Abstract TE 132992

Agriculturists living in several highland areas in Thailand are potentially able to produce agricultural products of good quality because of suitable climatic conditions. However, agriculturists do not fully understand about the management, quality control, and their own potential to process their products so as to gain maximum benefit or until the products reach the market requirement. As a consequence, they tend to sell fresh products or those that have undergone minimal process at a much lower price. This research was aimed to promote product quality and to extend the knowledge to agriculturists by studying on the basic information needed for further researches and technology development involving harvesting, postharvesting, processing, packaging and the use of by products of agricultural products grown at Wawee Highland. In the first stage, growing, harvesting, postharvesting, processing and storage of coffee and macadamia varieties were investigated.

In case of coffee variety, the maturity of coffee cherry was observed and classified into three groups according to coffee maturity, namely fully mature , medium mature , and just mature. The Hunter value L, a, b showed L values equal to 18.73, 24.86 and 36.12 ; a-values equal to 2.94 , 16.74 and 18.35 ; b-values equal to 2.66 , 7.16 and 14.40 for the fully mature , medium mature and just mature coffee cherries, respectively. The values of L, a and b of cherries from different maturity levels indicated a statistically significant difference. The yield percentage of coffee beans derived from coffee cherries at different maturity stages were 41.87 %, 42.69 % and 45.05 % which were not statistically significant different. Moreover, yield percentage of coffee bean after demucilaging by abrasion and fermentation were not statistically significant different, ranging from 18.35 % to 20.24 %. All samples after pulping, demucilaging , and drying had water activity between 0.49 to 0.50 which were not statistically significant different.

As it was, no statistically significant difference was found in the yield percentage of coffee beans derived from coffee cherries at different maturity stages and method of demucilaging did not produce any statistically significant difference in water activity of the beans but the differences in flavor and aroma of coffee due to these

process are still investigated. It is recommended that coffee pulping machine, aquapulper and coffee dryer should be developed.

In case of macadamia variety, a comparative study between fresh macadamia nuts, which were collected within a day of the nut dropping from the tree, and macadamia nuts left under the tree for 7 days, were conducted to examine quality factors in terms of moisture content, oil content, peroxide value, color (using Hunter Lab system) ,total bacterial count, yeast and mold counts. It was found that moisture content of fresh macadamia nut was 20.19 % , while moisture content of seven-day old macadamia nut was 23.29. The amount of moisture content was statistically different because the ones which were left on the ground for 7 days absorbed moisture from ground and air during continued days of rain. For L and b values of macadamia nuts, it was observed that fresh nuts had L and b values 79.57 and 18.03, respectively. In comparison to seven-day old nuts, L and b values were 81.72 and 15.36. Both L and b values were statistically significant different because the ones which had more moisture content were more transparent than the others. There was no statistically significant difference in oil content, a-value, total bacterial count, yeast and mold counts. Peroxide values from both groups of samples was undetected. Non-significant difference of total bacterial count, yeast and mold counts due to the shell of nut -preventing migration of microorganisms to kernel in some levels. No detection of peroxide value in both samples were due to the induction period of peroxide which is longer than the experimental period. In general, peroxide value was detected during long storage period, especially in nuts with high moisture content .