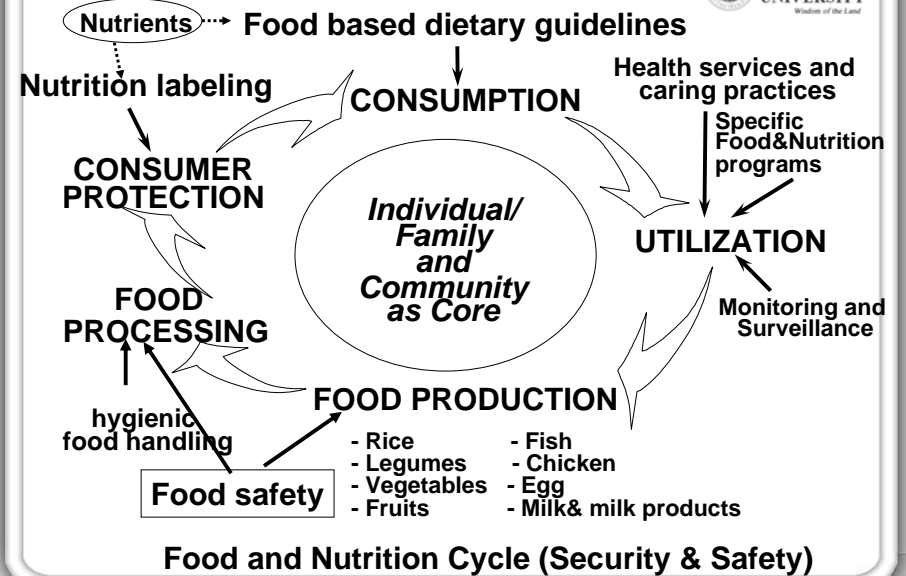


Use of nutrient data in development of Food-Based Dietary Guidelines (FBDC) and Front-of-Pack (FOP) labeling



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ASEANFOODS Workshop
Institute of Nutrition, Mahidol University, 18-21 July, 2011



I. Food-Based Dietary Guidelines

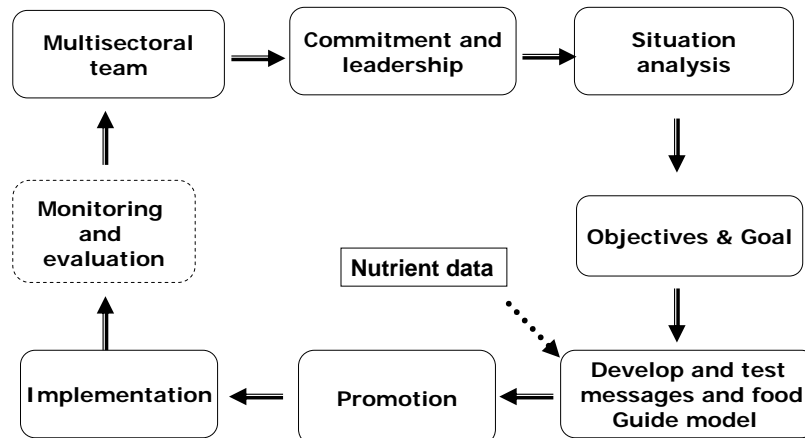
- Thai Food-based Dietary Guidelines
- Thai Food Guide Model - *Nutrition Flag*
- Food groups and portion sizes

Development of the THAI FBDGs

Rationale

Address the problem-solving nutrition related public health issues through the culturally appropriate dietary strategies

Steps to develop Thai FBDG



Process on Developing Thai FBDGs

- First step:** Organize several meetings with nutritionists and health personnel from the universities and the Ministry of Public Health
- Situation analysis for nutritional problem
 - Set a national goal
 - Compose 2 working groups for
 - o qualitative guideline: 9 guidelines
 - o quantitative guideline: Food guide model

Process on Developing Thai FBDGs

Second Step:

- Set a time plan for the working groups
- Update all necessary data: national survey for food consumption data and nutritional status of Thai people; collect secondary data of the dietary record from updated research projects; standardized for a portion size of each food group
- Ministry of Public Health plan for a budget

Process on Developing Thai FBDGs

Third Step: Dissemination and Promotion

- Launch the 9 guidelines: Opening ceremony by the Prime Minister in 1996
- Two year later, the Food Guide Model was established (1998) after a few projects were performed, such as a test for the acceptability of the model and the understanding of the key component of the guidelines
- Dissemination of the tools to school, health offices *etc.*, and offer the training program
- Campaign the guidelines via television, radio, newspaper, poster, video, tape and leaflet

