

Rapport 32/94

# **Nutrient Losses and Gains in the Preparation of Foods**

By Lena Bergström



**LIVSMEDELS  
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## Foreword

The National Food Administration (NFA) has the responsibility for the management of the Swedish food composition database. For the surveillance of food habits, consumption of foods and intake of nutrients, the food database is a prerequisite. It is also used in processing food consumption data from epidemiological studies and for calculating nutrient intake of individuals in the field of food guidance.

Consequently, there is a great need for the food composition database to contain correct and appropriate information. At the NFA massive resources have been spent on developing a food database fulfilling these demands.

A step towards this target is to complete the database with more nutrient losses and gains factors. Ms L. Bergström at the Nutrition Division, has made a great effort in compiling, organizing and publishing this document on Nutrient Losses and Gains in the preparation of foods, together with the reports on NLG References and Yields for foods and dishes.

This document will be of importance for improving the quality and compatibility of food composition databases in Europe.

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## Foreword

The objective of the FLAIR Eurofoods-Enfant Project, funded by the Food-Linked Agro-Industrial Research (FLAIR) Programme of the Commission of the European Communities, Directorate-General XII, is to improve the quality and compatibility of food consumption and food composition data in Europe. One of the activities of the Project was to support the work on nutrient losses and gains factors.

At a meeting of the Eurofoods group in Wageningen in 1983, the Nutrient Losses and Gains Project was established and Ms L. Bergström became the project leader. The aim of the project was to collect data related to nutrient losses and gains in the preparation of foods with a view to recommend factors for use with the calculation of the nutrient content of foods and recipes.

Since 1983, questionnaires were developed and results analysed, and information on nutrient losses and gains factors and references was compiled. This work resulted in three reports, Nutrient losses and gains in the preparation of foods, Nutrient losses and gains references, and Yields for foods and dishes in Europe, which are combined in this document.

The document provides an important step towards the systematic compilation of data on nutrient losses and gains.

On behalf of FLAIR Eurofoods-Enfant Project, I would like to extend my thanks to Ms L. Bergström for coordinating the work on nutrient losses and gains and for preparing the final document, and to all persons who have contributed to this work.

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# Introduction

This document contains the following parts:

<b>Page header</b>	<b>Name</b>
<b>Introduction</b>	<b>Introduction</b> includes a short description of the different parts of the document, together with explanations and definitions of some terms.
<b>NLG Project</b>	<b>NLG Project 1983-1993</b> is an historical background of Eurofoods' and FLAIR Eurofoods-Enfant's Nutrient losses and gains project.
<b>NLG Overview Report</b>	<p><b>Nutrient losses and gains in the preparation of foods</b> is an overview report containing general, basic information on cooking, recipes, weight and nutrient changes due to preparation and processing (cooking) of foods and the use of nutrient retention or nutrient yield factors in nutrient calculation of recipes.</p> <p>Three appendices deal with yield, water and lipid composition of some foods after processing; yield factors for nutrients to be used in recipe calculation; and a description of a recipe calculation system.</p>
<b>NLG Reference Report</b>	<p><b>Nutrient losses and gains references</b> contain references dealing mainly with the NLG area but also with some adjacent areas. The references have been gathered by the NLG project members.</p> <p>An appendix gives information about the country and language codes used in the report.</p>
<b>Yield Report</b>	<b>Yields for foods and dishes in Europe</b> is a collection of weight yields and weight changes obtained in the preparation or/and in processing of foods and dishes and expressed in per cent. These values, which



can be used as factors in recipe calculation, have been obtained from government agencies, food industries, food branch organisations, test kitchens, training schools for restaurant staff, teachers of home economics, dietitians and others.

Three appendices are included, the first a list of processing terms used in this document, the second Languel's list of cooking methods, and the third a form for yield studies.

**NLG Future**

**Future NLG activities** contains some comments on how to continue the European NLG work.

**Acknowledgements**

**Acknowledgements** to all persons who have participated in different ways in the NLG Project work.

**Terminology**

**COST**

European Cooperation in Scientific and Technical Research.

**Dish**

A single food or a mixture of foods prepared according to a recipe.

**Enfant**

European Network on Food and Nutrition Tables.

**Eurofoods**

A group of people working towards improvement and dissemination of food composition data in Europe. This group continued its work within the FLAIR Eurofoods-Enfant Project and then later on in COST Action 99.

**EuroNIMS**

A food information management system, developed in Belgium for several European national partners.

**FDA**

Food and Drug Administration.

**FLAIR**

Food-Linked Agro-Industrial Research.

**FLAIR**

A Project, funded by the Commission of the Euro-

<b>Eurofoods-Enfant Project</b>	pean Union, and entitled: 'Improvement of the quality and compatibility of food consumption and food composition data in Europe'. The Project started in October 1990 and ended in March 1994.
<b>Food</b>	Commodity - raw food, product, dish, prepared food - intended for human consumption.
<b>INFOODS</b>	International Food Data Systems.
<b>Ingredient</b>	A food included in a recipe.
<b>ISBN</b>	International Standard Book Number.
<b>Languag</b>	<p><u>Languag des aliments</u> or language of food is an automated method for describing, capturing and retrieving data about food. It has been developed by the Center for Food Safety and Applied Nutrition (CFSAN) of the U.S. Food and Drug Administration (FDA). Since 1975 it is an ongoing cooperative effort of specialists in food technology, information science and nutrition.</p> <p>Languag is based on the concept that:</p> <ul style="list-style-type: none"> <li>* Any food can be systematically described by a combination of descriptors/factors (14 types).</li> <li>* These factors are divided into four main groups: Food origin, Processing operations, Packing and packaging and other information, and coded for computer processing.</li> <li>* The resulting combined factor codes can be used to retrieve data about the food.</li> </ul> <p>See Yield Report Appendix 2, page 212, Languag. Factor G. Cooking Method.</p>
<b>NLG</b>	Nutrient Losses and Gains (in the preparation of foods).
<b>Nutrient yield or Nutrient retention</b>	A term used for what is retained of nutrients, especially vitamins and minerals, in food or dish after, e.g. storage, preparation, processing, warm holding or reheating. Nutrient yield or retention is usually expressed as a percentage of the nutrient content of the food before storage or different treatments.

<b>Nutrient yield factor or Nutrient retention factor</b>	A nutrient yield or retention used as factor, e.g. in calculation of recipes.
<b>Processing method</b>	Used to describe the method of processing, which is primarily cooking in this context.
<b>Product</b>	Food commercialized under a specific brand name by a manufacturer.
<b>Recipe</b>	A list of ingredients needed to prepare a dish and a description of the preparation of that dish.
<b>Recipe step</b>	An individual step in the preparation of a dish involving some or all ingredients in the recipe.
<b>Weight change</b>	A term used for loss or gain of weight in food or dish after e.g. storage, preparation, processing, warm holding or reheating. Weight change is the yield value expressed in per cent minus 100.
<b>Weight change factor</b>	A weight change used as factor, e.g. in nutrient calculation of recipes.
<b>Yield or Weight yield</b>	A term used for what is obtained of a food or dish after, e.g. storage, preparation, processing, warm holding or reheating. Yield is usually expressed in per cent.
<b>Yield factor or Weight yield factor</b>	A yield or weight yield used as factor, e.g. in nutrient calculation of recipes.

## NLG Project 1983-1993

The Eurofoods project on Nutrient Losses and Gains in the preparation of foods, the NLG project, was established in 1983 at the Eurofoods Workshop in Wageningen. The aim of the project was to collect data related to nutrient losses and gains in the preparation of foods so that factors can be recommended for use in the calculation of the nutrient content of recipes (1).

Year by year the work on the NLG project has been as follows.

### 1985

Before the Eurofoods meeting in Norwich, questionnaires were sent out to the country representatives participating in the NLG project, to some food institutes and to some firms in the food industry. The requested information was on the following topics: Description of recipe calculation systems in Europe; Recipes for 10 dishes which had been both analysed and calculated; Comparisons of ingredients and nutritive values for the recipes; NLG research in Europe; NLG references; and suggestions on what should be included in an European NLG data base. A comprehensive report was compiled by Lena Bergström and Antal Bognár (2). This is unpublished, but a summary of the work was presented at the Norwich meeting (3).

At the National Food Administration in Sweden, Hans Sverredal, the head of the Data Processing Division, agreed to a pilot study to build a model for an NLG database. Work on this model was performed by system analyst Hernán Isakson. The model was reported and demonstrated at the Norwich meeting (4). The National Food Administration could not at that time obtain funds to create a NLG database, but the experience from this work was later used both in the Swedish NUTSYS project (5) and more recently in the EuroNIMS system.

A request for 25 typical national recipes went out to the NLG project members. 10 of these recipes were selected to be included in the next NLG comparison of calculated dishes. The 25 recipes from the NLG members were intended for a "European Cookbook for Tourists". It was later decided that the Eurofoods Project on Food Tables for Tourists and Other Travellers in Europe should take over the planned cookbook. The recipes were therefore transferred to that project.

Work on the NLG project proceeded slowly, because lack of funds necessitated the use of existing staff whose time was committed to other work. In order to continue the NLG project work more efficiently, a proposal for funds was

made to INFOODS. The proposal was rejected, and as before the actual work had to continue on a voluntary basis.

### **1986**

New requests for funds for continuing the NLG work were made to several organizations, but no financial assistance was given.

### **1987**

The questionnaire sent out in 1987 dealt with: Recipe calculation; Yields for dishes; NLG factors; References; Calculation of 10 recipes.

It included questions about the way of calculating recipes, standard recipes and the source of the recipes, standard weights and standard yields of foods, standard factors for weight changes, fat changes, salt content, standardized amounts of flouring and breading for foods, handling losses in foods and dishes, procedures to fill-in missing values for catering and industry foods, and substitution of ingredients in the recipes.

