

## Cutting characteristics of Arecanut sheath for use as animal fodder

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Arecanut well known for consumption of its fruit (betel nut) as a masticator in India and in the middle and Far East is being tried for utilizing its leaf sheath as an alternative fodder for animal. India has the highest producer area under cultivation of arecanut in the world and is mostly grown in southern part and in the north-eastern region of the country. Considering its higher economic profitability, many farmers have replaced it with paddy cultivation, resulting in shortage of paddy straw for its use as animal fodder. Recently the arecanut sheath has been investigated for use as a dry fodder for cattle, and an alternative to paddy straw. The arecanut tree sheds about 10 leaves (sheaths) per year hence total production of sheaths is around 4380 sheaths per year per hectare. The size of this areca sheath is about 20-35 cm wide and 30-120 cm length. The available machineries for chaff making have been tried to chop the arecanut sheath into suitable fodder size. However due to physical and biological characteristics of the sheath, none of them were found suitable to get desired size. A factorial experiment was therefore conducted using texture analyzer to study the cutting characteristics of the arecanut sheath for proper size reduction. Three different cutting configurations were evaluated for cutting energy requirements, peak cutting forces required and the quality of cut obtained. A two dimensional shearing configuration was found to be suitable for size reduction of arecanut sheath with peak cutting force of 350 N. The inclination angle of cutter knife and speed of cut were not found to be significantly affecting the phenomenon of cutting.

### Biography

V. K Bhargav has completed Ph.D (2001) in Agricultural Engineering from prestigious Indian Agricultural Research Institute (IARI), New Delhi. He is Scientist (Sr. Scale) at Central Institute of Agricultural Engineering, Bhopal and has 10 research papers in reputed National and International journals to his credit.

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