

Siraphorn Wichaisin 2009: Situations of Local Vegetables and Fruits Central Market:
A Case Study of Pathom-Mangala Market. Master of Science (Agro-Industry Technology
Management), Major Field: Agro-Industry Technology Management, Department of Agro-Industry
Technology. Thesis Advisor: Assistant Professor Ravipim Chaveesuk, Ph.D. 201 pages.

The aims of research were to study the situations of local vegetables and fruits central market at Pathom-Mangala market, Nakhonpathom province, to examine the proper distribution routing of vegetables and fruits from supply provinces to demand provinces using linear programming and to compare time series analysis techniques to forecast yields of fruits and vegetables in short and long term among Holt-Winters' additive seasonal smoothing (Additive HWS), Holt-Winters' multiplicative seasonal smoothing method (Multiplicative HWS) and Backpropagation neural network (BPN). The survey of 32 sellers and 31 buyers serviced at Pathom-Mangala market revealed that most sellers and buyers were over 41 years old, had a primary school education and resided in Nakhonpathom province. Most sellers collected vegetables and fruits directly from farmers and then sorted and graded before sale. Unsold goods at the end of the day were discounted to avoid left over. Buyers were mostly retailers who bought graded vegetables and fruits from particular suppliers in their vendor list in cash. Their buying decision criteria were quality and freshness of the produces. The vegetables and fruits were cleaned and trimmed by the buyers before further trading as well. The strengths of Pathom-Mangala market were its location close to the production area and the buyers and its good allocation of space. Its weaknesses were inadequate of grading vegetables and fruits, central weighing machines and cart service. The study on distribution routing showed that vegetables and fruits should be transported from the supply provinces to the demand provinces in a close proximity, particularly the higher demand provinces first. When considering the exceeded supply and exceeded demand provinces together with the routing results, further study on the possibility of establishing new central markets at Chanthaburi and Kanchanaburi as the origin markets and at Songkhla as a destination market would be recommended. The comparisons of forecasting methods to forecast vegetables yield revealed that the Additive HWS exhibited higher accuracy for 1-quarter ahead forecast while the 4-3-1 BPN showed superior performance for 1-year ahead forecast. In addition, to forecast the fruit yield, for 1-month ahead forecast the Multiplicative HWS showed higher accuracy whereas the 12-5-1 BPN possessed superior performance for 1-year ahead forecast. All models selected were of unbiased type.

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Thesis Advisor's signature

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