Some information collected from these forms was reported at the 1987 Eurofoods meeting in Warsaw (6).

### **1989**

A review of nutrient losses and gains in the preparation of foods, with some information based on the 1987 forms included, was given at the Eurofoods meeting in Uppsala, 1989 (7).

### **1990**

At the Swedish National Food Administration work on NLG standard factors at the recipe level was undertaken. Factors were applied to 11 vitamins (vitamin A,  $\beta$ -carotene, vitamin C, thiamin, riboflavin, niacin, B<sub>6</sub>, folate, B<sub>12</sub>, pantothenic acid, biotin). Separate factors were determined for preparation without heat and the cooking methods of boiling, shallow frying and baking or roasting. These were used for all food groups, except meat and poultry, for which alternative factors were derived. The NLG factors were based on mean values (some values were modified) of factors published by different government agencies.

### **1991**

These above-mentioned NLG factors were briefly presented at the FLAIR Eurofoods-Enfant project meeting in Greece (8).

### **1992**

A report dealing with various factors considered in calculating recipes was given at the 1992 FLAIR Eurofoods-Enfant meeting in Ireland (9).

**1993 - 1994**

Preparations of hand-out papers on 'nutrient losses and gains' were made for the third annual meeting of the FLAIR Eurofoods-Enfant Project in Portugal (10). Among other things, three draft reports were compiled:

1. Nutrient losses and gains in the preparation of foods.
2. Nutrient losses and gains references.
3. Yields for foods and dishes in Europe.

Drafts of these reports were discussed at a workshop in Portugal.

In 1994, the three reports were published in one document by the National Food Administration, Sweden

**References**

1. West C E, (ed.). Eurofoods: Towards Compatibility of Nutrient Data Banks in Europe. *Ann Nutr Metab* 1985, 29 Suppl. 1:1-72.
2. Bergström L, Bognár A. Eurofoods NLG Project 1985. Manuscript.
3. Bergström L. NLG Project (Nutrient Losses and Gains in the preparation of foods) Report 1985. Eurofoods. Proceedings of the Second Workshop. Fox K, Stockley L, (eds.). *Food Sci Nutr* 1988; 42F:1-82.
4. Isakson H. Model of a nutrient losses and gains database. Eurofoods. Proceedings of the Second Workshop. Fox K, Stockley L, (eds.). *Food Sci Nutr* 1988; 42F:1-82.
5. Becker W, (ed.). NUTSYS, a food and nutrition composition and information management system. *SLV Rapport* 1993/11.
6. Bergström L. Collection of data on nutrient losses and gains. Eurofoods Third Meeting, National Institute of Food and Nutrition, Warsaw, 24-27 May 1987. Programme and Abstracts.
7. Bergström L. Nutrient Losses and Gains. 4th Eurofoods Meeting, May 31-June 3, 1989. Becker W, Danfors S, (eds.). National Food Administration, Uppsala, Sweden, 1990.
8. Castenmiller J, West CE, (eds.). Report of the first Annual FLAIR Eurofoods-Enfant Project Meeting held in Greece, May 1991. Wageningen. FLAIR Eurofoods-Enfant Project October 1991.

9. Bergström L. Various factors considered in calculating recipes. Castenmiller J, West CE, (eds.). Report of the second Annual FLAIR Eurofoods-Enfant Project Meeting held in Ireland, 10-12 June 1992. Wageningen. FLAIR Eurofoods-Enfant Project November 1992.

10. Castenmiller J, West CE, (eds.). Report of the third annual meeting of the FLAIR Eurofoods-Enfant project, 10- 12 November 1993. Vilamoura, Portugal. Wageningen. FLAIR Eurofoods-Enfant Project (February) 1994.

# Nutrient losses and gains in the preparation of foods. Overview report

'Hundreds of studies of nutritive losses during cooking have been made but there are still many unknowns in this complex field'. These words are quoted from a speech held by Bernice Watt in Washington in 1949 (686<sup>1</sup>).

Today the NLG studies performed are more numerous and the field is still more complex, depending on the development of the science of nutrition; the improvement in chemical analytic techniques; new cultivars of vegetables and fruits; changed animal composition due to breeding; harvest, slaughter and storage conditions; new or modified production and processing methods including cooking methods; factors which all may affect both weight and nutrients.

The aim of the NLG project was to collect data related to nutrient losses or gains in the preparation of foods with a view to recommend factors for use in the calculation of the nutrient content in foods and recipes. Two main types of factors are needed: yield, weight yield or weight change factors and nutrient yield or nutrient retention factors.

## Cooking

There are several reasons why food is cooked, but the main ones are to make food more attractive in taste, colour and texture, and safer by destroying pathogenic micro-organisms and toxic substances, as well as to make nutrients more available, for example proteins and carbohydrates.

In cooking, the heat can be transferred in different ways, e.g.:

- Conduction:** Transmission of heat by contact. Frying food without fat in a frying pan is one example.
- Convection:** Transport of heat by movement of a heated substance, e.g. air, water or fat, as in cooking in a convection oven, boiling, shallow or deep frying.
- Radiation:** Radiant heat from a charcoal or gas grill, etc. Examples are grilling and roasting. Radiant heat is also a factor in oven cooking.

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<sup>1</sup>See NLG Reference Report starting on page 49



***Microwave:*** The microwaves agitate molecules of water and some other food components within the food whereby heat is generated. A microwave oven can also be provided with a grill radiator.

## **Cooking methods**

According to the Languag Users' Manual 1992 (665), a cooking method is defined as the method by which a food is precooked, cooked, reheated or held warm. See also the Yield Report, page 212, for Languag's full definition of cooking method.

The major subdivisions of cooking method are:

***Cooked by dry heat*** Baking, roasting, grilling, infra-red grilling, toasting.

***Cooked by microwave***

***Cooked by moist heat*** Cooked in water or water-based liquid: boiling, simmering, stewing, poaching.  
Cooked in steam: steaming.

***Cooked with fat or oil*** Cooked with added fat or oil: deep, shallow or stir frying.  
Cooked with inherent fat or oil (bacon, fat fish, etc.).

***Method of heating container*** Cooked in a container immersed in water or steam.

***Reheated*** Reheated by boil-in-bag, by dry heat or by microwave.

***Scalded or blanched***

### **Cooking methods and temperatures**

The temperatures for the cooking methods may vary according to different sources. Dr Bognár, Stuttgart, (91, 92 and personal communication) gives the following temperatures in °C:

Baking, roasting	160-275
Boiling	97-100
Braising in fat	180-200
Braising in water/steam	97-100
Deep frying	140-200
Grilling, charcoal or contact grill	ca. 350



Grilling, electric grill	225-240
Microwave cooking	98-100
Microwave roasting	160-180
Poaching, simmering or slow cooking	75- 96
Pressure cooking (boiling, steaming)	101-125
Shallow frying	160-200
Steaming or moist cooking	97-100

### **Cooking terms**

A working party within COST 91 (European Cooperation in Scientific and Technical Research) developed a list on cooking terms, with definition of each term included. These terms are intended to be used for the planning of experiments and the presentation of experimental data in industrial cooking and catering. The terms are given, as a first step beyond English, in the following languages: Danish, Dutch, Finnish, French, German, Greek, Italian, Serbo-Croatian, Spanish and Swedish (236). The terms are later also given in Czech, Icelandic, Norwegian, Hungarian, Portuguese and Turkish. The publication of the lists is planned for 1995.

Professor Skurikhin, Moscow, has recently provided the NLG Project with a translation of these terms, both English - Russian and Russian - English (personal communication).

Some general cooking terms with definitions and Languag's definitions are given in the Yield Report, Appendices No. 1 and 2, pages 199 and 202.

The Swedish Test Kitchens have recently identified and defined about 400 Swedish cooking terms.

Please notice that the definition of a cooking method may be different in the various sources. Compare, e.g. the definition of shallow fry in Yield Report Appendices No. 1 and 2, pages 209 and 212.

### **Weight and nutrient changes**

As already mentioned, the aim of the NLG project was to collect data related to nutrient losses or gains in the preparation of foods with a view to recommend factors for use in the calculation of the nutrient content in foods and recipes. Two main types of factors are needed: yield, weight yield or weight change factors and nutrient yield or nutrient retention factors. Weight change is the yield value (expressed in per cent) minus 100.

In some countries, handbooks dealing, entirely or partly, with weight yields or weight changes are published. The most internationally known is probably 'USDA Handbook No. 102: food yields summarized by different stages' (446). Many

American food yields have thereafter been updated in the different parts of the Handbook No. 8 series of the food composition tables. In Sweden the 'Mått för Mat' - Measures for foods - (241) can be used. In Germany there is, e.g. the 'Lebensmittelverarbeitung im Haushalt' - Food preparation in the household - (710) and the 'Nährstoffverluste bei der haushaltsmässigen Zubereitung von Lebensmitteln' - Nutrient losses in household preparation of foods - (95).

Dr. Bognár is also working on a new edition of 'Food composition tables for ready-to-eat dishes' that will be published shortly (92).

### **Factors affecting weight and nutrients**

In the cooking of foods the weight and nutrient changes in the foods are mainly depending on conditions affecting the water content, but there are also other factors. Some of these factors are:

Cooking method

Cooking utensils, such as size and volume of cooking vessel

Lid or foil covering food during cooking

Cooking time

Cooking temperature

Final internal temperature, e.g. in cooked meat

Food quality

The part of animal or plant

Physical state, shape or form of foods

Surface to volume ratio

Food tissue type and texture of food surface

Amount food cooked

Amount liquid added

Temperature of liquid added

Amount fat added

Type of fat added

Food cooked with or without bones

Time passed between the termination of cooking and measuring the yield.