Dietary Guidelines Goals:

- * To promote overall health
- * Based on up-to-date research
- * Address the total diet including concerns about adequacy and moderation
- Target audience-- healthy Thai consumers 6 years of age and older
- * Practical advice that people can follow
- * Well- suited to cultural, social, economic and environmental situations

Content of the Thai FBDGs

- Qualitative component of the Thai FBDGs
- Quantitative Thai Food Guide Model

Qualitative component of Thai FBDGs

A booklet contains :

- A set of 9 Thai Food-based Dietary recommendation
- Principles and rationale underlying each dietary recommendations
- A user self- evaluation section with practical instructions and scientific evaluation for daily dietary practice

The 9 Thai FBDGs Recommendations

1. Eat a variety of foods from each of the five food groups and maintain proper weight
2. Eat adequate amounts rice or other carbohydrate food sources
3. Eat plenty of vegetables and fruits regularly
4. Eat fish, lean meats, eggs, legumes and pulses regularly
5. Drink sufficient amount of milk every day
6. Choose a diet that is moderate in total fat
7. Avoid excessive intake of sweet and salty foods
8. Eat clean and uncontaminated foods
9. Avoid or reduce consumption of alcoholic beverages

Quantitative component of Thai FBDGs

Thai Food guide model

Setting Nutritional Goals : 3 energy levels of the diet were set based on the RDA & RDI for healthy Thai. Acceptable value of each nutrient $\geq 70\%$ of goals.

Defining of food groups : 5 food groups; cereals, vegetables, fruits, meat, and milk

Portion numbers and size : Household portion size unit based on habitual eating pattern of the Thais

1. Nutritional Goal

Nutrient	Goal
Protein: Fat: CHO	10-15: 20-25: 60-65
Sugar, g	< 40
Cholesterol, mg	< 300
Dietary fiber, g	17 (children)
	25 (adult)

*Thai RDI, 1998

1. Nutritional Goal*

Nutrient	Goal
Vitamin A, RE	500-800
Vitamin B ₁ , mg	1.1-1.5
Vitamin B ₂ , mg	1.3-1.7
Vitamin C, mg	45-60
Iron, mg	10-15
Calcium, mg	800

*Thai RDA, 1989

2. Assignment of unit used for one portion of each food group.

* Common household units

* Tradition

* Typical



3. Determination of portion size and portion number from actual consumption and establishment of the number of portions of each food group for 3 caloric levels.

Household units and amount per portion

Group	Unit	Portion size
Cereal	Rice-serving spoon	60 g
Vegetable	Rice-serving spoon	40 g
Fruit	Portion	70-100 g
Meat	Table-spoon	15 g
Milk	Glass	200 ml
<i>Fat</i>	<i>Tea-spoon</i>	<i>5 g</i>
<i>Sugar</i>	<i>Tea-spoon</i>	<i>4 g</i>

4. Determination of average nutritive value for each food group*.

- * The popularity vote method
- * Portion size
- * Effect of cooking process on nutrient loss / gain

*based on Thai Food Composition Data base

5. Evaluate the nutritive value of the recommended amount of food for each caloric level*

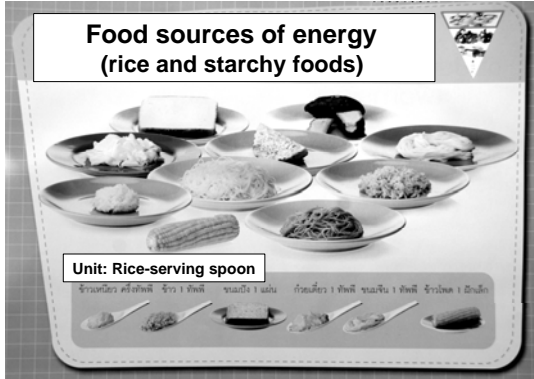
- * formulation 30 - 40 days menu based on habitual menu for Thais
- * Calculation for nutrient content per day *and*
- * Adjust the recommendation

*using INMUCAL program

Group 1: Rice and Starchy Foods



Food sources of energy
(rice and starchy foods)



Unit: Rice-serving spoon

Eat rice as staple food in exchange of brown rice, sticky rice, noodles and other carbohydrate foods:
8-12 rice-serving spoons per day

