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Efficacy of Multi-strain Probiotic Supplementation on Growth Performance of Sirohi Kids

M.P. Verma[1*], Pankaj Lavania[2], Ajesh Kumar[3] and S.C. Meena[4]

[1]Department of Animal Production, College of Agriculture, (AU, Jodhpur), Sumerpur (Rajasthan), India.
[2]Department of Animal Production, College of Agriculture, (AU, Jodhpur), Jodhpur (Rajasthan), India.
[3]Department of Animal Production, College of Agriculture, (AU, Jodhpur), Nagaur (Rajasthan), India.
[4]Department of Plant Pathology, College of Agriculture, (AU, Jodhpur), Sumerpur (Rajasthan), India.

(Corresponding author: M.P. Verma)*
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ABSTRACT: Livestock is an integral part of India's agricultural economy and plays a multifaceted role in providing livelihood support to the rural population. A study was undertaken to assess the effect of supplementation of multi-strain probiotic in the diet of growing kids. Twenty (3 to 3.5 months old) kids of Sirohi breeds were equally divided into experimental and control groups. One group served as control (Without supplementation) and rest group as experiment group fed multi-strain probiotic @ 5g/kid/d coliform unit (CFU) for 90 days. Based on the favorable observation showed that experimental group statistically higher (P<0.01) body weight gain and mean daily body weight by 27g more than control group. Probiotics can help prevent and manage digestive issues like diarrhea, which can hinder growth. By promoting a healthy gut, they also strengthen the immune system, making the kids less susceptible to diseases that can stunt growth. Farmer's participatory experiment on farmer's animals can prove to be very effective extension approach for creating awareness and acceptance of probiotic technology for sustainable goat farming.

Keywords: Goat, kids, concentrate feeding and growth.

INTRODUCTION

Arid conditions and potential for drought and famine in state, using probiotics in goat farming could be especially beneficial. Probiotics can help goats better withstand these challenging conditions by improving their resilience and ability to utilize available feed. Livestock population in the region is much higher than the carrying capacity of land (Lavania and Kumar 2016). Presently, animal husbandry sector has been identified as an important area for employment generation, while within the animal husbandry the role of goat is very important. It also provides supplementary support system in terms of the income among the weaker communities of the rural societies. Goat farming is one such enterprise which has been practiced by the large human population in India since long (Lavania *et al*., 2014). Goat farming is a vital component of the agricultural economy in the arid regions of Rajasthan, providing livelihoods, food security, and economic empowerment to rural communities. Farmers fed to limited concentrate supplementation, in addition to free grazing on range land, are known to improve the growth performance of Sirohi kids (Chaudhary *et al.*, 2015).

The use of probiotics, prevents pathogenic colonization of the digestive tract, stimulate development of the immune system and its response and counteract negative effect of such illness (Rosmini *et al.*, 2004). Probiotics are living microorganisms providing beneficial effects for the host when administrated in adequate amounts (FAO/WHO, 2001). They are play a crucial role in maintaining a balance gut microbiota (Pipardhe and Dongre 2023). Therefore; the present farm trial was conducted to assess the effect of supplementation of multi-strain probiotic in the diet of growing kids of institutional Sirohi goats.

MATERIALS AND METHODS

College of Agriculture, Sumerpur which is located at the Western side of the state, Thar Desert, on the north bank of the Jawai River. It has population of 37,093 as per 2011 census. Sumerpur block stretches between 25° 9′, 10.3176″ at North Latitude and 73° 4′, 54.6492″ at East Longitude. A farm trial was carried out on institutional Sirohi goats reared on local condition during December, 2023 to February, 2024 in the arid environment. Twenty Sirohi kids, equal age and same sex three months, weighing approximately 10.07 ± 0.5 kg each were equally assigned to two groups designated as control group and experimental group of ten animals