For nutrient changes in vitamins and minerals, the following factors, besides leaching of nutrients into cooking liquid or drippings from foods in frying, are of special importance:

Temperature

Time

Catalysts such as iron and copper in the metal of cooking utensils, as knives, saucepans, frying pans, etc.

Water (water activity and content in the foods or added water)

pH



Oxygen  
 Light  
 Enzymes  
 Sulphite  
 Chlorine  
 Inhibitors  
 Interactions

### **Weight and nutrient changes before cooking**

Standardized *edible part or refuse percentages* of foods are generally found in food composition tables and data bases of the different countries. Before borrowing a yield or refuse factor from another country it is important to know exactly what the value stands for. A description of the yield or refuse will be of assistance. One example is given here. An American leek loses 56 % in the preparation but a Swedish has the standard refuse of 16 %. The difference depends on only the white part of the leek being included in the edible part in the American source. In the Swedish data, the green part of the leek was also used.

When creating recipes it is also very useful to know the *liquid content* (brine, water, syrup, juice etc.) in vegetable and fruit cans, and *jelly* in meat cans and *sauces*, e.g. in canned or frozen dishes. This kind of information can be found in 'Handbook No. 102' (446). Please note that these values refer to conditions prevailing nearly 20 years ago and are probably different now due to considerable market changes. Rather recently though, the liquid part was, e.g. given for selected canned fruit (51). Proportions of vegetables and fruit in cans are also found in the British food composition tables (294, 292).

Everyone who has breaded, floured or batter-coated food items before frying knows that you need *standard factors for breading, flouring and batter-coating*, as cook book recipes usually give more milk, flour, eggs, dried bread crumbs, salt, batter etc., than are needed. Only by experiments can such factors be created. *Handling losses* in foods must be taken into account and can be significantly affected by various factors. For example, they can be decreased by using a rubber spatula when removing foods from the mixing utensils (126). Some handling losses are also given in USDA Handbook No. 102 (446).

Only the major nutrients involved in weight changes will be mentioned here, but of course other nutrients will be affected due to loss or gain of water, fat or discarded edible parts of foods.

**Water**, especially in fresh vegetables and fruits, can be lost during storage and in frozen foods by thawing. Soaking, e.g. dried legumes, such as peas and beans, dried fruits and dried fish, will result in water gain in foods. **Protein** can be lost in trimming meat, filleting fish, thawing animal foods. **Fat** can be trimmed off in meat and lost in handling fat fishes. **Carbohydrates and dietary fibre** can be lost in peeling or paring potatoes, some roots, such as carrots and beetroots, and fruits with edible skin. **Alcohol** will evaporate from added alcoholic beverages in cakes and in fruit salad marinade during storage.

## Weight and nutrient changes during cooking

### *Weight change*

Weight changes in cooking usually relate to water and fat changes. Solid losses might also be considered. A study on alcohol retention in food preparation was published recently (44).

Elizabeth W. Murphy and others have defined and described the following six types of weight change resulting from cooking (481):

- \* *Moisture loss only*: Vegetables cooked by steaming.
- \* *Moisture gain only*: Rice cooked in water.
- \* *Solids lost and moisture gained*: Dried legumes cooked in water.
- \* *Solids and moisture both lost*: Organ meats cooked in water.
- \* *Solids and moisture lost from more than one tissue*: Roasted turkey with lean muscle, skin and depot fat.
- \* *Solids gained and moisture lost*: French-fried potatoes, which take up fat while losing moisture.

Consequently **water or moisture** content changes during cooking. Water is taken up by, e.g. pasta and rice and lost in fried meat or fish and in bread baking.

### *Nutrient change*

In the research on retention of nutrients, two methods can be used: apparent retention (AR) and true retention (TR). The two methods can be defined as follows:

#### **Apparent retention**

$$\% \text{ AR} = \frac{\text{nutrient content per g cooked food}}{\text{nutrient content per g raw food}} \text{---(dry wt) x 100}$$

#### **True retention**

$$\% \text{ TR} = \frac{\text{nutrient content per g cooked food x g food after cooking}}{\text{nutrient content per g raw food x g food before cooking}} \text{---x 100}$$

Murphy et al. (481) compared these two methods on five of the above mentioned weight changes in cooking foods. Comparisons included retentions of proximate components, minerals and vitamins.

Apparent retentions overestimated nearly all true retentions, therefore the true retention method was recommended for NLG studies.

**Protein** structure consists of polypeptide chains of amino acids linked together, usually in an  $\alpha$ -helix form. Heat treatment can affect protein in the following ways:

- Denaturation, the chains are unfolded and the digestion enzymes can more easily reach the peptides for proteolysis.
- Collagen hydrolysis
- Maillard reaction or non-enzymatic browning, when basic amino acids, mainly lysine but also arginine and histidine, react with reducing sugars in frying, roasting, grilling and baking. A destruction of the nutritive value of foodstuffs occurs, but the reaction also enhances colours, odours and flavours in food.
- Oxidation and pyrolysis
- Losses of protein, vitamins and minerals included (227)

Protein from meat and fish may be lost in the cooking water, but also in drippings, when roasting meat or fowl. The losses will be smaller if the cooking water or drippings are used in soups and sauces.

**Fat.** Examples of reactions are:

- Melting
- Oxidation
- Hydrolysis
- Polymerization
- Pyrolysis
- Losses of essential fatty acids and vitamins (227)

Fat may be lost, gained, or remain unchanged. Whole meat, with a fat content of 2-40 %, loses in boiling, shallow frying and roasting about 15 % fat, except bacon with 60-70 % loss. Plain whole meat does not take up any or minimal amounts of the frying fat. In ground beef, the melting loss is higher in the fatter types and also higher than in ground pork. A very small amount of fat is taken up in frying ground meat, sausage and black pudding, 1-2 g per 100 g unfried food (386-7). In experiments performed by Van den Bergh Foods in Sweden, it was found that 100 g raw food absorbs fat as follows: meat or fish with thin coating (dipped in e.g. milk then turned in sifted flour and/or finely ground dried bread crumbs) 3-4 g, with coarse coating (dipped in e.g. milk, turned in sifted flour, dipped in eggs and finally turned in dried bread crumbs) 7-9 g, and potatoes 6-8 g fat in frying.

Studies on deep-frying of foods have been performed, e.g. in Spain, by Varela et al. (674-5, see also Appendix 1), and in Australia by Makinson et al. (427). Pan et al. (519) have reported the cooking oil absorption by food during Chinese stir-frying.

**Carbohydrates, dietary fibre.** The following reactions can occur:

- Swelling and gelatinization
- Hydrolysis of polysaccharides
- Maillard reaction
- Breaking down of pectin
- Caramelization (227)

Carbohydrates can be lost in boiling pasta (444), potatoes and so on.

**Alcohol** has been assumed to evaporate from food during cooking, mainly depending on the low boiling point 78.5 °C. Augustin et al. (44) found that this was incorrect. The retention of alcohol in a study of 6 dishes was between 4-85 %. The alcohol loss affects yield very little as the amounts of alcohol in a serving of a dish were only 0.2 - 3 g.

### ***Vitamins***

The following overview is superficial, and the NLG references should be consulted for more penetrating details.

**Vitamin A** is *sensitive to* acid conditions, air or oxygen, light, and *heat*, but stable to neutral pH 7 and alkaline conditions (339). **Carotenoids** in foods are sensitive to oxygen, heat and acid conditions (420, 280).

**Vitamin D** is stable to neutral pH, but *unstable to* alkaline conditions, air or oxygen, light and *heat*. Another source (420) claims that vitamin D is stable to heat, and both acid and alkaline conditions.

**Tocopherols** are stable at neutral pH, acid and alkaline conditions, but *unstable to* air or oxygen, light and *heat*. The presence of iron and copper salts accelerates the oxidation.

**Vitamin K** is *stable at neutral pH*, to air or oxygen, and *heat*. Acid and alkaline conditions and light make the vitamin unstable. Another source (226) reports that vitamin K is also sensitive to UV light and ionizing radiation.

**Thiamin** is stable in acid conditions and light, but *unstable in* neutral pH, alkaline conditions, air or oxygen and *heat*. Radiation affects also the vitamin. Thiamin, together with vitamin C, is used as indicator substance to see how a process



affects a food. Sulphite causes destruction of the vitamin and nitrate inactivates the vitamin.

**Riboflavin** is stable in neutral and acid pH and air and oxygen, but *unstable to* alkaline, light and *heat*. Machlin (420) states that riboflavin is *stable during heat processes*, but if exposed to light the vitamin content will decrease.

**Niacin** is *generally stable in foods*. Most losses occur from diffusion into the cooking water and in drippings of meats.

**B<sub>6</sub> or Pyridoxine** is *unstable to heat* and light and is stable in other conditions.

**B<sub>12</sub> or Cobalamin** is unstable in air or oxygen and in light. Otherwise the vitamin is considered *stable*. Another source (637) states that the vitamin is negatively *affected when boiled in alkaline solution*. Ascorbic acid, sulphite and ferrous salts can destroy the vitamin.

**Folacin** is stable in alkaline conditions, but *unstable* to other conditions. The vitamin interacts with sulphite and nitrite.

**Vitamin C** is the *least stable of all vitamins* and is *easily destroyed during processes and storage*. Its retention in foods is often used as an indication of the retention of other nutrients. Other conditions that affect vitamin C are salt/sugar concentration, enzymes, metal catalysts as iron and copper. An important cause of losses is leaching into cooking water. Losses occur also upon freezing or in frozen storage. The vitamin is considered to be *stable in acid condition*.

**Pantothenic acid** is reported to be stable at neutral pH, air or oxygen and light, but is *affected by acids, alkalies and heat*.

**Biotin** is *unstable to heat*, but stable in other conditions. Tannenbaum (637) states that the vitamin is stable to heat. Nitrous acid destroys the biologic activity of biotin and formaldehyde inactivates the vitamin.

