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Efficient Feeding of Crop Residue and Livestock Productivity: An Experimental Study in an Eastern Indian State

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Abstract

In most developing countries like India, livestock ownership is more equitable than land-holding size, 80 percent of livestock population are owned by landless, marginal and small landholders, providing about 40 percent of their annual income. However, with increasing the cost of commercial feed, unavailability of land for growing green fodder and stagnating milk prices farmers in Odisha have few incentives to intensify the livestock production. Nevertheless, opportunities have been identified which enable farmers to make more efficient use of their existing resources leading to considerable productivity increases. The study presents the experimental results on the impact of straw chopping in combination with feeding mineral mixture on livestock productivity.

Two stage sampling method has followed to select 85 dairy farmers from 4 villages in Puri district of Odisha state for the experiment, lasting 73 days. First we selected villages based on dairy cattle population and milk market. After selection of villages, 20–25 farmers having 1–2 dairy cattle were selected from each village. One cattle was selected from each farmer for better monitoring. The experiment period was divided into four phases (pre-deworming, deworming period, period with feeding chopped straw with and without mineral mixture). The results indicated that deworming the animal has positive impact on milk yield but not significant. However significant difference in milk yield were observed between chopping and non-chopping period. Similar results were observed while comparing the milk yield between the period of feeding chopped straw with and without mineral mixture. It was observed that average milk yield per dairy cattle increased from 5.5 to 6.3 L d⁻¹. Along with milk yield, fat% and serum calcium status also improved after feeding chopped straw. Farmers not only benefited from increasing milk yield but also managed to save 7–8 bundles of rice straw per day and cattle. The statistics of cost benefits analysis showed that farmers improved their income by 0.30 dollar per day per cattle by feeding chopped straw. Though farmers in these experimental villages are practising chopping, steps should be taken to promote this feeding measure in other areas as the demand for straw is increasing for other purposes.

Keywords: Crop residue, India, livestock productivity, smallholder