Commercial Utilization of Palm Kernel Cake in an Intensive Production System of Ruminants

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Introduction
Palm kernel cake (PKC) is a by-product of oil palm industry with high nutritive values that can be used as basal diets in animals, especially in ruminants. The diet is easily available in the country and in 1997 alone Malaysia had exported about 1.1 million tones of PKC. However, the high copper contents in PKC can cause toxicity, especially when used among sheep (1, 2, 3). Goats, cattle and buffaloes seem to tolerate the toxic effect of copper in per contents in PKC can cause toxicity, in the country and in 1997 alone Malaysia had exported about 1.1 million tones of PKC. However, the high copper content in the PKC fed animals were significantly elevated (4, 5, 6, 7). This is of public health importance as liver and other visceral organs are commonly used for human consumption. Furthermore, toxicity may occur after long use of the diet. Recent studies had successfully produced a safe PKC diet by dietary zinc supplementation either with or without ammonium molybdate (8, 9, 10). However, the product needs to be improved for commercial utilisation. A new PKC product which is safe, economic, that could be conveniently used, and improve growth performance of animals need be developed.

Materials and Methods
Four types of PKC based diet namely; PKC with zinc supplementation (Diet 1), PKC with zinc, mineral salts and vitamins supplementation (Diet 2), PKC with zinc, mineral salts, vitamins and feed additive (chlortetracycline) supplementation (Diet 3) and PKC with zinc, mineral salts, vitamins and feed additive (monensin) supplementation (Diet 4) were formulated and fed in four groups of Malin x Polled Dorset crossbred lambs. The animals were fed solely (100%) on the diet and the feed intakes and body weight were recorded. The animals were monitored throughout the feeding trial an slaugh-
system of sheep fed solely on PKC based diet was proved to be effective and improved growth performance of the animals. The new PKC diet may also be practically used for other ruminants such as goats, cattle and buffaloes.

**Literature cited in the text**


**Graduate Research**

None.