

<b>Title</b>	Quality prediction of 'Sai Nam Pung' tangerine after truck transportation using artificial neural network
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<b>Keywords</b>	ANN; multiple linear regression; postharvest losses; packaging; multi-layered feedforward network

### Abstract

This work was aimed at studying and investigating postharvest quality and losses of 'Sai Nam Pung' tangerine after transported by truck from the packinghouse in Chiangmai to the wholesale market in Bangkok, as indexed by change of vitamin C, change of titratable acidity, change of pH, change of total soluble solid, change of TSS/TA, weight loss percentage, decay percentage, mechanical damage percentage and surface color change. The statistic treatment structure for the experiment was a  $3^2$  factorial design in RCBD with three replications (trips). Temperature and relative humidity of the fruits were taken into the model as covariates. Artificial Neural Network (ANN) was used as a tool to predict postharvest quality and losses, then compared the results with those using Multiple Linear Regression. From the 27 data records, 22 data records were used for training set and 5 data records for testing set to predict quality of 'Sai Nam Pung'. Artificial Neural Network showed its potential and ability to predict 'Sai Nam Pung' tangerine after Truck Transportation quite accurately, the values of error lower and  $R^2$  higher than Multiple Linear Regression. The Root Mean Square Error (RMSE) of the prediction by several ANN models ranged from 0.014 to 0.911 and  $R^2$  ranged from 0.634 to 0.942. Root Mean Square Error (RMSE) from prediction using Multiple Linear Regression models ranged from 0.044 to 5.823 Maximum and  $R^2$  ranged from 0.120 to 0.671.