RICE AND STARCHY FOOD GROUP

One portion = 83 kcal

Bread = 1 slice

Rice = 1/2 cup

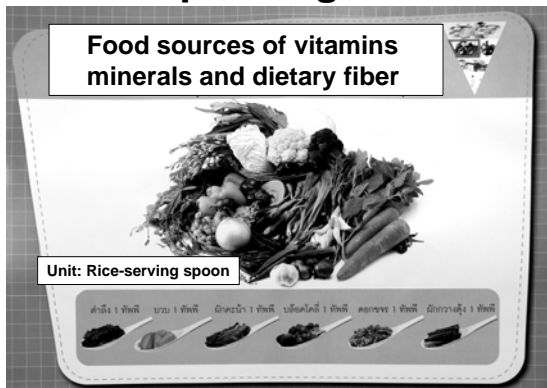
Rice = 1 rice-serving spoon

Glutinous rice = 1/2 rice-serving spoon

Group 2: Vegetables



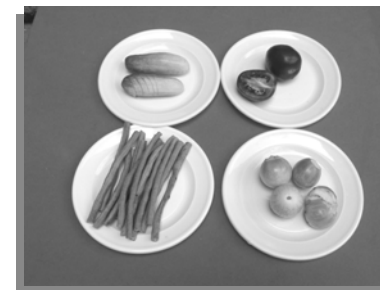
Food sources of vitamins
minerals and dietary fiber



Unit: Rice-serving spoon

Eat varieties of vegetable for three meals a day:
4-6 rice-serving spoons per day.

VEGETABLE GROUP
One portion = 11 kcal

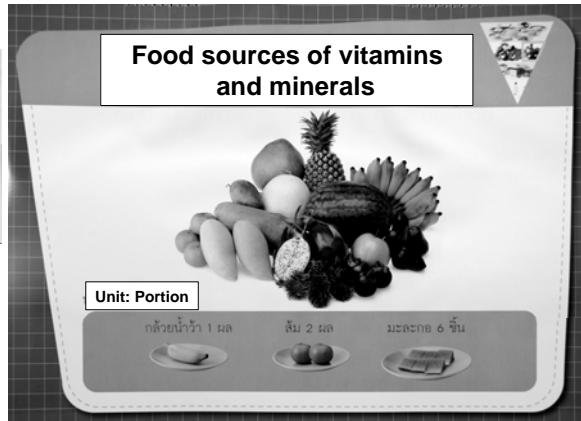


1 portion = 1 rice-serving spoon

Group 3: Fruits



Food sources of vitamins and minerals



Unit: Portion

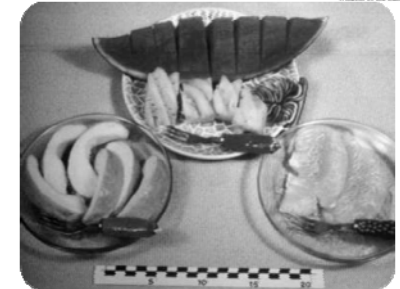
กล้วยน้ำว้า 1 ผล ส้ม 2 ผล มะละกอ 6 ชิ้น



Eat varieties of fruit daily for three meals:
3-5 portions.

FRUIT GROUP

Fruit 1 portion
Energy = 67 kcal

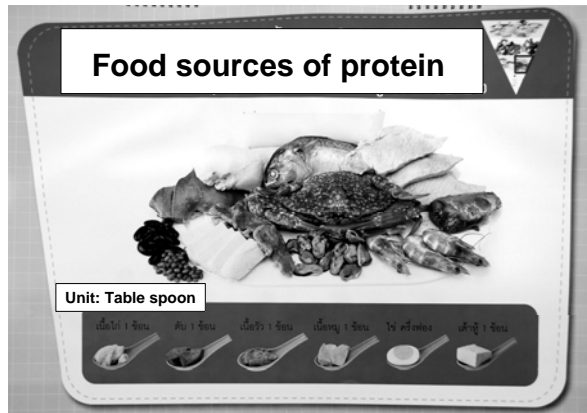


Big fruit: 6-8 pieces
(water melon, papaya, pine apple)
Medium fruit: 1-2 fruits
(orange, rose apple, banana)
Small fruit: 4 fruits
(rambutan, mangosteen)
Very small fruit: 8-10 fruits
(grapes, longan, langsat)

