

## 1 INTRODUCTION

The ration scales have been drawn up according to the principles applied to, and for the daily nutritional requirements of healthy people as recommended by the Food and Nutrition Board of the USA (1989) and the South African Food-based Dietary Guidelines. The ration scales do not apply to people with specific nutritional requirements. The ration scales use substitutes to provide for different eating patterns.

In practice, it would mean more administrative work if quantities have to be determined according to a ration scale for each age group. For these guidelines, **adults** are classified as all persons, male and female, who are seven years of age and older, **children** (child) refers to a person between four and six years of age, a **toddler** for a person between one and three years of age and a **baby** for between four and twelve months of age. The reason seven-year-olds (*and older*) are considered to be adults, is that, when served portions of meat, vegetables and fruit it does not differ much from those of older groups. The range for bread and cereals, allows for differences in energy needs.

*Compiling the ration scales, allowance was made for the fact that it is not always possible to be accurate in bulk food production. The scales are therefore not minimum scales, but rather guidelines for budgeting purposes.*

## 2 INTERPRETATION OF THE RATION SCALE

### 2.1 Purpose of ration scales

- Ration scales make it possible to cater in bulk for groups of clients on a scientific basis. The use of ration scales facilitates:
  - meeting the recommended daily energy and nutritional requirements of a specific group of clients with a balanced diet.
  - providing food within the limits of a budget.
  - providing an orderly, well-organised food service.

### 2.2 Definition of a ration scale

- A ration scale is a list of foods, flavourings and drinks expressed in quantities as purchased per person per day and/or per week.
- Food that is used in small quantities or that cannot be indicated in fractions, such as dried legumes and eggs may be given in quantities per week.
- A ration scale may indicate quantities for specific meals or snacks instead of quantities per week.

### 2.3 Food budget

- Providing food for a large group of clients must be within the limits of a budget. The financial means of the clients and the policy of the institution determine the amount of money made available for buying the food. The selection of luxury food items should be influenced by funds available.

## 2.4 Food services

- The use of ration scales simplifies food service. This means that the work processes carried out in a food service unit are facilitated since the quantity of food to be used is specified, as is the meal plan. The menu is compiled in accordance with the predetermined meal plan. The use of standardised recipes means that the total quantity of the various types of foods required can be determined.

## 2.5 Conversion of energy and nutritional requirements into food

### 2.5.1 Edible form of food

- The energy and nutrient intake of a client depends on the type and quantity of food he eats. Therefore the quantity of food that is indicated in the ration scale must be based on how much of the food is actually edible. Edible portions relate particularly to foods such as meat, fish, vegetables and fruit. Rations for meat, when indicated as carcasses, sides or quarters will then be greater than when meat is indicated as cuts, with or without bone. Rations for vegetables with leaves, peel and pips will also be greater than when only the edible parts of fruit and vegetables are indicated. Where canned food is indicated in a ration scale, the quantity of fluid in which the contents are packed must be considered.
- Information concerning food-processing losses can be found in publications such as Food yields, summarized by different stages of preparation. *Agricultural Handbook No. 1023*, or in standardised recipes.

### 2.5.2 Edible yield of food

- The edible yield of food is affected by the following, among other things:
  - Raw food - processing such as peeling, cutting up, shredding, and grating and mincing contributes to losses.
  - Cooked food - methods of cooking, for example steaming, boiling, baking, frying and roasting.
  - Handling - for example some food is left in containers and equipment after cooking and/or serving and this decreases the yield.
- During preparation and serving there are gradual losses that cannot be determined in exact quantities. A ration scale must therefore make provision for these unknown losses and allow for them in terms of total energy. An allowance of about 10% is recommended for processing losses. The spread of processing losses among the various food items is determined by the processing method that entails the greatest hidden loss.

### 2.5.3 Number of clients

- The individuals in any group of clients will differ in body size and level of activity, and therefore in energy needs. The larger the number of clients, the less these differences will affect the energy needs of the group as a whole. The converse is also true. In practice, food ration scales often over provide for large groups and undershoot the mark when it comes to smaller numbers. To allow for this tendency, a sliding scale may be used when drawing up a ration scale. When calculating a ration scale for less than 50 people, the following sliding scale may be used:

- 10 - 15 people: 20 - 25% extra
- 16 - 25 people: 15 - 20% extra
- 26 - 35 people: 10 - 15% extra
- 36 - 50 people: 5 - 10% extra

## **2.6 Food substitutes**

- In the conversion of theoretical estimates of energy and nutritional requirements into food, the first choice is always the simplest, most generally available form of food, for example fresh milk, meat, fish, cereals, vegetables and fruit. A ration scale is therefore drawn up to indicate, in the first place, quantities of unprocessed food types. However, the ration scale must provide for a variety of circumstances so that it can be adapted to suit specific clients. For greater flexibility in the implementation of the ration scale, substitutes are indicated for the processed form of fresh food. For each food type, a quantity of its processed form is given as an alternative, whether for the dried, canned, frozen or de-boned form of the food. The weight or volume of the substitute is usually based on an acceptable portion size. The nutritional value of the substitute should also be kept in mind.