



Grain feeding benefits

Why can wheat, barley and maize grain be more beneficial for cows than PKE?

Wheat, barley and maize grain provide cows with an excellent source of energy because starch is quickly broken down in the rumen to fuel the cow with higher levels of blood glucose. Blood glucose is used for energy by the cow, for milksolids production and for body condition gain. Wheat, barley and maize grain are relatively low NDF feeds, meaning cows can eat more total dry matter (DM) every day. PKE also provides energy to the cow as fibre and fat, but the energy is converted to milksolids or weight gain less efficiently than from high starch feeds like grains.

How can we compare these different feeds with each other?

Comparing feeds on a dry matter basis is of limited value because DM does not acknowledge the diversity of quality across the various feeds. Megajoules of Metabolisable energy (MJME) comparisons are of greater value than DM but remain limited because MJME doesn't factor in the differences in protein, fibre, water soluble carbohydrates and starch levels between feeds. Always compare wheat, barley and maize grain with other feeds on a starch equivalent and NDF basis, not just based on cents per kg of DM or cents per MJME. PKE can be more directly compared with higher NDF forage supplements such as silage or hay.

Which is the better feed for dairy cows?

Cereal grains (wheat, barley, maize, triticale) and PKE are all very different feeds and decisions about which feed will best suit a lactating dairy herd depends on what cows require at any given time during the season as well as practical issues, such as ways that you can deliver these feeds to the cow. The nutritional differences between these feeds, typical second or third round spring pasture, and the 'ideal' feed for a cow are shown in the table below.

Table 1: Typical feed specifications (% of DM) for a range of feeds compared with the 'ideal' dairy cow diet.

	A COW ¹ REQUIRES:	MAIZE	WHEAT	BARLEY	PKE	SPRING PASTURES
DM%	35-50	86-90	86-90	86-90	90	9-18
Crude Protein	18	8-12	9-16	9-16	15-18	18-35
Water soluble carbohydrates	35-40 ²	6-8	2-4	2-4	1-5	3-15
Starch		70-75	58-70	50-60	Less than 2	Less than 0.5
NDF (fibre)	35	8-13	9-15	13-30	50-65	28-45
Oil/fat	5	3-5	2-4	2-4	6-10	3-8
MJME/kgDM	Greater than 12	13.0-14.5	12.0-14.5	11.5-13.0	11-12	11.5-12.8
Palatability	High	High	High	High	Moderate	High

¹ Where a 'typical' cow might be a 500 kg liveweight cow producing 2 kgs of milksolids per day during early to mid lactation

² Combined water soluble carbohydrates and starch

For more information on products please call us on 0508 GRAINS (0508 472 467).