Group 4: Meats



Food sources of protein



Unit: Table spoon

เนื้อไก่ 1 ช้อน ปลา 1 ช้อน เนื้อวัว 1 ช้อน เนื้อหมู 1 ช้อน ไข่ต้มสุก 1 ช้อน เต้าหู้ 1 ช้อน

Eat lean meat, fish, egg, soybean curd and dried beans alternatively: **6-12 table-spoons daily.**

MEAT, EGG,
LEGUMES
AND PRODUCTS



6-12 table-spoons/day

1 portion = 1 table-spoon
Energy = 26 kcal



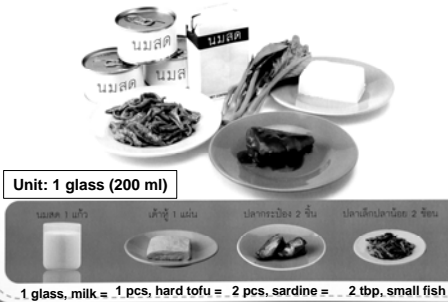
Group 5 Milk



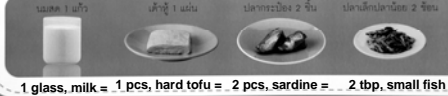
Drink fresh milk
everyday: **1-2 glasses daily.**

Whole milk 126 kcal
Low fat milk 100 kcal
Skim milk 88 kcal
Drinking yogurt 180-200 kcal

Food sources of calcium

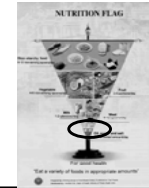


Unit: 1 glass (200 ml)



1 glass, milk = 1 pcs, hard tofu = 2 pcs, sardine = 2 tpb, small fish

Group 6: Oil, sugar and salt

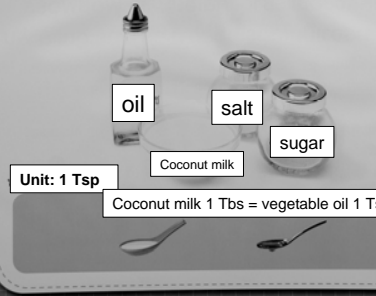


Oil, sugar and salt are
recommended to have
in limited amounts

	1600	2000	2400 kcal
Oil, Tsp	5	7	9
Sugar, Tsp	4	6	8

Sodium < 2400 mg

Oil, sugar: –energy sources
Salt: electrolytes



Unit: 1 Tsp

Coconut milk 1 Tbs = vegetable oil 1 Tsp

Food patterns for a day at 3 caloric levels

How much is enough?

Food group	Suggested energy 1,600 Kcal/day	Suggested energy 2,000 Kcal/day	Suggested energy 2,400 Kcal/day
	• Children, 6-13 yrs • Working women, 25-60 yrs • Elderly, over 60 years	• Teenagers and young adults, 14-25 yrs • Working men, 25-60 yrs	• Female/male who needs more energy such as farmers, laborers, athletes
Rice-starchy food	8 rice-serving spoons	10 rice-serving spoons 1 rice-serving spoon of sticky rice = 2 rice-serving spoons of rice	12 rice-serving spoons
Vegetable	4 (6) rice-serving spoons	5 rice-serving spoons	6 rice-serving spoons
Fruit	3 (4) portions	4 portions 1 portion 1 portion 1 portion 1 portion (6 pieces)	5 portions
Meat	6 spoons	9 spoons	12 spoons
Milk	2 (1) glasses	1 glass If one does not drink milk, eat 1 piece of sardine (4 spoons) or 2 spoons of small fish	1 glass

Note: oil, sugar and salt are recommended to have in limited amounts. () Recommendation for adults

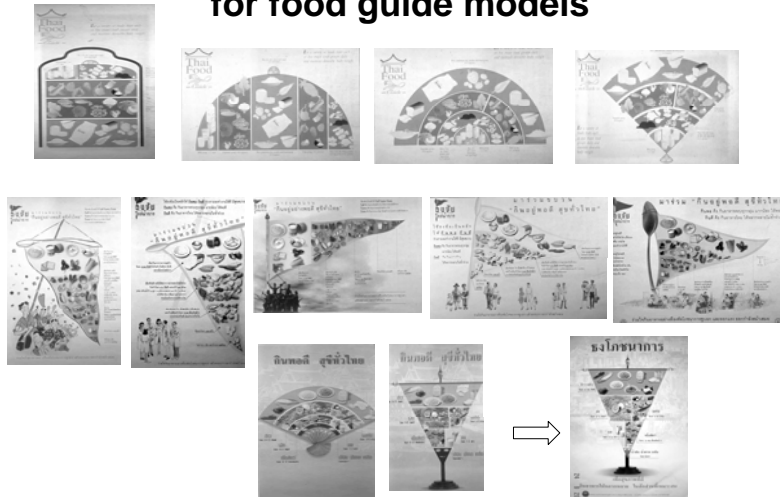
6. Food Guide Model Development

- * Development of model
- * Acceptability and Comprehensive tests
- * Adjustment

