

## Accelerated Growth Programme with Polyherbal Formulations for Dairy Calves

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### Abstract

An experimental field study in approximately one month old, forty eight Jaffrabadi buffalo calves was carried out to evaluate efficacy of herbal formulations on growth & average daily gain. Calves were randomly divided into four groups, one control & three treatments. Treated groups were administered herbal formulations; Ruchamax, AV/DAC/16 @5gm/calf/day & Yakrifit @1 bolus/calf/day following treatment regimen of once a week per month for three consecutive months therapy. Growth related parameters were recorded for ninety days of experimental trial. It was observed that supplementation of herbal growth promoter & liver tonic products significantly improved liver function, feed assimilation & digestibility of ration ultimately leading to gain in body weight as compared to untreated control group.

**Keywords:** calf, herbal, growth, digestibility, body weight, liver tonic.

### Introduction

The body weight of the calves is essential parameter with respect to early maturation, to reduce the age at first calving and to get more number of lactations. Disease agents and environmental stressors interact with nutrition to determine disease susceptibility (Davis and Drackley, 1998). Adequate nutrition in dairy plays an important role & supplementation of rumen function modulators, liver tonics, immunomodulator at an early age is of immense importance to prevent diseases, strengthen immunity & for overall better performance (Prasad et al., 2005). Therefore, nutrition of young calves remains of paramount importance for calf health and profitability of dairy operations. Overall farm profit can be maximized by reducing calf mortality, better managemental practices and supplementation of the good nutrients & feed additives. Among the various managemental factors involved in optimum growth & production, an adequate diet containing essential nutrients is required (Gowda et al., 2008). As a result of fast growing trend of restricting the amount of milk or milk replacer during the first few weeks of life in an effort to encourage solid feed intake and allow early weaning, the concept of accelerated growth programmes, accelerated early nutrition, intensified nutrition has been popularized. In addition to balanced nutrition, supplementation of growth promoters, liver tonics & immunomodulators is also have immense

importance to accelerate growth in animals. Present experimental study is designed with an aim to evaluate efficacy of three different polyherbal formulations on body weight gain in dairy calves at farmer's doorstep. Materials and methods

A study was conducted at Boriavi and Ravalapura Villages, Dist. Anand, Gujarat, India 388 001. Fourty Eight healthy Jaffrabadi buffalo calves of approximately one month age were selected for the experimental trial and randomly divided in four group (n=12), one control and three treatments (i.e. Group-I: no treatment, Group-II, Group-III and Group-IV). All the buffalo calves of I to IV groups were kept under standard managemental & feeding practices. Calves were fed on wheat straw and concentrate mixture to meet their nutrient requirements as recommended by NRC. Group I was given basal diet & no dietary treatment & served as control. Treatment group II & III were administered herbal growth promoters, digestive tonic & appetizer formulations; AV/DAC/16 (*new polyherbal formulation supplied by M/S Ayurved Ltd., Baddi*) and Ruchamax@5gm/calf/day, respectively (*supplied by M/S Ayurved Ltd., Baddi*). Treatment group IV was administered polyherbal liver tonic & growth promoter Yakrifit@1bolus/calf/day (*supplied by M/S Ayurved Limited, Baddi*). All the three polyherbal formulations were administered after thoroughly mixing in feed following the schedule of once a week per month for three consecutive months, i.e. a total dietary treatment

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Table-1. Weight (Kg) of Jaffrabadi buffalo calves (7 day to 90day)

Group	7 <sup>th</sup> Day (Weight)	30 <sup>th</sup> Day(Weight)	37 <sup>th</sup> Day(Weight)	60 <sup>th</sup> Day(Weight)	67 <sup>th</sup> Day(Weight)	90 <sup>th</sup> Day(Weight)
Group-I	39.5	44.73	46.82	53.36	55.81	63.8
Group-II	38.4	46.9	49.7	58.3	61.3	70.4
Group-III	38.5	46.94	49.6	58.1	61.2	70.2
Group-IV	39.8	47.2	49.9	58.8	61.8	71.3

of twenty one days (day 0 to 7, 31 to 37 & 61 to 68). Observations on body weight gain at fortnightly intervals were taken for a maximum period of 90 days (day 31-120 of age) after supplementation of herbal growth promoter.

