THE LOCAL FABRICATION OF MALYSIAN HARVESTING KNIVES IN NIFOR, NIGERIA.

INTRODUCTION

Harvesting of Oil-Palm fruit bunches has been identified as the least mechanized activity in commercial plantation. The Malaysian harvesting knives has been shown to be amongst the most reliable and widely accepted harvesting technologies available. A team of scientists investigated the possibilities of commercial fabrication of the harvesting knives from condemned vehicle spring and metal steel sheets. It was found that fabrication from metal steel sheets were more viable

In the quest of producing market viable oil-palm harvesting (sickle) knives, various heat treatment regimens were implemented and various test (tensile and hardness) were performed in various locations including Lagos, Ilorin, and Kaduna. The inability to perform all the research activities in one venue made the research work and the prototype more expensive than necessary, and also subjected the work to plagiarism and adulteration. Investigations were made to find a single venue where most of the research activities can be achieved, only Defense Industry Company of Nigeria (DICON) and McBuilt Foundries in Kaduna were found to be of close proximity and had an electric Oven (which was expensive, and delayed our work to availability of power from the nation grid) and a Universal testing machine for only tensile test. Therefore, collaboration was made to produce the prototype and we anticipate that the cost of mass production should not exceed thirty thousand naira (30,000 NGN) per copy as against thirty-five thousand naira market price.

OBJECTIVES

It is aimed that this research grant, if awarded, would:

1. Provide seed funds worth eighty-four million naira (N84,000,000) to purchase the necessary raw-materials (sheet metals and chemicals) to produce 2800 copies of the harvesting knives
2. Make funds worth fifty-five million naira (N55,000,000) available to purchase equipment to not only mass produce the knives, but to also continue with the research work thereby yielding more durable products.
3. The availability of these equipment would also enable other research works capable of yielding products bedeviling the agricultural and manufacturing industries like gears, springs, etc.

Given the cheaper cost of fabricating the knives locally, importers and marketers have already shown interest in the product. The product also has a potential for foreign exchange earning in at least west Africa (oil-palm producing states)

EXPECTED OUTPUT

If funded, this project would:

1. Ensure local production of the knives in Nigeria

2. Reduce the price of the knives

3. Create a source of foreign exchange

4. Improve local fabrication technologies, and

5. The availability of a viable oven, 3D printer and universal testing machine (UTM) would improve our capacity for research and production of other similar technologies like gears, springs, etc.

BUDGET

S/N	MATERIALS	QTY	UNIT PRICE	AMOUNT
1	Medium-Carbon Steel Sheet	100	250,000.00	25,000,000.00
2	Chemicals for Heat Treatment	LS	59,000,000.00	59,000,000.00
	SUB-TOTAL			84,000,000.00
3	Universal Testing Machine (UTM)	1	15,000,000.00	15,000,000.00
4	Dual Powered Oven (Biomass and Gas)	1	20,000,000.00	20,000,000.00
5	Laser cutting and Engraving Machine	1	15,000,000.00	15,000,000.00
6	3D Printer (for making molds)	1	5,000,000.00	5,000,000.00
	SUB-TOTAL			55,000,000.00
7	Miscellaneous	LS	15% of Total Amount	20,850,000.00
	TOTAL			159,850,000.00