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**TRUNDLING AND LABORATORY PERFORMANCE TESTING OF POLYSTYRENE
CHICKEN EGG CLAMSHELL TRAYS IN RETURNABLE PLASTIC CRATE,
CORRUGATED BOX AND WOODEN CRATE FOR EGGER FARM
SAN MIGUEL, ILOILO**

A Research Study Presented to the
Faculty of the Packaging Engineering Department
College of Engineering
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BACHELOR OF SCIENCE IN PACKAGING ENGINEERING

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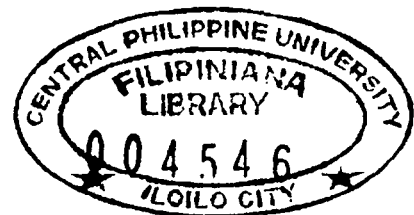
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ABSTRACT

Eggshell breakage and egg tray damage are common during transportation rather than any other step during processing and distribution. Hence, the study aimed to test and compare the protective ability of secondary packaging namely plastic crate, corrugated box, and wooden crate with the polystyrene (PS) tray as current primary packaging material and find the best secondary packaging. Two tests were conducted to measure the effectiveness of the various secondary packaging: Trundling and Laboratory Testing. Laboratory testing procedure was based on ASTM D4169-14, Standard Practice for Performance Testing of Shipping Containers and Systems. This was used to simulate actual transport condition observed during trundling. Eggs were subjected to Random Vibration Testing, Schedule- E (Vehicle Vibration). The PS trays packed in wooden crate had zero percentage of not acceptable damage for trundling and laboratory testing, followed by plastic crates with 5 percent PS trays within not acceptable damage level for laboratory testing and zero percent for trundling. Corrugated box had the highest number of PS trays within not acceptable damage level (11.667%) for laboratory testing and zero percent for trundling. Test results show that corrugated box performed best in terms of protection against egg shell breakage, wooden crate against polystyrene tray damage, and plastic crate in terms of cost per trip.