

Pelleted Products Based on Combinations of New Co-products from Bio-fuel or Bio-oil Processing, Pea Screenings and Lignosulfonate Compound for Dairy Cattle

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Carinata meal, from bio-fuel processing has become available and it is expected that it has a desirable amino acid profile for dairy cows. Pea screenings have high starch content and high levels of lysine and tryptophan. There is little information available on nutrient profile, degradation kinetics and intestinal digestion as well as metabolic characteristics and Feed Milk Value (FMV) for dairy cattle especially when carinata meal is blended with other feedstuffs and pelleted. The aim of this project was to develop and test eight high value pelleted products (BPP) based on combinations of co-products from bio-fuel/bio-oil processing, pea screenings and lignosulfonate in different proportions. Statistical analyses were performed using PROC MIXED procedures of SAS 9.4 with significance declared at $P < 0.05$. The results showed that carinata pelleted products had, on a dry matter basis, higher crude protein (CP, $P < 0.05$) and total amino acids, but lower ($P < 0.05$) neutral detergent fiber, acid detergent fiber and acid detergent lignin than canola pelleted products. Carinata pelleted products contained lower ($P < 0.05$) rumen effective degradable protein (221 vs. 245 g/kg DM), higher rumen bypass protein (RUP, 207 vs. 146 g/kg DM), higher intestinal absorbable feed protein (IADP, 146 vs. 90 g/kg DM), higher metabolizable protein (MP, 210 vs. 151 g/kg DM) and lower degradable protein balance (DPB, 111 vs. 142 g/kg DM) than canola pelleted products, which leads them to contain higher ($P < 0.05$) feed milk value (FMV^{NRC}, 4.01 vs. 2.76 g/kg DM) than canola pelleted products.

Carinata pelleted products were showed to have superior feed quality and can be used as a potentially high value feed for dairy cows. Furthermore, these blended pelleted products based on pea screenings, co-products and lignosulfonate can be used as future marketable products in Canada and worldwide.