Benefits and risks of growth promoters in beef cattle production

Producers use growth promoters to increase growth rates and improve overall efficiency and product quality. Various compounds have been tried for growth promotion, including hormones and antimicrobial agents. Natural hormones such estradiol (estrogen), progestrone and testosterone or synthetic hormones such as zeranol, melengestrol acetate and trenbolone acetate are widely used as growth promoters in animals. The non- therapeutic use of wide spectrum of antimicrobial agents including ionophores is a common practice in improving animal production. There is substantial recent evidence that residues of hormones in meat and meat products of treated animals may pose a risk to the consumers. The adverse effects of hormones include developmental, neurobiological, genotoxic and carcinogenic effects. Several European countries have restricted or banned the use of antibiotics as growth promoters because of the possible risks of future drug resistance in human following exposure to small doses of antibiotics in animal products. Due to the various risks of antimicrobial agents and hormones, new alternative additives were suggested which may include microbial cultures (probiotics) that are now used in ruminants to manipulate certain biochemical events and the microbial composition of the rumen and prebiotic molecules such as oligosaccharides and lectins. Pre- and probiotics do not exclude each other’s function and can or must be used simultaneously in order to obtain a powerful synergistic effects.