#### Results and Discussion

The results of the experimental study revealed a significant improvement in fortnightly & final body weight of calves. Initial body weight of a month old calves was recorded to be groups 39.5, 38.4, 38.5, 39.8 (kg) for groups I to IV, before test drug administration. After treatment for 3 months (once a week /month supplementation), the body weight for treated groups at 120<sup>th</sup> day age was 70.4, 70.2, 70.3 Kg respectively, for group II, III, IV in comparison to 63.8.Kg for untreated control group I. Final Body weight of groups treated with AV/DAC/16, Ruchamax & Yakrifit at 90<sup>th</sup> day was found to be significantly higher than control & non-significantly different from each other. The calculated mean average daily gain (gm) of treated groups II (392.8), III (391.6), IV (387.2) was also recorded to be significantly higher than untreated control (301). The herbal ingredients of AV/DAC/16 & Ruchamax namely; *Allium sativum*, *Azadirachta indica*, *Calotropis orocera*, *Centratherum anthelmenticum*, *Commiphora mukul*, *Eclipta alba*, *Picrorhiza kurroa*, *Zingiber officinale*, *Piper longum* have been reported to increase digestibility of ration specially roughages & crude fibre leading to efficient nutrient utilization & ultimately enhanced rate of growth (Pardhan & Bishwas, 1994). Kirtikar & Basu, 1975 reported a positive effect of Ruchamax on microbial digestion by modulating rumen microflora thus

improving fermentation & Volatile Fatty Acids (VFA) production. These VFAs are the source of energy, which in turn, is utilized for body weight gain in calves & milk production in heifers. "Better the microflora health, better is the productivity". Yakrifit, a polyherbal product containing ingredients *Andrographis paniculata*, *Eclipta alba*, *Picrorhiza kurroa*, *Phyllanthus niruri*, *Tephrosia purpurea*, *Boerhaavia diffusa* are documented for their hepatoprotective, hepatoregenerative hepatostimulant properties & well evident for growth enhancing activity (Pradhan & Dey, 1996).

#### Conclusion

Week a month accelerated growth programme with polyherbal growth promoter & liver tonic formulations have been observed to significantly promote growth in buffalo calves. Addition of polyherbal formulations in daily ration increased the feed intake marginally. It can be concluded that in addition to a balanced nutrition, supplementation of growth promoter & liver tonic formulations improves liver function, feed assimilation & digestibility of ration ultimately leading to gain in body weight, hence can be used as growth promoters in buffalo calves.

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Table-2. Average Body weight gain (Kg) &amp; average daily gain (gm) of Jaffrabadi buffalo calves (30 day to 90day)

Groups	7-30		31-37		38-60		61-67		68-90	
	Weight gain (Kg)	ADG (g/day)	Weight gain (Kg)	ADG (g/day)	Weight gain (Kg)	ADG (g/day)	Weight gain(Kg)	ADG (g/day)	Weight gain(Kg)	ADG(g) (g/day)
I	5.23	227	2.09	298	6.54	284	2.45	350	7.99	347
II	8.8	365	2.8	400	8.60	374	3	429	9.1	396
III	8.5	370	2.66	380	8.7	374	3.1	443	9	391
IV	7.4	322	2.70	386	8.9	386	3	429	9.5	413

Table-3. Mean average daily body weight gain (gm) of Jaffrabadi buffalo calves

Group	Mean average daily body weight gain (gm)
Group-I	301
Group-II	392.8
Group-III	391.6
Group-IV	387.2

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## Avian influenza – situation in China - update

19 January 2009 — The Ministry of Health in China has reported 3 new cases of human infection with the H5N1 avian influenza virus.

The first case is a 27 year old female from Jinan City, Shandong Province. She developed symptoms on 5 January, was hospitalized, and died on 17 January. The source of her infection is presently under investigation.

The second case is a 2 year old female from Luliang City, Shanxi Province. She developed symptoms on 7 January, was hospitalized, and is in a critical condition. The source of her infection is presently under investigation.

The third case is a 16 year old male from Huaihua City, Hunan Province. He developed symptoms on 8 January, was hospitalized on 16 January, and is in a critical condition. The case had exposure to sick and dead poultry.

All 3 cases were confirmed by the national laboratory. All contacts have been placed under medical observation and remain healthy to date.

Of the 34 cases confirmed to date in China, 22 have been fatal.