All water-soluble vitamins can be lost in leaching to the cooking water. Vitamins can also be found in drippings.

### ***Minerals and trace elements***

According to Karmas and Harris in 1988 (339), the mineral salts are *stable to all* kinds of pH, air and oxygen light and *heat*.

Minerals and trace elements are lost when preparing vegetables, roots, tubers and fruits, by paring, peeling etc. Another loss is *leaching during blanching and cooking*. **Potassium** is especially easily lost in cooking water. The highest losses



occur when cooking foods with a big surface to weight ratio, such as spinach or finely diced foods in large amounts of cooking water.

Minerals and trace elements can also be added to foods via utensils, process water, packaging materials or additives.

**Iron, aluminium,** and other trace elements can be dissolved, especially when acid foods are cooked, from, e.g. cast iron or aluminium pans, etc.

If a food is *boiled in hard water*, **calcium and magnesium** are added to foods. If copper tubes are used for hot tap water and the hot water is used for cooking, the **copper** content in the foods can also be increased. Several additives contain **sodium**. Common salt increases the sodium content of a dish.

### ***Interactions***

Many interactions occur between the different minerals and trace elements.

**Oxalic acid with calcium, phytic acid with iron, zinc and calcium,** for example, form compounds that are not bioavailable.

### **Weight and nutrient changes after cooking**

Losses after cooking may be of different kinds. *Plain refuse* occurs for animal foods such as bones and skin in meat and fish, shell in shrimps and crab, and for vegetable foods, as stem and as inedible parts in artichokes, cobs in corn and pits in boiled plums. *Cutting losses* refer to scraps and juice/liquid in meat and fish, and *trimming losses* when taking away excess fat or tough edible parts from foods. Yield for foods will also be affected by *cooling, keeping warm and reheating*.

Various other *losses in dishes at the table* may occur. Part of salad dressings of different kinds will remain in the bowl or on the plate, fat trimmed off meat will be left on the plate, etc. Perhaps special loss factors at the recipe level could take care of these losses.

Callahan and Aldrich (134) recommended a standard factor of 5 % for *handling losses* in calculating nutrients for recipes until more reliable loss factors for individual dishes could be determined by experiments.

Different nutrient changes in the cooked or prepared foods occur when edible parts of foods and dishes are discarded or foods or dishes are reheated or kept warm.

## **Recipe calculation methods**

Recipes are usually included in the various food composition tables and data bases all over the world. A recipe can be defined as a list of ingredients and the directions for preparing the dish. The national and the most frequently consumed dishes in a country should preferably be analysed for nutrients. As analyses of foods are expensive and time-consuming, especially considering the great variety

of recipes, the calculation of recipes for nutrients has become a necessity, even if the results are estimates.

During cooking the weight change consists mainly of the loss or gain of water.

Change in water content in foods and dishes is the main factor affecting every nutrient. Loss in water will increase the nutrients, and gain of water will decrease them. But in dishes cooked with different frying methods, the frying fat has also to be taken into account. For these dishes it was considered necessary, already in the first edition of the English food composition tables from 1940, to analyse the water and fat contents in the cooked dishes before being able to calculate the dishes for other nutrients.

When calculating recipes in the future, NLG factors for macro nutrients (protein, fat, carbohydrates, dietary fibre) may probably become more widely used in the food composition data base systems. See Appendices 2 and 3, in which the work on yield factors and recipe calculation carried out in Stuttgart is described.

### **Recipe calculation**

The simplest method to calculate recipes is to take the ingredients of a recipe as proportions (expressed in percentages and turned over to grams) of the total weight of the raw ingredients. The values for the nutrients are then calculated for each ingredient and summed up per 100 g.

The next developing step is to compare the proportion or the percentage of the total weight of ingredients with the proportion of the weight of the cooked dish. In the calculation for nutrients in the ingredients of a dish, estimated adjustments (NLG factors) can also be made for vitamin and mineral changes. Several European developers of recipe calculation systems are using the British method and the example of egg custard in the fourth edition of 'McCance and Widdowson's The Composition of Foods' (521), which, in the fifth edition, is altered to custard, made up with whole milk and custard powder (296), is well known.

### ***British method***

The procedure is described in the fifth edition of 'McCance and Widdowson's The Composition of Foods' (296). This method is also recommended in reference 256. (Permission to reprint granted. See acknowledgements.)

The method can be divided into the following calculation steps. The nutrient value for a dish is calculated on the weights of the raw recipe ingredients.

1. Correct the ingredient weights due to different losses during the preparation.
2. Weigh the raw ingredients.
3. Cook the dish.
4. Weigh the cooked dish.
5. Correct the dish weight due to handling losses.
6. If the weight change depends on water, the composition of the cooked dish is calculated as follows:

$$\text{Composition of cooked dish per 100 g} = \frac{\text{Total nutrients in raw ingredients}}{\text{weight of the cooked dish}} \times 100$$

$$\text{Water content of cooked dish per 100 g} = \frac{\text{Water in raw ingredients} - \text{weight loss on cooking}}{\text{weight of the cooked dish}} \times 100$$

***Custard, made up with whole milk***

Ingredient	Amount in recipe g	Amounts contributed			
		Protein g	Fat g	Carbohydrate g	Etc.
Milk	515 (500 ml)	16.5	20.1	24.7	
Custard powder	25	0.1	0.2	23.0	
Sugar	25	0	0	26.3	
Total in Recipe (a)	565	16.6	20.3	74	
Cooked weight (b)	447				
Composition of (c) cooked dish (per 100 g)		3.7	4.5	16.6	

$$\text{i.e. } c = \frac{a}{b} \times 100$$

When the weight change, due to water in a dish, is unknown this can be estimated by using the weight change factor from a similar recipe.

$$\text{Wt of cooked dish} = \frac{\text{Wt of raw ingredients} \times (100 - \% \text{ wt loss of a similar dish})}{100}$$

$$\text{Wt of cooked dish} = \frac{\text{Wt of raw ingredients} \times (100 + \% \text{ wt gain of a similar dish})}{100}$$

***Yield factor method***

The following methods from United States may also be of interest. The descriptions of the methods are included in reference 538. (Permission to reprint granted. See acknowledgements.)

This algorithm is modeled to reflect the method employed by the University of Missouri-Columbia.

1. Convert stated weight of ingredients to cooked weight by sequentially multiplying ingredient amounts by preparation and cooking yield factors.
2. Multiply the cooked weight of each ingredient by consumable yield factor to determine the edible-portion weight.
3. Convert ingredient weights to 100-g units; e.g, if an ingredient weight is stated in grams, divide the consumable ingredient weight by 100.
4. Calculate the value for each nutrient per ingredient by multiplying the values for each ingredient calculated in step 3 by the appropriate nutrient profile per 100-g portion.
5. Sum the nutrient value calculated for each ingredient, and divide each nutrient value total by the number of portions to determine the nutrient value per edible-portion.
6. Sum the cooked weights of the ingredients (calculated in step 1) to compute total cooked weight of the recipe.
7. Divide the total cooked weight of the recipe by the total number of portions per recipe to compute the weight per portion served.

***Retention factor method***

This algorithm is modeled to reflect the method employed by the U.S. Department of Agriculture for the Nationwide Food Consumption Survey (529, 538).

1. Convert the measure of each ingredient to the corresponding gram weight.
2. Multiply the weight of each ingredient by the appropriate refuse factor and subtract the weight of refuse from starting weight to determine the edible-portion weight of each ingredient.
3. Multiply the edible-portion weights for each ingredient by each nutrient value per 100-g portion from the nutrient database. Divide that value by 100 to determine each nutrient value per ingredient.
4. If the nutrient profile does not match the form of the food as served, apply retention factors to the vitamin and mineral values for each ingredient.
5. Sum the uncooked edible-portion weights of the ingredients to compute the total uncooked gram weight of the recipe.
6. Sum the adjusted nutrient values of the ingredients (Steps 3 and 4) to determine the nutrient values of the total recipe.
7. Using an assigned percentage of moisture change, determine the grams of moisture gained or lost from cooking, and adjust the moisture content to account for the gain or loss of moisture in the cooked dish.

8. Using the assigned percentage of fat change, determine the grams of fat gained or lost from cooking, and using the appropriate nutrient profile for the type of fat, adjust the total amount of kilocalories and lipid components to account for the gain or loss of fat in the cooked dish.
9. Add the change in moisture content in grams (Step 7) and the change in total fat content in grams (Step 8) to the total uncooked gram weight of the recipe (Step 5) to determine the cooked weight of the recipe.
10. Add the moisture and fat change percentages to 100 to determine the yield percentage of the cooked dish.
11. Divide the cooked weight of the recipe computed in Step 9 by 100 to determine the number of 100-g units per recipe. Divide the value for each nutrient for the total recipe (Steps 6, 7 and 8) by the number of 100-g units to calculate each nutrient value per 100-g portion.

### ***Summing method***

This method (538) can be applied to either raw or cooked ingredients. If a recipe has cooked ingredients, the nutrient profile for a cooked food should be used and the weight of the ingredient should correspond to the amount of the cooked food in the recipe.

1. Convert measures of ingredients to corresponding gram weights.
2. Sum the gram weights of each ingredient to determine the gram weight of the recipe.
3. Divide the ingredient gram weights by 100 to determine the number of 100-g units for each ingredient.
4. Multiply the values calculated in Step 3 for each ingredient by the nutrient values per 100-g portion to determine the nutrient values per ingredient.
5. Sum the nutrient values of the ingredients to determine the total nutrient content of the recipe.
6. Divide the total nutrient content of the recipe by the number of portions to determine the nutritive value per portion.
7. Divide the weight of the recipe (Step 2) by 100 to determine the number of 100-g units per recipe. Divide the value of each nutrient for the total recipe (Step 5) by the number of 100-g units to calculate the value for each nutrient per 100-g portion.

