

The Malaysian Palm Oil Board Quality Palm Kernel Meal (MPOB-Q-PKM™) is a new premium quality meal developed, improved and tested at the Energy Protein Centre, MPOB Research Station in Keratong, Pahang. The raw material comes from palm kernels (PK). The PK are especially selected, cleaned and processed, and later subjected to grinding and solvent extraction. Finely ground palm kernel turns into slurries. The slurries are filtered, and the residual paste is then subjected to solvent extraction. Less than 2% palm kernel oil (PKO) is left in the residual meal after solvent extraction. The meal is dried in an oven, during which time the residual hexane will be evaporated off. Finally, we have the product known as MPOB-Q-PKM™.

The finished MPOB-Q-PKM™ is in a powder form. It is lower in crude fibre, ash and oil, and higher in crude protein and true protein value than palm kernel expeller (PKE). It is specially prepared to be used as a premium quality feed in the formulation of poultry and fish total mixed feeds (TMF) or rations. Unlike PKE, it is produced through new processing systems which take into consideration the preservation of valuable nutrients, especially amino acids.

NUTRIENT COMPOSITION OF MPOB-Q-PKM™

Data on the proximate composition of MPOB-Q-PKM™ are shown in *Table 1*. It may be seen that MPOB-Q-PKM™ contains 20.4% crude protein, 4106 kcal kg⁻¹ of gross energy, 3.5% ash, 9.4% crude fibre, 1% ether extract and less than 3% of moisture content. Thus, crude fibre, acid detergent fibre and ash content of the MPOB-Q-PKM™ are reduced while the crude protein value is increased compared to traditional PKE.

The amino acid profile of MPOB-Q-PKM™ is shown in *Table 2*. The true protein value of MPOB-Q-PKM™ is higher than that of the traditional PKE. The total amino acid content of MPOB-

Q-PKM™ is superior at 96%. A Hitachi 8500 dedicated amino acid analyser detected 17 amino acids in MPOB-Q-PKM™. MPOB-Q-PKM™ is especially rich in glutamic acid, arginine, aspartic acid and leucine. Essential amino acids are present in MPOB-Q-PKM™, particularly lysine, methionine and cysteine. Essential amino acids are required to support and enhance efficient muscle growth.

ADVANTAGES OF MPOB-Q-PKM™

- It is a homegrown feed.
- It is a source of high quality protein with a total true protein value of more than 96%.
- It is a sustainable and renewable product.
- It is environmental-friendly.
- It is available all the year round.
- It has a true metabolizable energy (TME) of 3200 kcal kg⁻¹ (comparable to corn at 3500 kcal kg⁻¹).

PROCESSING METHOD



Figure 1. Flow chart for the production MPOB-Q-PKM™ (new method).

TABLE 1. PROXIMATE COMPOSITION OF MPOB-Q-PKM™ AND PALM KERNEL EXPELLER

	MPOB-Q-PKM™	Palm kernel expeller
Moisture content (%)	2.94 ± 0.03	6.60 ± 0.16
Oil content (%)	1.27 ± 0.06	5.43 ± 0.39
Ash content (%)	3.52 ± 0.03	4.17 ± 0.02
Crude protein (%)	20.36 ± 0.03	16.80 ± 0.02
Gross energy	4 106 ± 11.24	4 396 ± 20.52
Crude fibre (%)	9.44 ± 0.15	13.81 ± 0.08
Acid detergent fibre (%)	32.59 ± 0.02	42.34 ± 1.06
Neutral detergent fibre (%)	59.83 ± 0.30	68.35 ± 2.16

TABLE 2. AMINO ACID PROFILE AND CRUDE PROTEIN CONTENT OF MPOB-Q-PKM™ AND PALM KERNEL EXPELLER

	MPOB-Q-PKM™	Palm kernel expeller
Amino acid (%)		
Aspartic acid	1.73	1.40
Threonine	0.67	0.58
Serine	0.97	0.73
Glutamic acid	4.42	3.53
Glycine	0.99	0.78
Alanine	0.92	0.71
Cysteine	0.37	0.14
Valine	0.97	0.82
Methionine	0.39	0.25
Isoleucine	0.61	0.51
Leucine	1.34	1.09
Tyrosine	0.59	0.43
Phenylalanine	0.90	0.73
Lysine	0.73	0.46
Histidine	0.42	0.33
Arginine	3.20	2.08
Proline	0.59	0.51
Crude protein (%)	20.36	16.79
True protein (%)	19.81	15.06
Non-protein N (%)	0.55	1.73

For more information kindly contact:

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