

## KENAF STEMS HARVESTER: DESIGN AND DEVELOPMENT OF KENAF STEMS HARVESTING MACHINE

### TECHNOLOGY DESCRIPTION

The kenaf harvesting machine comprises a harvesting system configured to collect produce and a cutting system located below the gathering system configured to cut the produce at the lower point of the stem with minimum cutting energy.

### TECHNOLOGY FEATURES

This harvester provides fresh intact raw harvested kenaf stems for the industry needs. It is also able to cut more thick fibrous stems at one time (material capacity of 371 t/day for 4 rows) with minimum cutting energy from the lowest point of the stem to obtain more fibers. It has high field efficiency of 80% and capable of covering field capacity of 4.42 ha/day providing 4-row harvesting in a single pass compared to manual harvesting capacity of 0.01 ha/day.

### ADVANTAGES

- Able to cut thick fibrous stems
- Able to cut more stems at 1 time
- High field efficiency of 4.42 ha/day
- High field capacity of 80%

### INDUSTRY OVERVIEW

**Prospect: Kenaf Fibre Processing Industry/ Livestock Feeding Industries/Pulp and Paper Industries**

The National Kenaf and Tobacco Board (LKTN) is targeting to have 5,000ha of land under kenaf cultivation by 2015 in line with the National Commodity Policy to make the versatile plant an important contributor to the national economy by 2020. The global demand for natural fibers like kenaf is increasing due to a greater demand for cleaner and greener industrial products. Companies like Toyota, Ford, NEC, and Matsushita, are among the world brands which use Kenaf fibers in their advanced product lines. The world's Kenaf production has increased significantly from

3247.8 tonnes in 2008 to over 32014.4 tonnes in 2013. Mykenaf Sdn Bhd, Kenaf Natural Fiber Industries and Kenaf Fibre Malaysia Sdn Bhd are among a few companies that lead the development of kenaf in the areas of cultivation, processing and manufacturing. These companies produce kenaf-based fibre, pet food, paper, clothing, building material, car accessories and bio-fuel. Among the potential market prospect for Kenaf stem harvester are Kenaf Fibre Processing Industry, Livestock Feeding Industries, Pulp and Paper Industries. It can be marketed directly and distributed directly via sales agents and sales representatives.



**Prof. Ir. Dr. Desa Ahmad**  
Faculty of Engineering  
desa@upm.edu.my