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Towards cheaper poultry feed

MALAYSIA is largely self-sufficient in poultry meat (since the 1970s) and chicken eggs (since 1980). The current self-sufficiency level of poultry meat and eggs is 128% and 115% respectively and makes up 75% of the RM10bil livestock industry in this country.

Despite this, the industry is not sustainable in the long term due to heavy dependence on imported feed grains, mainly corn and soybean meal, which make up 80% of poultry diet.

Over the last few decades, local researchers have studied the availability, nutritive value, optimal inclusion levels and treatment methods to enhance the feeding values of various locally available feed ingredients in poultry rations.

As Malaysia is among the world's leading producer of palm oil, a huge amount of palm kernel cake (PKC) is available and there is a need to efficiently use it in the poultry industry as a source of energy.

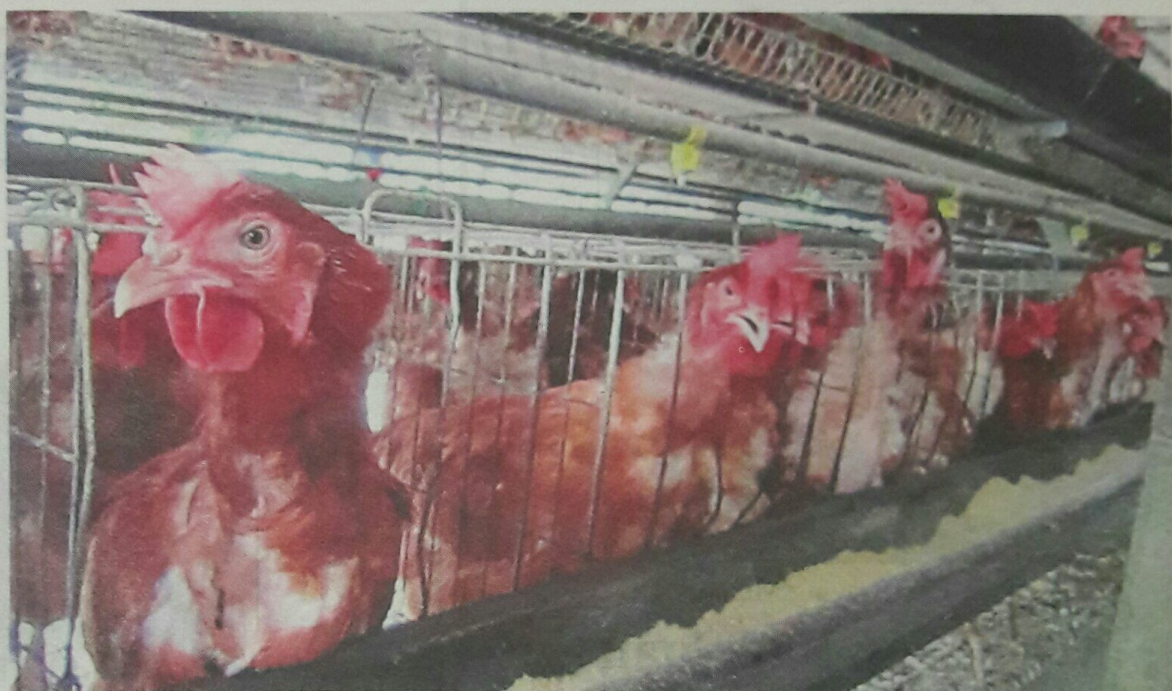
An important by-product of the oil palm industry, PKC is obtained after the extraction of palm kernel oil from the fruits. PKC is also known as palm kernel meal (PKM) or palm kernel expeller (PKE). Over two million tonnes of PKC are produced locally per year of which 94% is exported, leaving about 120,000 tonnes for local consumption.

In Malaysia, PKC is widely used as an ingredient in rations for feedlot cattle, dairy cows and buffaloes. Feedlot beef cattle are sometimes fed diets containing up to 80% PKC with no negative effect provided the level of calcium and vitamins (in particular A and E) are sufficient to meet their requirements.

Due to its high fibre and shell content, low level of energy and key essential amino acids, and grittiness the use of PKC in poultry rations is very limited.

Poultry are monogastric animals that have a simple stomach and they are unable to tolerate highly fibrous feed.

Although the idea of using PKC



in poultry diets has been studied by many researchers in Universiti Putra Malaysia (UPM), Malaysian Agricultural Research and Development Institute (MARDI), and the Malaysia Palm Oil Board (MPOB), the recommended levels of inclusion seem to vary from one study to another.

This inconsistency could be due to variations in the content of protein, fibre and energy which depends on the sources, methodology of oil removal and the efficiency of oil extraction from the kernel.

The optimum inclusion level of PKC in poultry rations may also vary according to the type of poultry, age and sex. Problems associated with the use of PKC may not be related to the physical properties of PKC but to its contribution to the overall nutrients in the diet, particularly protein and energy.

Another potential problem with PKC as poultry feed is its low energy content, which necessitates inclusion of high levels of fat into the rations. High dietary fat may

result in fatter chickens and feed rancidity problems. Because of these limitations, local feedmillers usually use less than 5% PKC in their poultry feed products.

However, earlier studies have shown that the energy contents of PKC can be improved through physical and biochemical treatments. Physical treatment of PKC through extrusion enhanced the energy content and digestibility of protein. The high content of fibre in PKC contributes to the low digestibility.

Using enzymes to digest the fibre components of PKC has been shown to improve digestibility for poultry. Studies in UPM demonstrated that PKC with enzymes extracted from fungi increased energy content.

Incorporating enzyme-treated PKC at 25% with broiler chicken diets can reduce the use of grain corn in ration by 10%, and the feed was 28 sen per kg cheaper than the commercial broiler feed. This will reduce the cost of producing broil-

er chickens and importation of grain corn for poultry feed.

In 2015, we imported 3.5 million metric tonnes of grain corn. The price of corn between the years 2000 and 2015 was very volatile, fluctuating from as low as US\$75 per tonne to a high of almost US\$333 by August of 2012. The price is further influenced by the currency exchange rates as corn is traded in US dollars.

But before treated PKC can be widely used by local poultry feedmillers to partially replace corn, we have to ensure that the export of PKC is regulated to prioritise local consumers and keep the cost of treating PKC low. The treated PKC must be easily handled and able to be stored for a long period of time, and must be palatable and easily digested so it would improve the growth of poultry.

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