



MAHIDOL UNIVERSITY
Wisdom of the Land

FRIENDLY COMPUTER PROGRAM FOR SCHOOL TO SELF-EVALUATING LUNCH NUTRIENTS QUALITY THROUGH THE SIMPLE TEN POINT SCORES

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Introduction

The meal quality goals in nutritive values format are too difficult to use for non-nutrition background persons. So most of school lunch menus and lunch quality were based on cooking skill. Technique supports for improving school lunch quality were necessary. The food quality and pattern were evaluated for developing School Lunch Standard Recommendation in Food Based Dietary Guideline format in 2006. Recommended recipes were developed. Next step is developing simplify technique to support teachers for self-evaluating menu plan.



Objective

To improve school meals which energy and important nutrients inadequate, computer program for supporting self-evaluating menu plan at school level was developed.

Methods

- ❖ The 40% of Dietary Reference Intake for Thais 2003 (Thai DRI 2003) were nutrients goal.
- ❖ Ten point scores were replaced scientific units of nutrients.
- ❖ Recommended recipes of popular menus were developed.
- ❖ The nutrients quality of each recipe was present in score system.
- ❖ The mathematical model for self-matching menu set was designed.



School Lunch Menu Management Program

The school lunch menu management program was developed by Institute of Nutrition, Mahidol University to be freeware.

Teachers who have responded school lunch were able to download from websites.

www.trf.or.th
www.inmu.mahidol.ac.th

1. Key in the number of consumer.
2. Select default or self design menus.
3. Default suggested weekly menu.
4. Present nutrient scores of each day.
5. Changing menu for new set or item.
6. Amount and budget of ingredients.

Score System

Nutrient Score Factor

1 score = $\frac{40\% \text{ of Thai's DRI } 2003}{12}$

Recipe Nutrient Score

= $\frac{\text{Nutrient content per serving}}{\text{Nutrient Score Factor}}$

Criteria of nutrients quality levels for scoring recipe evaluation

Nutrients	Quality Level				
	should improve	quite poor	fair	good	very good
Macro-nutrients (Energy, Protein, Fat)	< 9	9	10	11	12
Dietary fiber	< 7	7-8	9-10	11	12
Vitamins & Minerals	< 7	7-8	9-10	11	12

Note: 12 scores = 40% and 10 scores = 1/3 of Thai's DRI
9 scores = 90% and 7 scores = 70% of 1/3 of Thai's DRI

Results

- ❖ The "School Lunch Menus and Recipes Management" program for self-cycle menu planning was developed and post on Thai Research Fund's and Institute of Nutrition's websites.
- ❖ It supports calculating the raw materials and estimated budget according to number of consumers.
- ❖ User able to choose prepared weekly menus or self-design.
- ❖ Sixty menu sets which average score of weekly menu were met all nutrients goal within the budget were demonstrated.
- ❖ Recalculating the budget for the same menu sets cause of food price crisis in 2008 indicated that need increasing 30% budget.

Conclusions

- ❖ The program was trial in the pilot schools of Progressive School Nutrition Project.
- ❖ Government approved increasing lunch budget 30%.

Nutrient Scores of 12 Weekly Cycle Menus (Mean and SD)

Energy	Protein	Fat	Ca	Fe	VA	VB1	VB2	VC	DF
11.3	12.3	11.7	9.6	8.8	18.3	12.8	24.9	22.6	7.8
0.4	0.4	0.8	0.4	1.8	6.0	2.3	2.0	11.1	0.3

Budget Management

Suggested Cycle Menus
(12 Weeks = 60 menus)

Budget for Ingredients
30%

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