



Fresh straw in green stage used for biofermentation

The challenge

- Rice straw, despite having poor nutritional value and low digestibility, is the major part of the ration of dairy animals in Nepal.
- Farmers tend to use rice straw as the basal diet of animals as it is freely available on farm
- The demand for quality roughage is increasing with the increase in the number of commercial dairy farms

Our innovative approach

- The biofermentation technology converts a low-value feedstuff (rice straw) into a high-quality feed at a relatively low cost due to multiple effects of the treatments including shredding, treatment with lactic acid bacteria and enrichment with molasses
- Using two biofermentation treatments (in collaboration with Nanjing Agricultural University): (1) treatment of shredded straw with lactic acid bacteria and enrichment with molasses, and; (2) treatment with lactic acid bacteria and marine algae followed by supplementation with molasses



Commercialization of biofermentation technology to upgrade nutritional quality of crop residues



Biofermentation process at industrial level

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Outcomes

- *In vitro* fermentation results showed that fibre digestibility significantly increased
- Total gas production significantly increased, while methane percentage in the gas significantly decreased
- VFA & NH3-N also significantly increased
- Anecdotal evidence showed that there is an increase in milk yield from dairy animals fed with biofermented straw compared to untreated straw

Next steps

- Study impact on productivity and methane reduction
- Assess economic impact for commercialization of the technology in collaboration with feed industries



Biofermented, baled strawlage ready for sale

Partners

- Nanjing Agricultural University
- Maharanijhoda SFAC

