PSU ELDP Baobab Seed Press

Overview

The baobab seed press will extract oil from baobab seeds allowing for the commercial production of this valuable resource. A hydraulic press was shown to be the most effective at satisfying the customer needs. The design features a cone shaped ram head attached to a hydraulic press which will force the seeds through a die while crushing and extracting the oil from the seeds. Further development should be focused on a screw press design.

Objectives

The main objective was to design and manufacture a seed press capable of extracting oil from baobab seeds. The team also tried to learn more about the extraction process to aid future efforts at oil extraction.

Approach

- Met with customer to determine customer needs and design specifications
- Conducted background research including an existing product search and a patent search
- Generated and ranked concepts to determine best design
- Machined prototypes and completed testing in Learning Factory
- Completed design process through a series of design, fabrication, and testing iterations.
- CAD models were used to determine component fit before machining
- Analysis allowed the team to predict testing outcomes
- Testing validated designs and provided ideas for further development

Outcomes

- The design successfully crushed baobab seeds
- Oil was extracted through a two-stage process
- The team was able to provide a recommendation that a screw press be used in the future for more efficient oil extraction