

# RADIO-CONTROLLED HYDROSTATIC FLAIL MOWER,

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MPOB INFORMATION SERIES • ISSN 1511-7871 • JULY 2024

MPOB TT No. 685

Oil palm fields require regular maintenance, and mechanical machines are one of the most effective practices for controlling weeds (Darras *et al.*, 2019). By maintaining the weeds, the plantation can ensure maximum yield and the health of its crops in a sustainable manner (Azwan *et al.*, 2017).

A mechanical mower is a technology used to perform this task effectively. Since oil palm plantations are vast, integrating mechanical transmission and electronic control can enhance their effectiveness and offer several benefits to end-users.

## THE TECHNOLOGY

The invention is an engine-powered hydrostatic flail mower with a radio-controlled feature (Figure 1). The machine can be manoeuvred and mowed with only a single power and covers large areas of plantations. Its radio-controlled feature allows the operator to safely and efficiently manoeuvre the mower from a distance, reducing the risk of injury in challenging terrain.

The technology incorporates long-range vehicle control and an integrated hydrostatic transmission (iHST), making it compact, lightweight, and low-cost. However, it has yet to be implemented in oil palm field practices. Table 1 depicts the specifications of the prototype.

TABLE 1. TECHNICAL SPECIFICATION OF THE PROTOTYPE

Technical specification	Value
Dimension	170 cm (L) x 96 cm (W) x 95 cm (H)
Engine	10 HP petrol powered
Weight	230 kg
Cutting height	20-80 cm
Cutting width	80 cm
Transmission	Integrated hydrostatic
Hydrostatic pump capacity	10 cc

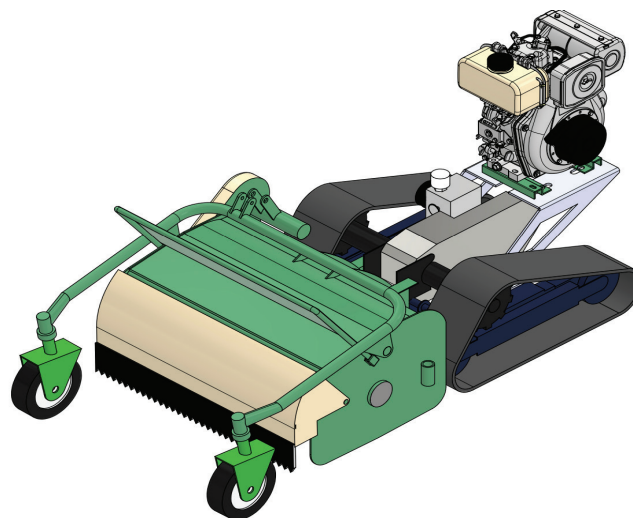


Figure 1. CAD drawing of the prototype.

ISSN 1511-7871



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## **BENEFITS AND ADVANTAGES**

- i. Ergonomically designed to improve work conditions and safer application in the field;
- ii. Lower operational cost for oil palm field maintenance;
- iii. Huge market potential (Malaysia and other palm oil producing countries);
- iv. The operational cost of the RC Mower is estimated to be more than 50% lower than that of the other oil palm field maintenance practices; and
- v. Sustainability requirements in the oil palm field practice could attract more users toward the technology application.

## **COMMERCIALISATION POTENTIAL**

The potential market for the radio-controlled hydrostatic flail mower for oil palm plantation applications is vast, with a significant opportunity for manufacturers. One machine can cover an area of 150 hectares. With a total planted area of more than 5 million hectares, significant market potential is ready to be tapped. There is also a vast potential market in other oil palm-producing countries. By providing a product specifically tailored to meet the needs of this industry and offering high standards of efficiency, durability, and safety, manufacturers

can establish themselves as leading providers in this specialised market.

## **CONCLUSION**

The technology has the potential to provide several benefits for the sustainable operation of oil palm plantations. These benefits include a positive impact on the environment, lower operational costs, ergonomic design, safer work conditions, and the ability to attract local workers to operate the high-technology-based system. Thus, it provides a substantial market to be tapped by technology providers.

## **REFERENCES**

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