each. Kids in both groups were grazed for 8 h. The vegetative cover of range land was dominated by *Cyodondactylon*, *Cenchrus biblorus* grasses, *Zizyphus nummularia, Calotropis,* sp., *Procera* sp., shrubs and fodder trees *Acacia nilotica* and *Prosopis cineraria*. The concentrate ration offered 250g-300g to all animals during whole experiment period. The ration supplied DCP 14% and TDN 65%. Concentrate mixture was supplemented with mineral mixture @ 2 percent and salt 1 percent. Growing kids of Goats of treatment group were also fed multi-strain probiotic @ 5g/kid/d (CFD). Each 250g of probiotic (Biobloom, product of zydus animal health) contained *Saccharomyces cerevisiae* (0.37 × 10 million colony forming unit) and *lactobacillus sporogenes*12500 mcu. Prior to initiation of the experiment, dosing has been done against the internal worms of all animals with suitable medicines. Cost effectiveness was assessed while considering basic purchase cost of ration ingredients and probiotic vis-à-vis speculated market sale price of live weight gain @ 100/kg by the animals. Statistical analysis of data was carried out using the prescribed procedure.

RESULTS AND DISCUSSION

After three months of trial the kids in probiotic supplemented treatment group achieved statistically higher ($P<0.01$) body weight gain might be due to the improving gut health, nutrient absorption, and overall performance. They help maintain a healthy gut micro biome, which is crucial for digestion and nutrient utilization, leading to augment the weight gain and improved feed efficiency by the treatment group animals (Lavania *et al.*, 2025). Additionally, probiotics can help mitigate the negative impacts of stress and disease, further supporting healthy growth. The animals in experimental group progressively gained high live body weight gain than control. Multi strain probiotic when mixed in diet 5g/d improved overall average daily weight gain (ADG) in treatment group 89.66g than 62.66g in control group animals. The significant improvement in body weight (26.26 kg) for the group fed 60% concentrate plus 5 g probiotics in male goat kids (Al-Galiby *et al*., 2023).

Gastrointestinal and respiratory tract disorders, especially during winter months, have been the main cause of morbidity and mortality in growing kids. Probiotics can help goats better withstand these challenging conditions by improving their resilience and ability to utilize available feed in experiment group-2 witnessed any untoward clinical sign. Probiotics can help prevent and manage digestive issues like diarrhea, which can hinder growth. By promoting a healthy gut, they also strengthen the immune system, making the kids less susceptible to diseases that can stunt growth. Probiotics can help goats cope with stress caused by factors like weaning, ration changes, or environmental changes. Stress can negatively impact growth, and probiotics can help mitigate these effects by maintaining a healthy gut and promoting appetite. A line of confirmation with similar study Mamta and Sharma (2008) reported significantly body weight gain and feed conversion efficiency with fed 5 gm/day/kid probitoic in the form of Biobloom for a period 30 days interval in Jamunapari kids. Singh *et al.* (1998) an improvement in body weight by 570g in 3-4 months old Marwari kids fed 2.5g yeast bolus daily for a period of 3 months than control kids and Deka and Kayastha (2011) also reported higher increasing body weight gain in Jamunapari kids. Pawar *et al.* (2022) also concluded that Saccharomyces cerevisiae and Lactobacillus supplemented group exhibited better performance in terms of growth and FCR.

The results of present experiment indicated that an extra investment of Rs 133/- accompanied by Biobloom helped an additional body weight gain of 2.43 kg/kid. The return from the additional mean live weight gain 2.43 kg in probiotic supplemented kids yielded an additional net income of Rs 110/- in 90 days feeding, taking the prevailing market rate of goat meat, as Rs 100/- live weight.