***Infoods method***

There are many different ways of calculating dishes. As a final example, the Infoods guidelines for calculating the nutrient levels of recipe foods is given (545. Permission to reprint granted.).

1. Select or develop an appropriate recipe.
2. Collect weight and nutrient content data for each ingredient.
3. Correct ingredient nutrient levels for weight of edible portions where appropriate.
4. Correct ingredients for effects of cooking:  
either
  - if data for cooked ingredients are available, use yield factors to adjust from raw to cooked weights
 or
  - if data for cooked ingredients are not available, use data for uncooked ingredients, applying yield factors to adjust for weight changes and retention factors for nutrient losses or gains during cooking.
5. Sum weights of ingredients to get weight of recipe.
6. Sum nutrient values of ingredients to obtain nutrient value of recipe.
7. Adjust recipe weight and nutrient levels to reflect changes in fat/water when whole mixture is cooked; make any additional refuse adjustments; apply retention factors if available for whole recipe.
8. Determine the quantity of prepared food produced by the recipe.
9. Determine the final values per weight (e.g., per 100 g) volume (e.g., per cup), or serving portions as desired.

**Standards in calculating recipes**

In order to calculate recipes in an organized and effective way, the following standardized parts in a food composition data base system are needed:

**Standards**

- Nutrient data base
- Calculation programs
- Component values
- Code replacements
- Conversion factors e.g. for fatty acids
- Recipes
- Recipe file
- Food weights and densities
- Household measures
- Helpings or servings information
- Yield or weight yield factors
- NLG, nutrient yield or nutrient retention factors
- Research methods
- Documentation

Values should be quoted with number of significant figures, and standard rules for rounding should be applied.

Lists with standardized code replacements are needed, especially when a food composition data base has a limited number of foods and more than one person are creating new recipes. For example, if a data base does not contain a code for romaine lettuce, a code for another kind of lettuce is given.

The recipes in various recipe calculation systems are usually written in a standardized way (130). To accomplish this, standardized household measures and weights for foods and helpings are needed among other data. In dietary studies, it is usually convenient to have a standardized recipe file containing recipes of dishes, chosen for their representativeness in a country. In food production institutions, such as food departments in hospitals, directions how to prepare and cook the dishes are also included. In order to save time, the nutrient content for recipes can be precalculated and included in the standardized recipe file. A standard recipe file is also practical when new versions or modifications of recipes have to be made.

The standard recipe file has to be revised when different changes in standards occur. These changes can, e.g., deal with:

1. Calculating program changes. For example, if the frying fat in dishes is included in the recipes and should be excluded.
2. Weight changes, e.g. when the mean weight or serving weight of a food or dish is altered.
3. Yield changes may occur when using alternative cooking or processing methods, such as stir frying and microwave cooking.
4. Cooking changes due to modified or simplified procedures. Examples, instead of browning fat and flour for brown sauce, exclude the fat and use soy sauce as colour, and omit browning of meat and vegetables in making stews or soups.
5. Ingredient changes when, e.g., using oil instead of margarine in several dishes of the file, or using a fibre product, such as oat bran, instead of dried bread crumbs, etc.
6. Nutrient changes, e.g., in a very common recipe ingredient as water. When the composition and quantity of prepared or cooked dishes are calculated from recipes it is necessary to have factors in order to imitate what 'happens' during the cooking procedures.

## NLG factors in practice

Factors for nutrient changes in foods during preparation of foods or dishes are used in several countries in the computer processing of recipes. Usually the factors are for vitamins, but in a few countries factors for minerals also exist as in Germany, Denmark and United States. The factors can be applied at different levels of accuracy. The main levels are for:

1. Recipe
2. Food group
3. Food item

The borderlines between the main levels should not be considered fixed and within each main level NLG factors can be applied at different sub-levels. A low stage within the recipe level can, e.g. be NLG factors for some vitamins used for all food groups and all cooking methods. A high stage within the food item level is held by special NLG factors, that take into consideration if the food item is fresh or preserved as frozen, canned etc., together with the preparation and cooking method, with cooking time and cooking temperature included, etc.

The factors can be specific or general. In Germany, e.g., specific factors are used, see Appendix 2, and an example of generalised, systematic tables on nutrient losses and gains can be found in Denmark (464).

Table 1 shows retention ranges for vitamins from several countries. The factors are for food groups and according to preparation or cooking method.

### Suggested NLG factors

In 1990 work on NLG standard factors at the recipe level was undertaken at the Swedish National Food Administration. Factors were applied to 11 vitamins (retinol,  $\beta$ -carotene, vitamin C, thiamin, riboflavin, niacin, B<sub>6</sub>, folacin, B<sub>12</sub>, pantothenic acid, biotin). Separate factors were determined for preparation without heat and the cooking methods of boiling, shallow frying and baking or roasting. These were used for all food groups, except meat and poultry, for which alternative factors were derived. The NLG factors, Table 2, were based on mean values (some values are modified) of factors published by different government agencies shown in Table 1. In Sweden, the factors are used for calculating recipes in the Malmö Diet and Cancer Study.

### Comparison: analysed and calculated dishes

A comparison between nutrient values in six analysed type dishes and calculated nutrients for the recipes with three different methods has been performed in Sweden. The dishes are made up of two boiled, two shallow fried and two oven cooked: clear vegetable soup, boiled beef, fried breaded cod fillet, fried meatballs, fish au gratin and meatloaf. The dishes were prepared from standard recipes at the National Food Administration (NFA) and analysed for nutrients at the NFA's



laboratories. The nutrient content was thereafter calculated using three methods. The same amount of the recipe ingredients were used both in the analyses and the calculations. The nutrient data base that was used in these tests was the nutrient data base PC-Kost, version 1991. Pantothenic acid and biotin are not included in PC-Kost. In Table 3, the values are produced as follows:

- A            Analysed by the laboratories of the National Food Administration
- CYF          Calculated on raw ingredients with factors for weight yield and vitamin retention.  
See Table 2. Computer system: AIVO AB
- CY            Calculated on raw ingredients with weight yield factors.  
Computer system: Rudans Lättdata
- C            Calculated on raw ingredients. Computer system: Rudans Lättdata.

The results show that some calculated values agree rather well with the analytical data, while others do not, e.g., in boiled beef, where some nutrients, however, should be found in the bouillon. The differences may partly be due to different nutrient contents in the analysed ingredients than in the ingredients included in the data base. The result of this comparison is, in other words, rather mixed.

This comparison is simply an example of a small practical experiment. Many people consider that comparisons like these must always be performed on dry matter basis. But on the other hand, a very practical method of calculating recipes on wet weight with standard NLG factors is needed.

## Discussion

Should weight yields or changes for foods and dishes be applied in recipe calculation? Some people consider them completely useless and say it is better to calculate dishes without them. Others say that the only correct approach is to use analysed values for cooked foods. Of course the latter is to be desired. The people responsible for national food composition data bases try to get their most frequently used dishes analysed for nutrients. Also the food manufacturers are eager to have their products nutrient-labelled, based on analyses. The possibilities to have analysed values in the different data bases have increased, but the number of analyses conducted is always limited by the cost and time required.

At least among Swedish food technologists, the task of creating fat factors to be used in recipe calculation is still considered rather complicated. Regarding different meat cuts, one difficulty is that the weight change (water loss) may vary depending on, e.g. cooking method, meat quality, final internal temperature (which in turn depends on cooking time), while the fat loss is independent of, e.g. the final internal temperature and is, in that way, constant for a meat cut (386-7).

Another point is that nowadays some people are very particular about trimming off all visible fat from the meat on the plate. Also when considering that the nutrient values for cooked foods and dishes obtained from analyses are only assigned to the foods and dishes analysed, it is rather difficult to cover the biological variation in cooked foods and dishes by a few analyses. As so many compromises have to be made when dealing with biological material, it is reasonable to make some more compromises and make *general standard factors for fat melted out, fat absorbed, and fat trimmed off, e.g.*, from meat on the plate, when there are some analyses available to base the factors upon. However, it will probably be necessary to create several fat factors. A literature review of fat change studies performed in cooking meat and fish has been published in Denmark (260). A translation of the review into English is to be hoped for.

## Conclusion

Cooking yields are widely used in recipe calculation. The result of the test described above is mixed. The calculation of more dishes, use of other recipe calculation systems and loss factors for fat and protein are needed, for example for boiled meat, in a second trial.

Considering the wide ranges of vitamin retention factors it does not seem possible, for the time being, to recommend standard NLG factors for vitamins, at least not at recipe level for several food groups and methods. More differentiated factors for vitamins have to be used in recipe calculation.

System managers in European countries have developed new recipe calculation systems or have evaluated already existing systems in order to find out how reliable the systems are. Recently, Dr Martin in Portugal has compared several methods for calculating recipes (personal communication).

A new recipe calculation system has just been elaborated in Stuttgart. See Appendix 3 (p. 47). Within the EuroNIMS co-operation a recipe calculation system is being prepared and which is available for all national partners to contribute their experiences in recipe calculation. This co-operation will be of great importance for a compatible recipe calculation system in Europe.

The interest in yield studies has increased considerably during the last few years. Many government agencies have been working on yield matters over several decades, such as in the United Kingdom, Germany and Sweden, while others have recently finished a project, as in Portugal, and still others are planning yield studies, as in Norway, on meat, poultry and egg dishes. People in Norway are also collecting recipes and information on food yields from other institutions. In Sweden, such collections have already been made. In Slovakia, studies on animal bodies have been performed in order to estimate the proportions of the different parts. The results from these animal studies are given both in percent and in kilos.

The response to the yield questionnaire sent out to the NLG project members and others in 1993 has been very positive. Some institutions have been pleased

that there is interest in their collected yield data while others were inspired to start yield studies in a more standardized way.

