases to meet milk production demand. For lactating ewes a minimum 12-14% protein should be fed. Canola meal can be used as the sole protein source in breeding ewe rations and complements the use of grains and fibre sources.

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 SHEEP 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

CRUDE PROTEIN REQUIREMENT OF DIFFERENT LIVEWEIGHT LAMBS

ME MJ/KG	CRUDE PROTEIN % (20KG LIVEWEIGHT)	CRUDE PROTEIN % (30KG LIVEWEIGHT)	CRUDE PROTEIN % (40KG LIVEWEIGHT)
13	19.3	16.1	13.8
12	17.5	14.7	12.9

Source: VIC DPI Feedlotting Lambs Agricultural Notes

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

ENERGY (ME) & PROTEIN (%) REQUIREMENTS OF SHEEP

	DRY SHEEP MAINTENANCE REQUIREMENTS (KG)			EWE (EARLY LACTATION) 50KG	EWE (EARLY LACTATION) 50KG
	40	50	60		
MJ ME / hd / day (confinement fed)	6.4	7	8	10	15
MJ ME / hd / day (grazing)	7.6	8.5	9.7	11.5	17
Protein min %	6-8	6-9	6-10	8-10	12-14

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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: