Songtham Chaiyapong 2009: Development of Cushioning Materials from Shredded Paper for Impact Fruit Protection and Maturity Classification of Young Coconut Fruit with Physical, Mechanical, Physiological and Sound Property. Doctor of Philosophy (Postharvest Technology), Major Field: Postharvest Technology, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Anupan Terdwongworakul, Ph.D. 135 pages.

The aim of this thesis are development of cushioning materials from shredded paper for foam net replacement and maturity classification of young coconut fruit with physical, mechanical, physiological and sound property.

Shredded paper can be use to cushioning materials for protect fruits from impact. Test by input 2 joules impact energy to apple wrap with shredded paper in cloth bag. Suitable condition is 3 mm width shredded paper and 60 kg/m^3 density.

Maturity prediction of young coconut fruit with physical, mechanical, physiological and sound property can identifying maturity index of young coconut fruit. Discriminant analysis technique with 3 variables, frequency (f_n), Husk Rupture force (HFr) and Shell Thickness (ST), give equation to predict young coconut flesh that 96.7 % accuracy. Partial least square regression technique with 2 variables, Husk Rupture force (HFr) and Shell force-deformation curve slope (SSL), give correlation (R), Root mean square error of predict (RMSEP) and Bias are 0.994, 0.153 and 0.001 respectively

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