Efficient feeding of crop residue and livestock productivity: An experimental study in an eastern Indian state

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Introduction

- Dairy is the second most important source of livelihood for Odisha farmers; after crops (rice, vegetable).
- 80% of livestock population are owned by landless, marginal and small farmers; livestock (mainly for dairy) contribute 40% of annual household income.
- Increasing cost of commercial feed along with low milk price are constraining farmers to intensify their livestock production.
- Minimising the cost of feed and improving knowledge on utilisation of locally available feed resources can contribute to increasing returns from livestock production.
- Better utilisation of rice residue found to be best alternative option to improve the livestock productivity.
- The aim of the study is to examine the impact of feeding chopped straw in combination with mineral mixture on livestock productivity and income.

Materials and methods

- Selected 85 dairy farmers from 4 villages of Puri District, Odisha
- Two-stage sampling method was followed – first, selected villages based on dairy cattle population and milk market; secondly, 20-25 farmers having 1-2 dairy cattle were selected from each village
- The 70 days of experiment period was divided into four phases – pre-deworming, after deworming, feeding chopped straw with and without mineral mixture
- Descriptive statistical analysis was used to analyse the survey data

Results

- The experimental results indicated that animals fed with chopped straw have increased milk yield and serum ca level relative to those fed with un-chopped straw (Figs1&2). Higher income has also been observed among farmers feeding their animals with chopped straw (Table 1). High change in serum ca level observed when we compared chopped with MM vs unchopped.

Fig-1: % change of milk and Fat (%) in different period

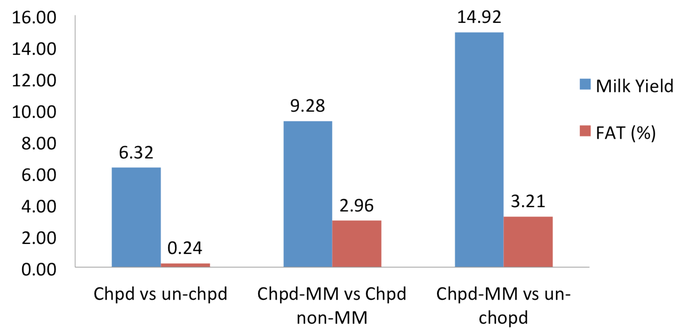

Fig-2: % change in serum and blood glucose in different period

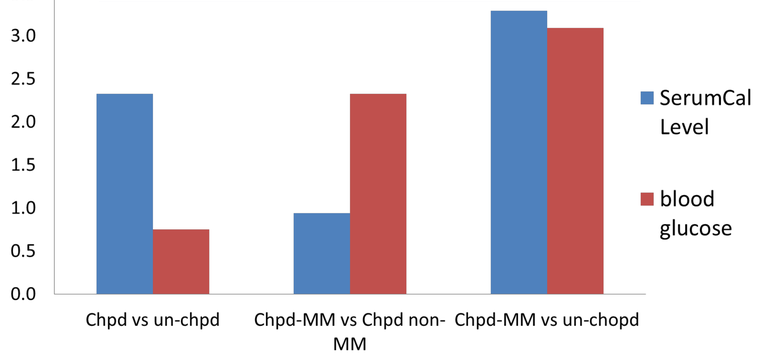

Table-1: cost-benefits of feed chopped straw

Indicators		Daily	Anually
cost	chaff cutter	2.46	900
	electy/diesel	1	365
	others	0.5	182.5
	total cost	3.67	1447.5
benefits	from milk	6.72	2452.8
	from saving straw	5	1825
	total benefit	11.72	4277.8
	net benefit	8.05	2830.3

Conclusion

- Milk yield has increased after feeding chopped straw; higher milk yield was observed when chopped straw feeding was combined with mineral mixture, and the results are statistically significant.
- Farmers could save daily 5-6 bundles of rice straw per cow while using chopped vs. un-chopped straw.
- The cost-benefit analysis shows that farmers could increase their income by 0.15 dollar /day/cattle by feeding chopped straw.
- Government support to scale out these practices could facilitate wider uptake and enable more farmers to benefit from the technology.
- Further work to assess trade-offs between straw for feed vis-à-vis other uses may help inform strategies for dissemination.

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