

COCONUT DECORTICATOR CUM SHREDDER

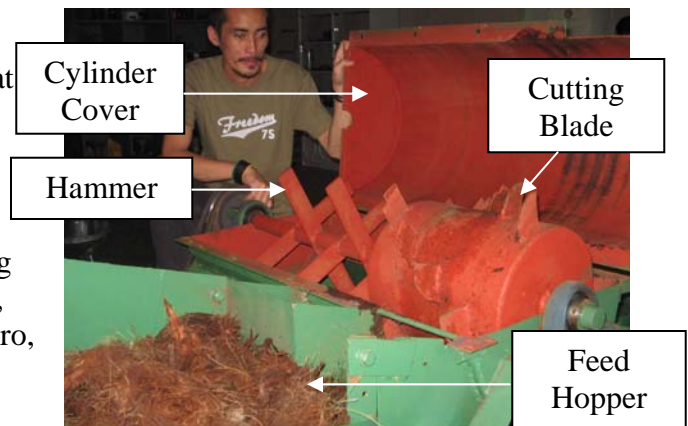
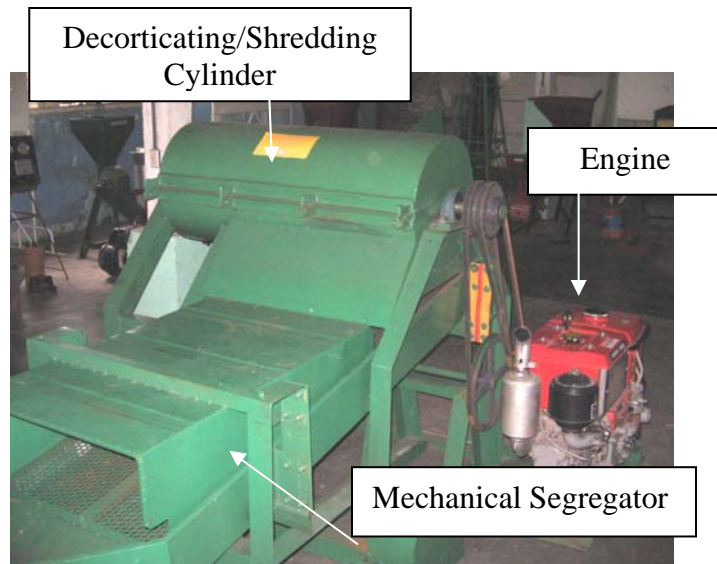
by

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Good news! Here is a two-in-one machine that can be used for decortivating coconut husks to produce coconut coir fibers and dusts, and also can be used for shredding biomass for production of compost. Instead of buying two separate machines, the newly developed technology can do both of the two functions.

Coconut decorticator and biomass shredder are not accessible to our farmers because of the high investment cost required for the machines. The newly developed technology for decortivating coconut husks into coir fibers and dusts can also be used for shredding biomass for compost production. Farmers don't need to buy separate machines with this new technology.

The coconut decorticator cum biomass shredder was designed and developed at the Department of Agricultural Engineering and Environmental Management, College of Agriculture, Central Philippine University with the assistance from agricultural engineering students Lucio Larano, Daniel Belonio, Moises Mana-ay, Simon Peter Jandinero, Ian Jhon Fabelloro, and Jojie Garcia together with Project Assistants Engr. Aries Roda Romallosa and Jane Napawit.



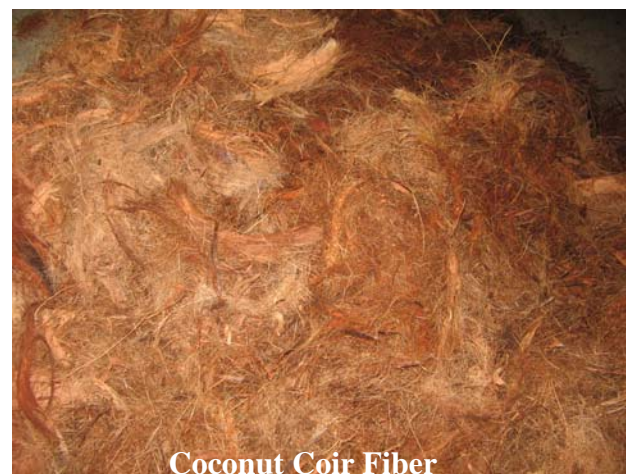
The Inside View of the Decortivating/Shredding Cylinder

The machine is a modified version of the axial-flow biomass shredder developed at CPU, which incorporates a screen concave beneath the beating component of the machine and a mechanical segregator that separates finer from coarse materials. As shown, the machine consists mainly of the decorticating/shredding cylinder where the coconut husks or biomass wastes are cut into small pieces using blades and then beaten using hammers to separate coir dust from fibers, or to rupture the fibers of wastes in case of shredding. Coir dusts pass through the concave screen and are finally separated from the fibers by means of an oscillating screen located beneath the cylinder.

The standard model has a cylinder diameter of 14 inches and a length of 36 inches. It can go as high as 24 inches in diameter to 48 inches in length. Cutting blades and beating hammers made of spring steel, which are positioned in series, are used for decorticating/shredding operation.

Concave screen that is used to separate coir dusts from fibers are spaced at $\frac{1}{4}$ to $\frac{1}{2}$ in., depending on the size of the machine. The standard model can decorticate 600 to 900 nuts per 8 hour-day using a 10- to 12-hp diesel engine. The amount of coir dusts produced ranges from 30 to 50% of the husks' weight. Tests have shown that allowing the fibers to pass in the machine for the second time resulted in a much better quality coir fibers and more dusts is produced during operation. Using the machine for shredding operation showed that finer materials, such as rice straw, can be successfully shredded in the machine.

The machine can be fabricated in a small shop within 2 weeks by two skilled shop workers. The cost of investment for the machine is P55,000.00 excluding the engine.



The machine can be made mobile with an additional cost of P15,000.00. Cost analysis showed that the machine can be recovered in less than a year.

Interested individuals and organizations who wish to adopt this technology, may contact the Project Director, Appropriate Technology Center, Department of Agricultural Engineering and Environmental Management, College of Agriculture, Central Philippine University, Iloilo City, Philippines. ☎033-3291971 loc 1071, Email: atbelonio@yahoo.com, Cell: 09167115222.