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Evaluation of power operated sugarcane detrasher

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Sugarcane (*Saccharium officinarum* L.) is the main source of sugar in India and holds a prominent position as a cash crop in the country occupying around 3.8 million hectares of land with an annual cane production of around 270 million tonnes. That is, it occupies about 2.8% of the cultivated land area and contributes about 7.5% to the agricultural production in the country. About 35 million farmers grow and depend on sugarcane for their livelihood. And an equal number of agricultural labourers earn their living by working in sugarcane farms. Detrashing refers to removal of unwanted bottom dry and green leaves at regular intervals. Sugarcane stalk bears large number of leaves (30-35) equal to the number of inter-nodes under good management systems. Detrashing should be taken up after the cane formation around 150 days after planting. There after it could be done at bi-monthly interval depending up on the labour availability. In India and many other developing countries, sugarcane harvesting is done by manual labour. Studies have indicated that the labour requirement for manual cutting and cleaning in India requires 158 and 395 man-h/ha, respectively. When the de-trashing operation is done with help of the tool, the labourer's hands are often injured due to the spines and serrated margins of the leaf blade. Considering the above facts and advantages of sugarcane detrashing there is an urgent need to "**Design a Power Operated Sugarcane Detrasher**". Field tests showed that the effective field capacity of the power operated sugarcane detrasher was 0.06 ha/h with 89 per cent field efficiency. Cost of detrashing by the power operated sugarcane detrasher was Rs. 1250 /ha as compared to the Rs. 7500/ ha for manual detrashing. So the conclusion is that, apart from reducing the cost of cultivation, the drudgery, which was faced by the labourers, has also been reduced considerably.

Biography

Rahmath Abbas Begum has completed BTech (Ag. Engg.) from Agricultural Engineering College and Research Institute, Trichy. Currently she is pursuing MTech (Ag. Engg.) in the Dept. of Farm Power and Machinery from the Tamil Nadu Agricultural University, Coimbatore.

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Role of agriculture in carbon sequestration for mitigating climate change

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Carbon sequestration is the process of long term storage of CO_2 or other forms of C for the mitigation of global warming caused by the GHGs released due to human interference with the nature. It implies transferring atmospheric CO_2 into long-lived pools and storing it securely so that it is not immediately reemitted. Increase in the atmospheric concentrations of carbon dioxide (CO_2), has resulted in climate change during the past centuries. So, reducing atmospheric concentrations of CO_2 has therefore become one of the prime goals of research in the recent times. In fact, CO_2 can be kept out of the atmosphere by capturing it in various reservoirs/ systems on the earth surface. It is estimated that 89% of global potential for agricultural greenhouse gas mitigation would be through carbon sequestration. The three potential means of sequestering CO_2 are ocean sequestration, terrestrial sequestration and geological sequestration. Terrestrial sequestration consists of storage of CO_2 in soils and vegetation near the earth surface.

In agriculture, strategies to increase the soil carbon sequestration include reducing tillage intensity and frequency, eliminating tillage, enhancing crop rotations, using cover crops, improving fertilizer management, adjusting irrigation methods, soil restoration, wood land regeneration, agro forestry practices and growing energy crops (Shah and Venkatramanan, 2009). Thus, large quantities of carbon from the atmosphere would be removed, and agricultural activity can contribute substantially to cutting green house gas emissions. It restores degraded soils, enhances biomass production, purifies surface and ground waters, and reduces the rate of enrichment of atmospheric CO_2 and mitigate climate change (Lal, 2004).

Biography

K. Sasi Kala has completed her Ph.D. at the age of 26 years from Tamil Nadu Agricultural University. She is working as Assistant Professor in the Department of Agronomy, HC&RI, Dr. YSRHU, Venkataramannagudem. She has published more than 15 papers in reputed journals. She has elected as Honorary Board member for Society for Advancement of Human and nature.

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