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*Full Length Research Paper*

## Effect of supplements based on fishmeal or cottonseed cake and management system on the performance and economic efficiency of exotic hens in Burkina Faso

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### Abstract

A trial was carried out on-station to evaluate the effect of replacing a low protein fishmeal diet by a high protein diet containing cottonseed cake and cereal bran on the performance of semi-scavenging and confined exotic layers in comparison with full-scavenging birds. One hundred and twenty laying hens at 28 weeks of age were randomly distributed to four feeding/management regimes; (1) CCB, confined and given *ad libitum* a mixed diet (CB) containing cracked maize, cottonseed cake, cereal bran and a vitamin-mineral premix, oyster shells being provided separately; (2) SCB, scavenging in the daytime (08.00 to 16.00 h), with the CB diet available between 16.00 and 08.00 h; (3) SFM, managed as in SCB, but with fishmeal replacing cottonseed cake and cereal bran (diet FM); (4) SO, scavenging only with no supplement provided. Daily dry matter intakes for CCB, SCB and SFM were 95.5%, 60.5% and 48.5% of the expected intakes, respectively ( $P < 0.05$ ). No significant difference was found in energy, calcium and phosphorus intakes between SFM and SCB, but crude protein and essential amino acid intakes were lower in SFM than in SCB ( $P < 0.05$ ). Hen-day and hen-housed production were the highest in CCB and the lowest in SO ( $P < 0.05$ ), while no significant differences were found between the two semi-scavenging treatments. Feed conversion ratio and feed cost / kg

eggs were the lowest in CCB and the highest in SFM ( $P < 0.05$ ). Egg weight and shell thickness were higher in SCB compared to SFM. Yolk colour was darkest in SO and palest in CCB. It is concluded that fishmeal can be replaced advantageously by cottonseed cake and a mixture of wheat and maize bran in diets for confined and semi-scavenging exotic layers.

**Key words:** Burkina Faso, egg production, exotic hens, fishmeal, cottonseed cake, semi-scavenging.

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