## **NLG research**

NLG research is performed in many countries. The NLG reference list indicates the countries and the researchers dealing with these matters. In some European countries, research in the NLG area is being planned, e.g. in Hungary.

In 1985, while trying to construct a model for an NLG data base in Sweden, we became increasingly aware of how many conditions influence the nutrients in processing. Nutrient changes in processing, bioavailability of nutrients and interactions between nutrients are three vast areas for further research.

The work on nutrient losses and gains in the preparation of foods will continue and the NLG project members hope that these three reports will be of some assistance to people working in areas associated with weight and nutrient changes in the preparation of foods.

**Table 1. Vitamins. Retention ranges**

Data from Denmark, Germany, Russia, Sweden, United Kingdom and United States.

FOOD GROUP	Preparation or cooking methods	Vitamin A %	Vitamin E %	Vitamin C %	Thiamin %	Riboflavin %	Nicotin %	B6 %	Folacin %	B12 %	Pantothenic acid %	Biotin %
Vegetables	Boiling	85 - 95	100	20 - 95	45 - 95	60 - 95	60 - 95	55 - 95	35 - 70		55 - 95	70
Vegetables	Frying, baking	75 - 95	100	30 - 85	60 - 90	60 - 95	60 - 95	60 - 95	50 - 70		70 - 95	70 - 90
Fruit	Cooking	75 - 95	100	50 - 75	75 - 80	65 - 90	65 - 90	60 - 80	20 - 60		70 - 75	70 - 75
Potatoes	Baking	90	100	80 - 85	75 - 85	70 - 100	65 - 95	60 - 95	50 - 90		70 - 90	70 - 90
Potatoes	Boiling	90	100	60 - 80	75 - 85	70 - 95	70 - 95	70 - 95	50 - 90		70 - 90	70 - 90
Potatoes	Frying	90	100	25 - 80	40 - 80	70 - 100	65 - 95	65 - 95	35 - 75		65 - 90	65 - 90
Potato products	Heating			50 - 80	75 - 85	95	95	95	75 - 80		90	
Root vegetables	Boiling	80 - 90	100	60 - 70	75 - 90	70 - 95	70 - 95	70 - 95	50 - 70		70 - 90	70
Milk	Cooking	90 - 95	80	50 - 75	75 - 100	85 - 90	90 - 100	75 - 90	50 - 80	95	75 - 100	100
Meat, poultry	Boiling, braising, stewing	85 - 100	60 - 100	80 (liver)	30 - 92	60 - 70	30 - 96	40 - 70	55 - 70	50 - 90	50 - 70	70 - 90
Meat, poultry	Frying, grilling	60 - 100	60 - 100	80 (liver)	45 - 95	70 - 105	65 - 95	45 - 80	50 - 87	50 - 90	60 - 90	70 - 90
Meat poultry	Roasting, baking	75 - 100	60 - 100	80 (liver)	45 - 80	70 - 105	50 - 90	45 - 90	60 - 95	65 - 90	60 - 97	70 - 90
Fish, shellfish	Poaching, steaming	65 - 95	100		55 - 95	60 - 100	70 - 95	70 - 100	70 - 100	80 - 100	70 - 95	80 - 90
Fish, shellfish	Frying, grilling	80 - 95	100	80 (roe)	55 - 90	80 - 95	80 - 100	55 - 90	70 - 100	80 - 100	80 - 90	80 - 90
Fish, shellfish	Cooking in oven	85 - 95	100		70 - 95	80 - 100	80 - 100	90	80 - 90	75 - 90	80 - 90	90
Eggs	Boiling, poaching, frying, baking	80 - 95	100		70 - 95	70 - 95	80 - 95	70 - 90	50 - 95	80 - 100	75 - 95	80 - 100
Cereals*	Boiling	90 - 95 (egg pasta)	100		50 - 90	50 - 95	60 - 95	25 - 100	50 - 100		60 - 85	60 - 80
Cereals	Baking	90	100		75 - 85	85 - 95	90 - 95	75 - 90	50 - 70		65 - 75	100
Margarine enriched with A and D	Frying	30 - 87	90 - 95,5									

**Table 2. Vitamins. NLG factors. Retention on recipe level**

The retentions are based on values from Denmark, Germany, Russia, United Kingdom and United States.

Food group	Preparation or cooking method	Vitamin A %	$\beta$ -carotene %	Vitamin C %	Thiamin %	Riboflavin %	Niacin %	Vitamin B <sub>6</sub> %	Folacin %	Vitamin B <sub>12</sub> %	Pantothenic acid %	Biotin %
ALL	Prepared without heat	100	100	75	100	100	100	100	100	100	100	100
ALL, except meat poultry	Boiling	90	90	65	75	80	80	75	70	90	70	70
MEAT POULTRY	Boiling	85		75 liver	40	75	55	45	70	65	70	70
ALL, except meat poultry	Frying	90	90	60	70	85	85	75	70	85	80	80
MEAT POULTRY	Frying	85		75 liver	60	90	80	65	75	80	80	80
ALL, except meat poultry	Baking or roasting	90	90	70 liver	80	90	90	80	75	85	80	80
MEAT POULTRY	Baking or roasting	85		75 liver	55	90	80	60	85	80	80	80

**Table 3. Type dishes, analysed and calculated. Nutrients per 100 g**

*BOILING*

Dish: Vegetable soup, clear

Yield: 92 %

Method	Water g	Protein g	Fat g	Retinol µg	β-carotene µg	Vitamin C mg	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B <sub>6</sub> mg	Folacin µg
A	93	0.9	0.2		1750	1	0.02	0.02	0.4	0.02	4
CYF	93.3	1.4	0.2		1393	3.1	0.02	0.03	0.6	0.05	8.6
CY	94.1	1.4	0.2		1540	5	0.02	0.04	0.7	0.06	12
C	93.8	1.3	0.2		1420	4	0.02	0.03	0.7	0.06	11

Dish: Beef, boiled

Yield: 63 %

Method	Water g	Protein g	Fat g	Retinol µg	β-carotene µg	Vitamin C mg	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B <sub>6</sub> mg	Folacin µg
A	71.5	16.7	8.7	5			0.09	0.17	2	0.13	
CYF	46.5	29.2	20.4	17	33	0	0.04	0.2	4.9	0.32	7.7
CY	47.2	29.2	20.4	20	40	0	0.09	0.28	9	0.71	12.2
C	66.3	18.4	12.9	10	20	0	0.06	0.18	5.64	0.45	11

**FRYING**

Dish: Meatballs

Yield: 91 %

Method	Water g	Protein g	Fat g	Retinol µg	β-carotene µg	Vitamin C mg	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B <sub>6</sub> mg	Folacin µg
A	66	15.8	10	50			0.17	0.3	3.5	0.37	
CYF	70.5	12.1	10.1	58	10	0.9	0.10	0.15	2.6	0.18	7
CY	71	12.1	10.2	70	10	1	0.16	0.17	3.3	0.28	9.3
C	73.2	11	9.3	60	10	1	0.15	0.15	3	0.26	8.5

Dish: Cod fillet, breaded

Yield: 91 %

Method	Water g	Protein g	Fat g	Retinol µg	β-carotene µg	Vitamin C mg	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B <sub>6</sub> mg	Folacin µg
A	69	17.6	6				0.05	0.15	2.2		
CYF	70.1	16.8	6.2	61	4	1.1	0.05	0.08	1.8	0.17	10.9
CY	69.8	16.8	6.2	70	0	2	0.07	0.09	2.1	0.2	16
C	73	15.3	5.7	60	0	2	0.06	0.08	1.9	0.2	15

**AU GRATING, BAKING**

Dish: Fish au gratin

Yield: 90 %

Method	Water g	Protein g	Fat g	Retinol µg	β-carotene µg	Vitamin C mg	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B <sub>6</sub> mg	Folacin µg
A	76	11.4	5.6	41			0.08	0.12	1.7	0.24	
CYF	75.9	12.3	5.7	53	10	0.9	0.05	0.11	1.2	0.11	9.1
CY	75.8	12.4	5.7	60	10	0	0.06	0.12	1.4	0.14	12
C	78.3	11.1	5.1	50	10	0	0.06	0.11	1.3	0.13	11

Dish: Meatloaf

Yield: 78 %

Method	Water g	Protein g	Fat g	Retinol µg	β-carotene µg	Vitamin C mg	Thiamin mg	Riboflavin mg	Niacin mg	Vitamin B <sub>6</sub> mg	Folacin µg
A	72	14	7.7				0.19	0.19	3.9	0.32	
CYF	67.7	14.5	9.2	42	12	1.1	0.11	0.18	3.1	0.2	9.4
CY	68.4	14.5	9.2	50	10	2	0.20	0.20	3.9	0.34	11
C	74.8	11.4	7.2	50	10	2	0.15	0.16	3	0.27	9



# Changes in the quantity and quality of the fat content of some foods after processing: Influence on the intake

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Among the various components of the diet, fat receives very close attention because of its relationship to several pathologic conditions, in particular cardiovascular diseases and tumors of several localizations (1). Currently most of the available information on these relationships is derived from epidemiologic or experimental studies in which lipid intake is calculated using food composition tables. In most of these tables the quoted lipid content is that of raw unprocessed food, whereas most foods are usually consumed only after being subjected to several processes and, especially, culinary processes. Often there is no indication of the type of fat used in food processing in general or in frying in particular. But as is known, in the course of these processes the lipid content undergoes important qualitative and quantitative changes and not keeping them in mind may be the underlying cause of the difficulties and the confounding results in studies trying to establish the relationship between lipid intake and health (2).

In the Mediterranean diet, about 50 % of total dietary fat is derived not from the food itself but from the cooking fat, of which only a small fraction is eaten raw (as dressings) and the greatest proportion is used in thermal culinary processes, mainly deep-frying (3).

