

# Profiles and Feed Milk Value of Value Added Pellet Products Based on Combination Carinata and Canola Meal, Low Grade of Peas and Lignosulfonate at Different Levels for Dairy Cows.

Víctor Guevara\*, David Christensen, John McKinnon, Peiqiang Yu

Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, 51 Campus Drive, Saskatoon, SK, S7N 5A8, Canada;

\*Corresponding authors: vhg019@mail.usask.ca, peiqiang.yu@usask.ca; Tel: 306 8802403

A new co-product, carinata meal, from bio-fuel processing has become available. It is expected that carinata meal has desirable amino acid profile maybe similar to the canola meal one, which is limited in lysine but has high levels of methionine and cysteine. Low grade peas contain high starch content and also high levels of lysine and tryptophan. There is little information available on nutrient profile, degradation and digestion kinetics as well as Feed Milk Value (FMV) for dairy cattle especially when it blends with other feedstuffs. The aim of this project was to test and develop eight high value pellet products (BPP) based on combination of co-products from bio-fuel/bio-oil processing, low grade of peas and lignosulfonate at different levels for ruminants. Statistical analyses were performed using PROC MIXED procedures of SAS 9.4 with significance declared at  $P < 0.05$ . The results showed that BPP3 (high level of carinata meal, low level of peas and no lignosulfonate), BPP4 (high level of carinata meal, low level of peas and lignosulfonate) and BPP7 (high level of canola meal, low level of peas and no lignosulfonate) had the higher crude protein (CP,  $P < 0.05$ ) (45.00, 43.05 and 41 % DM respectively). BPP7 contained the higher ( $P < 0.05$ ) NDF, ADF and ADL (22.61, 15.20 and 6.73 % DM respectively) compared with the other blend pellet products. All carinata based pellet products showed higher rumen undegradable protein (RUP,  $P < 0.05$ ) (162.69, 160.67, 209.97 and 215.62 g/kg, DM respectively) and higher intestinal digestibility of crude protein (IDP,  $P < 0.05$ ) (79.14, 76.70, 78.34 and 78.02 % respectively). Carinata based pellet products BPP3 and BPP4 had the higher Feed Milk Value (FMV,  $P < 0.05$ ) (4.80 and 4.86 kg milk/kg DM feed) than the other blend pellet products.

Carinata pellet products can provide high levels of truly absorbed bypass protein with higher intestinal digestibility which leads a higher FMV. Based on these we can conclude that carinata meal can be a promising feed ingredient for dairy cows. Also, these blend pellets can be a future marketable product.