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## Potential of farm-produced crop residues as protein sources for small-medium yielding dairy COWS

**Nobbert T. Ngongoni<sup>1</sup>, Cletos Mapiye<sup>2</sup>, Marizvukuru Mwale<sup>2</sup>, Bartholomew Mupeta<sup>3</sup> and Michael Chimonyo<sup>2</sup>**<sup>1</sup>Department of Animal Science, University of Zimbabwe, P.O Box MP 167 Mt Pleasant Harare, Zimbabwe<sup>2</sup>Department of Livestock and Pasture Science, University of Fort Hare, Private Bag X1314, Alice 5700, South Africa<sup>3</sup>Plan International, P. Bag 7232, Highlands, Harare, Zimbabwe\*Corresponding author. E-mail: [cmapiye@yahoo.co.uk](mailto:cmapiye@yahoo.co.uk)

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### Abstract

The nutritive value of fifteen crops and by-products were investigated in terms of the protein and energy value for rumen microbial protein synthesis using *in-situ* and mobile bag techniques. The sunflower feedstuffs and the cotton seed cake have low digested carbohydrates, which may limit optimum microbial protein synthesis, while forage legumes and cereals have higher digested carbohydrates ( $P < 0.05$ ). Thus, one way of improving protein digestibility protein rich crops is to feed them with cereal crops. The cereal grains (maize, sorghum and pearl millet) and the forage legumes (groundnut and cowpea tops) showed a negative protein balance value, suggesting that nitrogen limited optimum microbial protein synthesis in relation to the available carbohydrates ( $P < 0.05$ ). The nitrogen (N) content of the ram press sunflower cake (43 g/kg DM) was within the range of the N content found in the commercial dairy concentrates (32 - 57 g/kg DM). However, the N in the sunflower was more degradable in the rumen (92%) than that in the commercial dairy concentrate ( $P < 0.05$ ). It can therefore, be concluded that the ram press sunflower cake is potential source of N for small-medium yielding dairy cows.

**Key words:** Crop residues, energy, digestible, microbial protein, sunflower.

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