THE USE OF NON-HORMONAL GROWTH ENHANCES WITH DIFFERENT NUTRITIONAL LEVELS FOR GROWING FRIESIAN CALVES UNTIL SLAUGHTER

BY

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Fig. (12): The double helix DNA (A) and the DNA containing intercalated psoralon (B) according to the intercalative model of lerman. Projection of psoralen interacted between two base pairs of DNA (C) (for simplicity, only the two thymines appertaining to the opposite strands are shown; the two complementary adenine bases are omitted).

ABSTRACT

Ashraf Ali Mehany Ismail, The use of non-hormonal growth enhances with different nutritional levels for growing Friesian calves until slaughter, Unpublished Master of Science, Thesis, Ain Shams University Faculty of Agriculture, Animal Production, Department, 1999.

Twenty-four growing Friesian calves of about 217.5 kg L.B.W. were divided equally into 6 experimental groups according to their live body weight, the experimental treatments were schemed as follows:

Treatment(1): 40% roughage: 60% concentrate.

Treatment(2): 20% roughage: 80% concentrate.

Treatment(3): 40% roughage: 60% concentrate plus 10gm yeast/head/day.

Treatment(4): 20% roughage: 80% concentrate plus 10gm yeast/head/day.

Treatment(5): 40% roughage: 60% concentrate plus 10gm lactosacc/head/day.

Treatment(6): 20% roughage: 80% concentrate plus 10gm lactosacc/head/day.

Average daily gain, feed conversion, some rumen and blood parameters and economical efficiency for fattening trials were determined.

Results of using treatments, no effects were detected of using yeast with the level of “10” gram/head/day. But effects significantly were detected of using lacto-sacc with the level of “10” gram/head/day.

Key Words: Yeast, Lacto-sacc, Growing and Friesian calves performances.

Conclusion

Many limitations should be put into consideration when are dealing with rumen fermentation manipulators in ruminant nutrition.

1. As regard to rumen metabolism, we should consider the rumen as a complex system and its successful manipulation calls for the consideration of many interrelated entities such as the type of feeds (digestible or indigestible),the intake, the dilution and flow rates in the rumen, the microbial community effect, etc..., That might show the need for a careful study before attempting to manipulate the system and more than any thing that the manipulation of any given part should not be attempted in isolation. The addition of a substance that is beneficial to rumen microorganisms, but is harmful to the host animal, is obviously not to be recommended, but even if the additive is safe as far as the animal is concerned, all the possible interactions in the rumen must be taken into account, For instance, the incorporation of fat in the diet may inhibit methane production and increase the ratio of propionic to acetic acid (Czerkawski, 1986), both are potentially beneficial but the addition of fat may depress the intake and the digestibility of fibrous food . The depression of food intake by fat may be partly alleviated by the inclusion of urea in the diet (Orscov *et al*., 1978) but indiscriminate we of urea may lead to ammonia toxicity (Crerkawski,. 1986). Even the increased ratio of propionate to acetate may lower the incidence of bovine ketosis but it may also lower the butter fat content of milk which in turn may be corrected by incorporation whey or lactose in the diet (Czerkawski, 1986) since the fermentation

of lactose by rumen microorganisms results in marked increase in the production of acetic and butyric acids, the main lipogenic precursors in the host animal.

2. Furthermore, not only the effects on the system of rumen metabolism have to be considered, but because the sites of digestion are often changed, the effects on lower digestive tract metabolism should be determined as well as p6ssible effects at the ruminant tissue level. As adaptation to certain compounds has been observed, so effects in vive, including feedlot performance, should be studied in long term experiments.
3. when experiments also include toxicological and even ecological aspects, the burden of the experiments for both researcher and experimental animals(multiple cannulae in the digestive tract) becomes considerable.

The complexity of the rumen and the ruminant systems to be manipulated is the main reason for variability and contradiction in experimental results. Much more work to comprehend and rationalize this complexity is needed before safe and efficient application of a certain rumen manipulator can be considered and recommended.

INTRODUCTION

In Egypt there is a significant increasing demand for animal products, especially red meats which is depending on high percentage of cow and buffalo meats animals production depended on some factors (breed, sex, age and nutritional factors such as energy level, protein level, concentrate, roughage ratio, vitamins, minerals, feed additives such as growth enhancers (ionophores), urea, ammonia and other.

