صفاء أبو السعود محمد

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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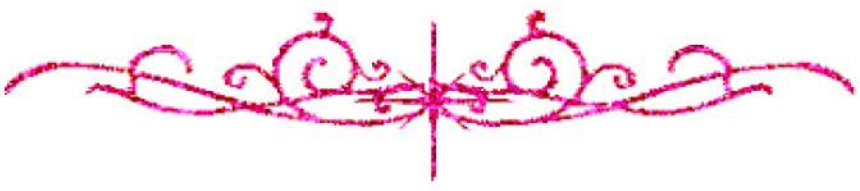

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Minufiya University
Faculty of Agriculture
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FACTORS AFFECTING WEANING AGE OF BUFFALO CALVES UNDER INTENSIVE PRODUCTION SYSTEM

BY

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THESIS

Submitted in Partial Fulfillments of Requirement for the Degree of
Master of Science in Agricultural Science
" Animal Production "

Advisory committee

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MANAL

INTRODUCTION

Improving calves health and performance always has been the goal of people associated with livestock production, this aim was related with many factors.

More recently, probiotics have been diffident as " a live microbial feed which supplement beneficially affects the host animal by improving its intestinal microbial balance". Thus, they are the opposite of antibiotics, which were developed to inhibit microbial growth (Kilmer, 1993). One clear definition is that a probiotic is a live microbial balance of the host animal (Fuller, 1989) . Lactic acid bacteria from part of the natural population of the digestive tract of animals and are regarded as probiotics, Lactobacillus (62 species), Leuconosot (6 species) and lactococcus (3 species) (Sharpe, 1986) .

In recent years, much interest has been shown in use of products containing Lactobacillus acidophilus as feed supplements to improve calf performance and health . Reports on Lactobacillus acidophilus supplementation for calves are limited and contradictory . Calf performance was enhanced in some studies (Bechman et al., 1977; Gilliland et al., 1980 and Schwab et al., 1980), but other (Hatch et al., 1973, Jenny et al., 1991; Morrill et al., 1977 and Ellinger et al., 1978) showed no effect .

Several studies have reported on the appropriate protein percentages in calf starter for optimal growth of young calves (Brown et al., 1958; Gardner, 1968; Stobo and Roy, 1967 and Morrill and Dayton, 1978) .

In many instances, starter diets containing about 13% to 18% in the dry matter (DM), promoted similar body weight gains (Brown et al., 1958; Preston et al., 1965; Gardner 1968; Morrill and Dayton 1978 and Stobo et al., 1967). But in other cases, when incremental crude protein (CP) in starter diets was tested, live body weight gain were improved when the protein content was 17 to ≥ 18% in the DM (Stobo et al., 1967a,b; Leiblholz and Kang, 1973).

The NRC recommendation for protein content in calf starter DM increased from 16% in 1978 (NRC, 1978) to 18% in 1989 (NRC, 1989) based on DMI of about 2.6% of body weight (BW) . Also, Akayezu et al., (1994) recommended that average daily gain from day of age to weaning tended to increased linearly as protein content of starter diets increased .

In general, Grwley et al., (1983) suggested that calf starters should contain 15 to 20% CP in DM basis for dairy replacements. Therefore, more information concerning optimum starter protein level is needed .

Reduction in the quantities of milk consumed by calves during their suckling period is of great economic importance . This target can be attained by shortening the suckling period and/or replacing whole milk by other cheaper consitituents feed and by using some of feed supplement to improve calves performance . Also, during the post several years research has been conducted to substitute the milk by milk replacer and calf starter in raising young, and led to the development of early weaning program involving the use of a pre-starter to stimulate dry feed consumption .

In Egypt several attempts were undertaken to reduce whole milk consumption by calves and relating more on milk (Ghoneim et al., 1965; and

1966) . Amount of milk thus saved can be diverted for human consumption and group feeding at an early age may also reduce the cost of labor .

Ahmed and El – Shazly, (1960) tried to combing early weaning with whole milk reduction and application of suitable starter . Agabawi et al., (1968) indicated that early weaning reduced cost appreciably .

Morrill (1984) and Morrill et al., (1984) reported that on early weaned program involving the feeding of a highly palatable, pre – starter diet due to stimulate dry feed consumption by calves at a young age . This allowed weaning at 2 to 4 wk of age rather than at the more conventional 5 to 11 wk . DePeters et al., (1986) noted that dry matter intake was less for Holstein calves weaned late compared with those weaned early . Also, Andreson et al., (1987) found higher feed intake for calves weaned early than conventionally weaned calves .

On the other hand, there may be a perception, by some people, that intensive production impinges upon the animal's welfare . The use of male dairy calves is criticized due to use of young anima' , liquid diets, individual tethered housing, reduced self-grooming, restricted movements, and relatively low hemoglobin levels (Harrison et al., 1971 ; McFarlane et al., 1988 ; Rushen, 1994 ; Stull and McDonough, 1994) . These concerns suggest that calves in special – fed veal facilities may experience abnormal behaviours and (or) increased stress levels .

For most animals, weaning normally includes both a social and nutritive component, as the young animal simultaneously loses both its mother and its most important source of food and drink (mother milk) !

When a young mammal is separated from its mother at weaning, a number of responses are typically observed (e.g. Freaser et al., 1998) . The animal often becomes more active, and much more vocal, especially during the first 24h after separation . A period of weight loss, or a slowing in the rate of weight gain, is also often observed, accompanied by variable intakes of food and water . The animal more susceptible to disease and digestive upset . It is most frequent in bucket fed calves (Sambraus, 1984) .

Behavioural characteristics are useful indices of welfare because they are often the first (Wilson, 1971) or the only apparent indication of stress (Merck, 1979; Stephens, 1980; Curtis, 1982) .

The main objective of the present study was to investigate the effect of Lactobacillus acidophilus supplementation , starter protein levels, weaning program as well as some behavioural activities on weaning age and buffalo calves performances .