7. Promotion and Implementation

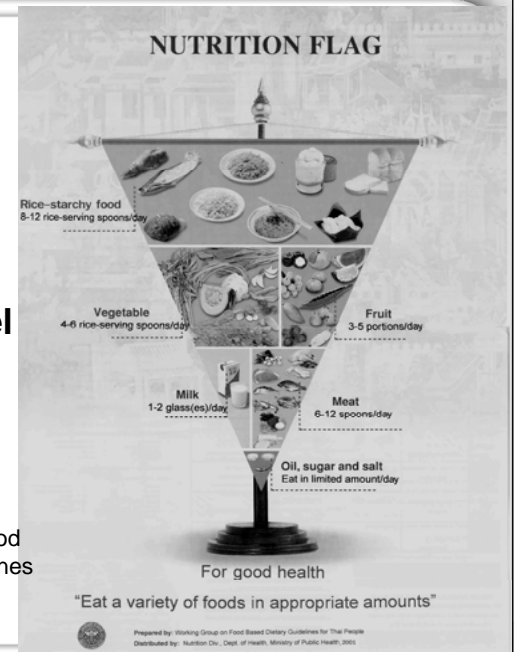
8. Evaluation for changes in eating pattern and the nutritional problem

Acceptability and comprehensive tests for food guide models



Thai Food Guide Model Established in 1998

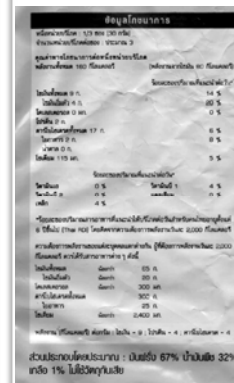
Prepared by: Working group on Food Based Dietary Guidelines for Thai people



III. Front of Pack labeling (FOP)

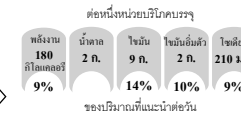
- Types of FOP
- Nutrient criteria
- Color-coded RDI

Back of pack

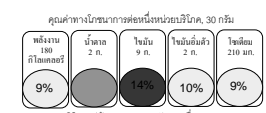


Front-of-pack

% GDAs Monochrome RDI



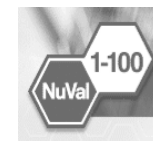
Traffic-lights Color-coded RDI



Certification

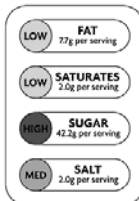
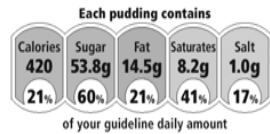


Scoring

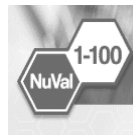


Front-of-pack nutrition labelling for signalling the healthiness of foods

Nutrients



Foods



Energy and nutrient recommendation

Nutrient	Daily recommendation*
Energy	2000 kcal**
Total Fat	< 30 en% (< 65 g)
Saturated Fat	< 10 en% (< 20 g)
Sugar (free sugars)***	< 10 en% (<50 g)
Sodium**	< 2400 mg

* Recommendation of total fat, sat. fat and sugar are derived from FAO/WHO, 2003

** Energy and sodium based on Thai RDI, 1995

***The term "free sugars" refers to all monosac. And disacc.added to foods by the manufacturer, cook, or consumer, plus sugars naturally present in honey, syrups and fruit juices.