Growth enhancers (ionophores) were used in this study through experimental.

- Treatment (1) & (2) : control.
- Treatment (3) & (4) : for testing yeast.
- Treatment (5) & (6) : for testing laco-sacc.

The effect of these growth promoters on digestibility coefficient, some rumen parameters, some blood parameters and economical efficiency were studied.

REVIEW OF LITERATIIRES

Nutritional factors affecting growth rate:

1. Energy level:

Sprott *et al.* (1980) fed heifers in a feedlot on either 13.93 or 14.75 Meal ME/head/day, with the same amount of elude protein (0.68 kg/head/day). They indicated that the higher energy level significantly increased gain. Moreover, **Woody *et al.* (1983)** found that gains increased by 17% with increasing the diets content of grain from 30 to 50% in the all silage diets. They also found that steers Fed on 90% grain gained 6.6% faster- than those fed on 70% grain. As such, **Obracevic *et al.* (1966)** showed that increasing the maize content from 37 to 57% in tile ration of young cattle increased mean daily gain. **Horn *et al.* (1995)** fed steer calves on two dietary energy types: high starch (Hs) corn-based and high fiber (Hf) soybean hull / wheat middling based. All steels were fed 88 mg monensin/kg and 8% minerals & salt. They found daily gain 0.97, 1.00 and 1.07 kg / day, respectively for control, Hs and Hf.

Hill *et al.* (1996) fed finishing beef cattle on different diets through different experiments. In experiment 1, diets contained 1) 79.5% corn and 4.5% soybean meal (C-SBM), 2) 28% corn, 54.5% sorghum and 1.5% soybean meal (GSC (2: 1)) and 3) 28% corn and 56% pearl millet (PM (2:1)) In experiment 2, diets contained 1), 81.5% corn and 3.5% soybean meal (C-SRM) or 2) 42.5% corn and 42.5% pearl millet (PMC). In experiment 1 and 2 animals showed similar ($P>0.10$) apparent digestion coefficients for- OM, CF, NDF and ADF. However, either extract digestibility was higher ($P< 0.05$) for (C-SRM) than for (GSC (2: 1)) and (PMC (2:1)) in experiment 1, and it was higher (P<0.1 I) for (C-SBM) than for (PMC (1:1)) in experiment 2. In both experiment, CP digestibility was higher ($P<0.10$) for diets within experiment. The ADG, empty body weight gain (EBG), and predicted EBG were not different (P>0.10) for diets composed of the different grain sources, **Kanat *et al.* (1997)** fed Holstein bulls on three levels of energy : Low 1.6%, Medium 2.0% and High 2.4% concentrates of live weight and constant crude protein (12%) and were given the straw as roughage freely. The low energy group consumed significantly more feed per kg live body weight gain high energy groups. Treatments did not affect the blood parameters (concentrations of total blood lipid, protein, cholesterol, albumine and globuline).

2. Protein level:

Sprott *et al.* (1980) fed heifers in a feedlot on 0.78 and 0.9 kg crude protein with 14.75 Mcal from weaning to the breeding seasons, they found no effect on ADG.

Prior *et al.* (1977) fed two types of cattle, small type and large type on three dietary levels of crude protein : Low protein (Lp) : 10, Medium protein % (MP) and High protein (Hp) : 13% of dry matter. They found that small type cattle had higher ADG and feed efficiency with (Mp) diet compared to (Lp) diet. There was not any difference between (Hp) and (Mp).

Stateler *et al.* (1995) fed growing cattle on five experimental rations, they were: (1) Control (hay only), (2) Mol (Molasses-corn meal), (3) Mol-urea (Molasses-urea-corn meal), (4) Mol-SBM (Molasses-soybean meal) and (5) Mol-BF (Molasses-urea-meal-blood meal-hydrolyzed feather meal). The autheres founds that supplementation increased (P<0.001) ADG over control in year 1: (105 days) (0.41 vs 0.06 kg/day) and year 2: (92 days) (0.69 vs 0.25 kg/day). In all experiment Mol-urea showed no advantage over Mol. Mol-SBM, while mol-BF increased ADG by 0.10 kg/day in year 1 (p=0.001) and by 0.06 kg/day in year 2 (P=0.077) compared with Mol-urea. ADG was improved by Mol-