SUMMARY

An on farm trial was conducted at Department of Livestock Production and Management, of College of Agriculture, Sumerpur-Pali district of Rajasthan. A feeding trial of ninety days conducted to assess the effect of probiotic on growth performance in Sirohi kids, similar aged three months. Analysis of fortnightly data revealed that animals ingroup-2 fed with probiotic supplemented significantly gained higher live weight (18.10± 0.27) than control (15.67± 0.76). Probiotics can help prevent and manage digestive issues like diarrhea, which can hinder growth. By promoting a healthy gut, they also strengthen the immune system, making the kids less susceptible to diseases that can stunt growth. They help maintain a healthy gut micro biome, which is crucial for digestion and nutrient utilization, leading to increased weight gain and improved feed efficiency. Additionally, probiotics can help mitigate the negative impacts of stress and disease, further supporting healthy growth.

CONCLUSIONS

In conclusion, the results of present study showed that supplementation of multi-strain probiotic preparation @ 5g/kid/d for 90 days augment the growth performance of growing Sirohi kids under arid condition. Probiotics can serve as a natural alternative to antibiotics for promoting growth and preventing disease. This is particularly important in the context of antibiotic resistance and the need for sustainable farming practices.

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REFERENCES

Al-Galiby, M. K., Al-Hassnawi, I. A. & Al-Hassnawi, M. M. (2023). Effect of Different Levels of Complex Probiotics on Local Goat Kids Performance. *Annals of Agri-Bio Research, 28*(2), 381-385.

Chaudhary, U. B., Das, A. K., Tripathi, P. & Tripathi, M. K. (2015). Effect of concentrate supplementation on growth performance, carcass traits and meat composition of Sirohi kids under field condition. *Animal Nutrition and Feed Technology, 15*(2), 251-260.

Deka, R. S. & Kayastha, T. B. (2011). Effect of Sacchromyces cerevisiae and Lactobacillus sporogenes supplementation on growth and feed conversion efficiency of Jamunapari kids. *Indian Veterinary Journal, 88*(10), 47-48.

FAO/WHO (2001). Expert consultation report: Cordoba, Argentina: Food and Agriculture organization of the United Nations and World health organization.

Lavania, P. & Kumar, D. (2016). Effect of concentrate feeding in lambs. *Journal of Krishi Vigyan, 5*(1), 26-28.

Lavania, P., Jingar, S. C., Singh, M., Roy, A.K., Kumar, A., Singh N. & Kantwa, S. (2014). Adoption of goat production practices in Southern Rajasthan. *Indian J. Dairy Sci., 67*(3), 265-267.

Lavania, P., Kachhawaha, S. & Singh G. (2025). Probiotic Ameliorate Gut Health and Growth Performance in Marwari Goat kids: A Substitute of Antibiotics. *Annals of Arid Zone, 64*(1), 135-138.

Mamta & Sharma, P. (2008). Effect of probiotics on body weight gain and feed conversion ratio in goat kids. *Haryana Vet., 47*, 39-40.

Pawar, N. B., Siddiqui, M. B. A., Kharwadkar, M. D., Sajid Ali1, S., Munde, V. K. & Wankar, A. K. (2022). Effect of Probiotic Supplementation on Growth Performance of Osmanabadi Kids. *Indian Journal of Animal Sciences, 92*(11), 1364–1367.

Pipardhe, R. & Dongre, S. (2023). Probiotic Bacteria from Mahseer Fish and their Effects on Freshwater Aquarium Shark Health. *Biological Forum – An International Journal, 15*(2), 1324-1326.

Rosmini, M. R., Sequeiro, G. J, Guerrero–Legarreta, I., Marti, L. E., Dalla-Santina, R., Frizzo, L. & Bonazza, J. C. (2004). Probiotic production for meat animals: importance of using indigenous intestinal microbiota. *Revised Mexicana de Ingenieria Quimica, 3*, 181-191.

Singh, G., Kumar, P., Mishra, R. P. & Singh, D. (1998). Effect of probiotic Sacchromyce scerevisiae on performance of Marwari kids. Annual Report, Central Institute for Research Goats, Makhdoom, Mathura p.39.

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