

OPTIMIZATION OF LEVELS OF CATIONS AND ANIONS IN TRANSITION BUFFALO DIET FOR IMPROVING PERFORMANCE AND NUTRIENT INTAKE

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The study on influence of dietary cation-anion difference (DCAD) on performance of transition buffaloes was carried out into two phases. During first phase, 20 prepartum buffaloes were divided into 2 equal groups and fed ammonium chloride with basal ration @ -50 (low negative; LN) and -100 (high negative; HN) mEq/kg of dry matter, respectively for 25 days before calving. In second phase, same animals after calving were divided into 4 groups. Buffaloes that received LN DCAD were divided into 2 groups (LN-LP & LN-HP) and were fed disodium hydrogen phosphate with basal ration @ +200 (low positive; LP) and +400 (high positive; HP) mEq/kg of DM for 60 days after calving. Similar grouping was done for buffaloes that received HN DCAD (HN-LP & HN-HP). During prepartum trial HN DCAD diet had better in vitro parameters, ME intake, plasma inorganic phosphorus level and lower urinary pH (p0.05). Daily milk yield, milk component yield, plasma total protein, urea and cholesterol were reported highest in HN-HP group (p but highest fat%, fat yield was recorded in HN-LP group with better efficiency of milk production (p and lowest cases of hypocalcemia and ketosis. On comparing two positive DCAD levels irrespective of prepartum treatment, nutrient digestibility and plasma calcium were significantly higher with LP DCAD (p with minimum cases of hypocalcemia and ketosis. Daily milk yield (10.19 vs 9.42 kg/d), milk component yield, plasma total protein and phosphorus level was significantly higher with HP DCAD (p<0.05).

Keywords: Daily milk yield, hypocalcemia, ketosis, nutrient intake, transition buffaloes

ANALYSIS OF POLYPROPYLENE FIBRE UNDER TENSILE TEST CONDITION

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The emergence of cracks over the course of the material lifetime can be blamed for the premature failure of polymers and its composites. When a material develops cracks, the material may ultimately fail catastrophically. Cracks must be located and repaired. The performance, dependability, cost-effectiveness, and safety of polymer constructions are to be ensured. The most recent technique for finding cracks in polypropylene structures, with an emphasis on where it is spread. The failure mechanism is still a topic of ongoing debate in the scientific community. The three-point bending test method is used to look into the polypropylene fracture mechanism. Three-point bending test results show that there is a significant damage zone in front of the notch. An extensional flow mixture (EFM) system was researched in order to achieve better distributive and dispersive mixing. The EFM compounding process demonstrated lower melt viscosities at high shear rates when compared to the other composites. The elastoplastic fracture mechanics technique will be applied because the region near the fracture tip has a sizable plastic zone.

Keywords: Fracture mechanics, polypropylene, cracks, three-point bends, notch.