Very schematically, deep-frying is a technique that replaces a fraction of the water content of a food by cooking fat. But deep-frying is a complex process involving many factors, which may be divided into three categories: the conditions of the process itself; the type of cooking fat and the characteristics of the foods to be fried (4). Consequently, it is a complicated task to establish a model that enables us to calculate the yield and final composition of foods, which for instance will be quite different for lean and fat foods. Even more, fat in any of them suffers seasonal variations. The final fatty acid composition may be also greatly affected by processing, as mentioned above (3).

Raw and post-cooking data on the lipid content of some foods - meat, fish and vegetables - using different processes (mainly deep-frying) (Table 1) and the changes in the composition in fatty acids of sardines due to frying and canning (Table 2) are shown below. Changes in the weight, content of water and fat of the processed food are presented in Table 1. These values are always related to 100 g of raw food. As overall, it is observed that thermal processing in cooking gives rise to a loss of water which ranged between 30% for meat and 50% for potatoes, while final fat depended basically on the fat content of the raw food. Changes in fatty acids took place in the same direction as the concentration gradients of culinary and food fats.

Table 1. Yield, water and lipid composition of some foods after processing with two culinary fats (g/100 g of edible portion)

**O = olive oil; M = margarine; FF = floured & fried;  
SS = sautéed & stewed (floured\*)**

FOOD	PROCESS	WEIGHT	WATER	FAT
<b>Sardine</b>	<b>Raw</b>	<b>100</b>	<b>63.0</b>	<b>15.1</b>
	Canned/O	73	38.8	13.1
	FF/O	71	36.0	13.4
<b>Hake</b>	<b>Raw</b>	<b>100</b>	<b>77.0</b>	<b>1.3</b>
	FF/O	80	45.6	8.4
	FF/M	84	50.4	7.5
	SS/O*	113	77.2	8.8
	SS/M*	107	75.7	5.6
<b>Eggs</b>	<b>Raw</b>	<b>100</b>	<b>76.0</b>	<b>10.3</b>
	Omelette	96	66.3	16.4
<b>Beef (lean)</b>	<b>Raw</b>	<b>100</b>	<b>72.5</b>	<b>3.1</b>
	Fried/O	53	24.6	6.4
	Fried/M	52	24.5	5.9
	SS/O	58	32.3	5.4
	SS/M	64	44.8	5.4
<b>Pork</b>	<b>Raw</b>	<b>100</b>	<b>60.4</b>	<b>10.7</b>
	Fried/O	53	17.4	9.6
<b>Green pepper</b>	<b>Raw</b>	<b>100</b>	<b>93.6</b>	<b>-</b>
	Fried/O	49	37.4	11.5
	Fried/M	60	44.5	12.2
	SS/O	53	43.8	8.4
	SS/M	63	53.9	6.9
<b>Potatoes</b>	<b>Raw</b>	<b>100</b>	<b>80.9</b>	<b>-</b>
	Fried/O	52	25.4	16.1
	Fried/M	51	22.7	17.8
	SS/O	53	37.9	5.4
	SS/M	75	57.2	4.2

Table 2. Fatty acid composition of sardines after thermal processing using olive oil (g/100 g of edible portion)

		RAW	FRIED	CANNED
Miristic	C14:0	1.0	0.6	0.6
Palmitic	C16:0	4.1	3.1	2.2
Stearic	C18:0	0.5	0.4	0.4
Oleic	C18:1	3.1	5.4	6.6
Linoleic	C18:2	0.3	0.4	0.5
Clupandonic	C22:5 w3	0.3	0.1	0.1
Timnodonic	C20:5 w3	1.7	1.0	0.8
Docosahexaenoic	C22:6 w3	0.8	0.7	0.6

## References

1. WHO. Diet, nutrition and the prevention of chronic diseases. Technical Report Series 797. 1990:203.
2. Varela G and Ruiz-Roso B. Some effects of deep-frying on dietary fat intake. Nutrition Reviews 1992;50:256-262.
3. Varela G and Moreiras O. Mediterranean diet. Cardiovascular Risk Factor. 1991;1:313-321.
4. Varela G, Bender AE and Morton ID. (eds.) Frying of food. Principles, changes, new approaches. Chichester, UK: Ellis Horwood Ltd, 1988.

# Tables of yield factors for nutrients during cooking of foods

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During preparation and cooking of food, changes of weight and nutrients occur which strongly influence the nutritive value of ready-to-serve food (dish) as compared with the initial material. As the majority of nutrient tables provide information mainly on the composition of raw, ready-for kitchen processing, and ready-for cooking food, but not of ready-to-serve dishes, the nutritive value of the latter had to be calculated from the nutritive contents of the raw ingredients as listed in the recipe.

Many calculation methods have been available which yield more or less precise data. Best agreement of analytical and calculated data is achieved when the changes in weight and nutrients during preparation are taken into account.

For the calculation of the nutritive value, it is necessary to have:

- A standardized recipe for a well-defined portion of ready-to-serve food (dish)
- Nutrient content in the ingredients
- Yield factors for nutrients during cooking of food

A recipe calculation system for a defined portion of ready-to-serve food was presented at the NLG workshop in Vilamoura.

The data of the nutrient content of raw food (ingredients) could be taken from nutrient tables (e.g. Souci, Fachmann, Kraut; McCance and Widdowson).

The yield factors for the individual nutrients can be calculated on the basis of the data characteristics for the food item and cooking process. To obtain reproducible results it would be desirable, however, to compile published data which are acknowledged internationally.

Since the cooking procedures (regarding e.g. temperature and time) in European countries are more or less similar, the tables of yield factors for nutrients should be used as basic data to calculate the nutrient value of dishes. Using yield

factors would help to avoid greater differences among the calculated nutritive value of dish in the different countries.

Tables of the available yield factors for nutrients will be prepared and publication is planned for 1995. The tables will contain yield factors for the following nutrients: protein, fat, carbohydrates, dietary fibre, minerals, sodium salt, sodium, potassium, magnesium, calcium, phosphorus, iron and other trace elements, fat-soluble and water-soluble vitamins. The factors are given for groups of typical foods and dishes on the assumption that the retention of nutrients during cooking of foods belonging to one group is in the same order of magnitude.

The fundamentals for determination of the nutrient yield factors and the nutritive value of ready-to-serve food (dish) are described in the report of FLAIR Eurofoods-Enfant Project meeting in Portugal, 1993.

# Description of a recipe calculation system

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A brief description of a computer system that allows the adaptation and nutrient calculation of commercial and household recipes to any given quantity of ready-to-serve food or edible dish.

## The recipe calculation system contains following programs:

RECIPE.EXE	Input program for recipe data.
CALCA.EXE	Program for calculating the amounts of ingredients per portion of dishes (edible) according to <i>number of portions</i> in original recipe.
CALCB.EXE	Program for calculating the amounts of ingredients per <i>required portions</i> of dishes (edible).
CALC100.EXE	Program for calculating the amounts of ingredients per <i>100 g</i> of dishes (edible).
BILD.TPU	Subprograms to the working programs.
REC.DAT	Data for all recipes included.
TAB1.DAT	Output data; the results of the calculation of one recipe, in ASCII format.
TABALLA.DAT	Output data; the results of the calculation of all recipes according to <i>number of portions</i> in original recipes, ASCII format.
TABALLB.DAT	Output data; the results of the calculation of all recipes according to <i>required portion sizes</i> in original recipes, ASCII format.
TAB100.DAT	Output data; the results of the calculation of all recipes according to <i>100 g portions</i> , ASCII format.

The programs are written in Turbo Pascal and run on any IBM compatible computers with hard disc and MS-DOS. The number of recipes that can be handled is only limited by the computer storage capacity.

The overall calculation of the quantity of ready-to-serve food depends on the knowledge of the kind and quantity of ingredients before preparation (recipe) and the quantity resulting after preparation (dish). Since recipes usually fail to provide information about the food quantities obtained after preparation, weight yield factors from tables should be used.

Tables of weight yield factors for about 600 common foods and dishes will be published. The sources of these yield factors are data from our own studies and from the literature. The publication of the tables is planned for 1995.

An English version of the computer program for the recipe calculation will be available in 1995. Fundamentals of the recipe calculation system are explained in the Report of the FLAIR Eurofoods-Enfant Project meeting in Portugal, 1993.

## Reference

Bognár, A, Piekarski, J. Calculation system for food recipes. In: Castenmiller J, West CE, (eds.). Report of the third annual meeting of the FLAIR Eurofoods-Enfant project, 10- 12 November 1993, pp 111- 118. Vilamoura, Portugal. Wageningen. FLAIR Eurofoods-Enfant Project (February) 1994.

# Nutrient losses and gains references

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A list of NLG references might seem old-fashioned and unnecessary in a time of computerized reference data bases such as Food Science and Technology Abstracts, Chemical Abstracts, Medline and Nutrition Abstracts and Reviews. But there are some advantages in collecting NLG references:

- \* Not every research centre has access to these reference data bases
- \* The databases may not have all available references included. Especially information from national journals and laboratories may not be accessible.
- \* Many scientists working in the NLG area would prefer to have a NLG reference data base with key words on their own computer. Such a base will make it possible to search for references, but also to add new references.

At a FLAIR Eurofoods-Enfant workshop in Portugal, November 1993, two versions of the reference list were proposed, namely a short version and a longer, detailed version with key words for each reference. It was decided to publish the short list and to make the information available on disk. As a result of the discussion held with project members, the references, entered in a spreadsheet, should include the following information: Author, Document title, Bibliographic reference, Country code, Language code, and a sequential reference number. In order to be able to identify the different NLG research centres in the world, the database contains a column with information on the country of origin of the first author. Also information on the language in which the article or book is written is given.

