Ornausa Boonprasom 2010: Evaluation of Sampling Method in Agricultural Commodity and Food. Master of Science (Agro-Industrial Technology Management), Major Field: Agro-Industrial Technology Management, Department of Agro-Industrial Technology. Thesis Advisor: Assistant Professor Chutima Waisarayutt, Ph.D. 105 pages.

The international standard for agricultural and food product required a system of inspection. Using sampling inspection as a good representative of product lot in order to decide for the quality of lots. The reliability of decision on measurement results by estimating the measurement uncertainty arising from the process quality of sampling and analysis. The sampling paid more important contribution to measurement uncertainty. The precision of the sampling procedure can be evaluated by using value of sampling uncertainty with the average product quality profile comparing to the specification limit. This research aimed to validate the current sampling method implemented in agriculture commodity and food to guide the development of sampling procedure. The sampling uncertainty estimation in this research was done on two products which were chicken granular feed packed in bag and canned fruit cocktail in syrup. The sampling was done following the current procedure and sampling fields were in the manufacturer warehouses. Measurement parameters were protein content in the dry basis and acidity content for chicken feed and fruit cocktail, respectively. Two-split level Replicate Design was used as design experiment. Two factors of lot space (different position within the product lot) and lot production time were varied in order to estimate the uncertainty from the sampling. The uncertainty value was estimated from standard deviation derived from the statistic range, referring from Nordtest Handbook, 2007. The study found that both sampling procedure for feed and fruit cocktail, currently used were fit to use according to the value of uncertainty value compare to the average protein or acidity found in lot sample. The sampling uncertainty from feed was relatively low, around 1-2%. The average protein content found in the lot sample was also close to the protein control line. The sampling uncertainty from acidity content in fruit cocktail was relatively high, around 6-10%. However, the average acidity found in product sampling was very low compared to the acidity control line. Therefore, considering the value of sampling uncertainty with average protein or acidity content comparing to specification limit in both product groups, the sampling methods used in both product groups are fit of use. For development sampling procedure according to quality assurance from a model of document records that used to comply data in the documentation of quality assurance and improve sampling methods for implementation in the future.

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