

INTRODUCTION

Life cycle assessment (LCA) is an analytical tool to assess the environmental impact of any products or services. It quantifies environmental impacts of a product during its life cycle. Generally, the assessment starts with resource extraction, goes through all the production steps, the use of the product and ends with the waste. This is known as a cradle-to-grave analysis. In 2010, an LCA project on the Malaysian oil palm industry including palm biodiesel was completed by MPOB. The research involved a cradle-to-grave analysis from cultivation of oil palm seedlings to the production and use of biodiesel. It is noted that one of the gaps that need to be filled in order to obtain a complete LCA of palm oil production is the LCA of germinated oil palm seeds.

Germinated oil palm seed is the first link in the palm oil supply chain: this is where the oil palm seeds are produced at the seed production unit before sending to the nursery. The LCA of oil palm seeds is a cradle-to-gate analysis. The starting point is the transportation of fresh fruit bunches (FFB) from the mother palm to the seed production unit and the end point is the germinated seeds ready for distribution to nurseries.

MPOB offers LCA consulting services to the oil palm industry in various stages of the supply chain, from seed production to the production and use of palm biodiesel.

METHODOLOGY

The life cycle inventory (LCI) will be quantified using inflows and outflows built in SimaPro version 7.1 LCA software. The Eco-indicator 99 methodology will be used for the life cycle impact assessment (LCIA) based on 11 impact categories.



Figure 1. Controlled pollinated fresh fruit bunches (FFB) from mother palm.



Figure 2. Germinated oil palm seeds.

The LCA study will be carried out following ISO 14040/14044 requirements.

BENEFITS

- Identification of the processing stage(s) that contributes to environmental impacts.
- Information for improvement of the environmental performance of germinated oil palm seed production.
- Compliance with ISO 14000 Standard for environmental management.

OBJECTIVES

- To identify and assess the environmental impacts associated with the production of germinated oil palm seeds.
- To evaluate and implement steps to improve the environmental performance in seed processing.

TYPES OF SERVICE

- Setting of system boundary and functional unit for the study at the oil palm seed production unit.
- Collection of life cycle inventory data and site specific data.

- LCIA for the production of germinated oil palm seeds.
- Interpretation of LCIA results and suggestions for mitigation measures.
- Calculation of carbon footprint or greenhouse gas (GHG) emissions for the production of germinated oil palm seeds.

Services are offered in Peninsular Malaysia, Sabah and Sarawak.

The cost depends on the scope of services required.

CLIENTS

Oil palm seed production units.

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