Criteria of nutrients for total meals of the day

Meal	Energy		Sugar, g	Fat, g	Sat fat, g	Sodium, mg	Note
	%	kcal					
Snack	10	200	12	6	2	240	2 times/d
Beverage	2	40	10*	-		trace	1 glass
Milk	6	120	natural	7	4	110	1 glass
Fruit	10	200	Natural	-		trace	3-4 portions, aver. 40 kcal each
Breakfast	24	480	2	15	5	680	
Lunch	24	480	2	15	5	680	
Dinner	24	480	2	15	5	680	
Total	100	2,000	28*** (5.6 en%)	58** (26 en%)	21	2,390	
%RDI		100	No RDI	89%	100%	100	

*5% sugar, **58= 32.6% of total calorie for 1600 kcal, ***28 g sugar =7% of energy for 1600kcal

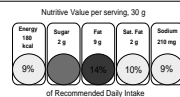
Nutrient Level: per one serving of snack*

Nutrient	per day	per meal
Energy	≤ 200 kcal	≤ 100 kcal
Sugar	≤ 12 g	≤ 6 g
Total fat	≤ 6 g	≤ 3 g
Sat. fat	≤ 2 g	≤ 1 g
Sodium	≤ 240 mg	≤ 120 mg

Nutrient Level: per one serving of snack*

Nutrient	Color-coded RDI		
	Green	Yellow	Red
	Less than	Between	More than
Energy, kcal	100	>100 - 200	200
Sugar, g	6	>6 - 12	12
Total Fat, g	3	>3 - 6	6
Sat. Fat	1	>1 - 2	2
Sodium, mg	120	>120 - 240	240

Thai traffic light scheme criteria for snack and their relationship to Thai RDIs



	RDI	Low (per serving)	% RDI	High (per serving)	% RDI
Energy	2000 kcal	100 kcal	5	200 kcal	10
Fat (total)	65 g	3 g	5	6 g	10
Saturates	20 g	1 g	5	2 g	10
Sugars (total)		6 g		12 g	
Sugars (added)	-	-			
Sodium	2400mg	120 mg	5	240 mg	10

Nutrient Level: per one serving of meal*

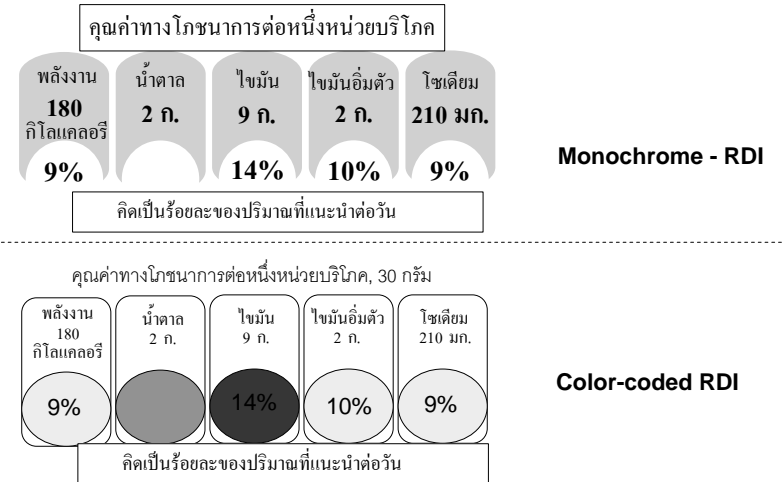
Nutrient	per meal
Energy	≤ 480 kcal
Fat	≤ 15 g
Sat. fat	≤ 5 g
Sugar	≤ 2 g
Sodium	≤ 690 mg

Nutrient Level: per one serving of meal*

Nutrient	Color-coded RDI		
	Green	Yellow	Red
	Less than	Between	More than
Energy, kcal	480	>480 - 580	580
Sugar, g	2	>2 - 4	4
Total Fat, g	15	>15 - 18	18
Sat. Fat	5	>5 - 6	6
Sodium, mg	680	>680 - 820	820

*Not more than 20% of recommendation except for sugar x2

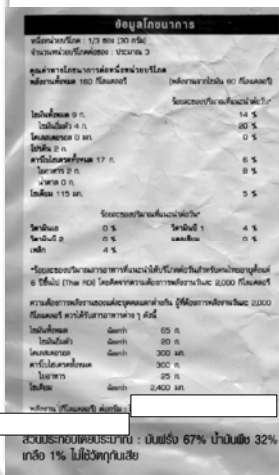
Example of FOP for snack



Snack

Back of pack

Front-of-pack



Nutrients	Traffic light criteria		
	green	yellow	red
	Less than	between	More than
Energy, kcal	100	>100 - 200	200
Fat, g	3	>3 - 6	6
Sat fat, g	1	>1 - 2	2
Sugar, g	6	>6 - 12	12
Sodium, mg	120	>120 - 240	240

Comparison between monochrome and color-coded RDI

Which one will be benefit to the consumer?