The suggested key words in the detailed version include: food, storage, preparation/processing, utensils/packaging, external influences, yield, water, dry matter etc, protein, fat, carbohydrates, dietary fibre, alcohol, vitamins,



minerals/trace elements, other components, foreign substances, food quality, bioavailability/interaction.

We hope that the NLG file will be used as a basis for a flexible NLG database where individuals are able to rearrange the information and increase or decrease the number of key words, according to their specific needs.

See also the paper on Future NLG activities, page 208.

### **Notes on the NLG reference list**

The included references have been collected during the years by the NLG Project members. The collection of references is not carried out systematically.

As the list will be available on disk and used internationally on personal computers, the special signs existing in the Scandinavian and German languages are replaced as follows:

Ü	UE	Å	AA
ü	ue	å	aa
Ä	AE	Æ	AE
ä	ae	æ	ae
Ö	OE	Ø	OE
ö	oe	ø	oe

No.	Author	Document title	Bibliographic reference	Country code	Language code
1	Abaelu A	Effects of Nigerian preparatory procedures on the thiamin, riboflavin, and ascorbic acid content of foods.	West Afr J Biol Appl Chem 1973;16:24-33.	NG	eng
2	Abdel-Rahman A-HY	Effect of cooking time on the quality, minerals and vitamins of spaghetti produced from two Italian durum wheat varieties.	J Food Technol 1982;17:349-53.	IT	eng
3	Abramova ZL, Mazurenko VS, Dedukh NN, Zotova LD	Losses of organic substances in traditional methods of heat treatment of carrots, turnips, rhubarb, parsley and celery.	Produktov Obschestv Pitaniya 1982:186-94.	RU	rus
4	Acton JC	Effect of heat processing on extractability of salt-soluble protein, tissue binding strength and cooking loss in poultry meat loaves.	J Food Sci 1972;37:244-6.	US	eng
5	Acton JC	The effect of meat particle size on extractable protein, cooking loss and binding strength in chicken loaves.	J Food Sci 1972;37:240-3.	US	eng
6	Adams JB	The colour of fruit and vegetables and the effects of processing.	Nutr Food Sci 1981;4:12-4.	GB	eng
7	Ajayi SO, Oderinde SF, Osibanjo O	Vitamin C losses in cooked fresh leafy vegetables.	Food Chem 1980;5:243-7.	NG	eng
8	Akhtar P, Ilahi A, Saeed HA, Abid AR	Ascorbic acid contents of common fruits and vegetables and its cooking losses in vegetables.	Pak J Sci Res 1980;32:86-90.	PK	eng
9	Alim H, Morton ID	Oxidation in foodstuffs fried in edible oils.	In: Anonymous. Proceedings of the IVth Congress on Food Science and Technology. London 1974. Part I:345.	GB	eng
10	Allen C, Parks OW	Photodegradation of riboflavin in milk exposed to fluorescent light.	J Dairy Sci 1979;62:1377-9.	US	eng
11	Allwood MC, Plaine JH	The degradation of vitamin A exposed to ultraviolet radiation.	Int J Pharm 1984;19:207-13.		eng
12	Andersen I Erner, Andersen P Erner	Diet text-book 1, diet evaluation.	Copenhagen: Polyteknisk Forlag, 1979.	DK	dan
13	Anderson BA	Composition of foods: pork products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1983. Agricultural Handbook No. 8-10, USDA, Human Nutrition Information Service.	US	eng
14	Anderson BA	Comprehensive evaluation of fatty acids in foods. XIII. Sausages and luncheon meats.	J Am Diet Assoc 1978;72:48-52.	US	eng

15	Anderson BA, Clements ML, Dickey LE, Exler J, Hoke IM	Composition of foods: lamb, veal and game products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1989. Agricultural Handbook No. 8-17, USDA, Human Nutrition Information Service.	US	eng
16	Anderson BA, Dickey LE, Hoke IM	Composition of foods: pork products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1992. Agricultural Handbook No. 8-10, USDA, Human Nutrition Information Service.	US	eng
17	Anderson BA, Hoke IM	Composition of foods: beef products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1990. Agricultural Handbook No. 8-13, USDA, Human Nutrition Information Service.	US	eng
18	Anderson BA, Kinsella JA, Watt BK	Comprehensive evaluation of fatty acids in foods. II. Beef products.	J Am Diet Assoc 1975;67:35-41.	US	eng
19	Anderson BA, Lauderdale JL, Hoke IM	Composition of foods: beef products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1986. Agricultural Handbook No. 8-13, USDA, Human Nutrition Information Service.	US	eng
20	Anderson NE, Clydesdale FM	Effects of processing on the dietary fiber content of wheat bran, puréed green beans, and carrots.	J Food Sci 1980;45:1533.	US	eng
21	Anderson R	Developing new cook-chill operations.	Chilled Foods 1982;1:36-8.	US	eng
22	Andersson I	Nutrient changes in foods during cooking.	Vaar Naering 1978;(1):8,9,30.	SE	swe
23	Andersson R, Hellstroem V	Losses of tocopherols in baking bread.	Vaar Foeda 1968;20:5,41-3.	SE	swe
24	Andrews FE, Driscoll PJ	Stability of ascorbic acid in orange juice exposed to light and air during storage.	J Am Diet Assoc 1977;71:140-2.	US	eng
25	Ang CYW	Vitamin B6 and niacin contents of broiler meat of different strains, sexes, and production regions.	J Food Sci 1980;45:898-900.	US	eng
26	Ang CYW, Chang CM, Frey AE, Livingston GE	Effects of heating methods on vitamin retention in six fresh or frozen prepared food products.	J Food Sci 1975;40:997-1003.	US	eng
27	Ang CYW, Hamm D, Searcy GK	Changes in nutrient content during chill-holding of ice-packed and deep-chilled broilers.	J Food Sci 1982;47:1763-6.	US	eng
28	Anjali J, Bhat CM	Acceptability and vitamin contents of foods as affected by cooking in a sauce pan, pressure cooker and solar cooker.	J Food Sci Technol 1984;21:227-30.	IN	eng
29	Anonymous	Automatic freezer service window aids efficiency in fast-food kitchen operations.	Qk Froz Fd 1979;41:43,45-6.		eng

30	Anonymous	Cook-chill uncovered.	Chilled Foods 1982;1:38-9.	eng
31	Anonymous	Cook-freeze and foil-perfect partner.	Frozen Food 1979;32:30-4.	eng
32	Anonymous	Fresh foods and disappearance of vitamins in frozen foods.	New Food Ind 1978;20:65-9.	eng
33	Anonymous	Frozen prepared school meals.	Gordian Int Z Lebensm Lebensmitteltech 1974;74:324.	ger
34	Anonymous	Innovative kosher of processor tests thermoplastic dish-and-film system.	Qk Froz Fd 1976;38:58-60,111.	eng
35	Anonymous	Liquid margarine.	Food Process 1972;33:F20-F21.	eng
36	Anonymous	Ovenable paperboard system cuts costs, simplifies production for British caterer.	Qk Froz Fd 1981;43:32-3.	eng
37	Anonymous	Rapid cooking with good nutrient retention.	GV-Praxis mit Tiefkuehlpraxis 1977;17:42-5.	ger
38	Anonymous	Round-the-clock cottage pie.	Staff and Welfare Caterer 1980, 24-25, 35.	eng
39	Aramouni FM, Godber JS	Folate losses in beef liver due to cooking and frozen storage.	J Food Qual 1991;14:357.	eng
40	Archer MC, Tannenbaum SR	Nutritional and safety aspects of food processing. Vitamins.	Food Sci 1979;6:47-95.	eng
41	Arganosa FC, Bandian MM, Roxas NP, Arganosa VG, Phuagphong B	The processing and cooking characteristics of pork from Duroc barrows and gilts slaughtered at different weights.	Philippine Agr 1976/1977;60:318-29.	eng
42	Artz WE, Pettibone CA, Augustin J, Swanson BG	Vitamin C retention of potato fries blanched in water.	J Food Sci 1983;48:272-3.	eng
43	Ashoor SH, Monte Woodrow C	Retention of vitamin C in processed foods.	J Appl Nutr 1984;36:154-9.	eng
44	Augustin J, Augustin E, Cutrufelli RL, Hagen SR, Teitzel C	Alcohol retention in food preparation.	J Am Diet Assoc 1992;92:486-8.	eng
45	Augustin J, Beck CB, Kalbfleish G, Kagel LC	Variation in the vitamin and mineral content of raw and cooked commercial Phaseolus vulgaris classes.	Food Technol 1981;35:75-6.	eng
46	Augustin J, Johnson SR, Teitzele, True RH, et al.	Changes in the nutrient composition of potatoes during home preparation. 2. Vitamins.	Am Potato J 1978;55:653-62.	eng
47	Augustin J, Marousek GI, Artz WE, Swanson BG	Vitamin retention during preparation and holding of mashed potatoes made from commercially dehydrated flakes and granules.	J Food Sci 1982;47:274-6.	eng

48	Augustin J, Marousek GT, Tholen LA, Bertelli B	Vitamin retention in cooked, chilled and reheated potatoes.	J Food Sci 1980;45:814-6.	US	eng
49	Augustin J, Swanson BG, Pometto SF, Teitzel C, Artz WE, Huang CP	Changes in nutrient composition of dehydrated potato products during commercial processing.	J Food Sci 1979;44:216-9.	US	eng
50	Augustin J, Swanson BG, Teitzel C, Johnson SR, Pometto SF, Artz WE, Huang CP, Schomaker C	Changes in the nutrient composition during commercial processing of frozen potato products.	J Food Sci 1979;44:807-9.	US	eng
51	Augustin J, Tassinari PD, Melethil PK, Hagen SR, Perkins ML, Matthews RH	Yields and nutrient composition of the solid and liquid portions of selected canned fruits.	J Food Compos Anal 1988;1:270-8.	US	eng
52	Baloch AK, Buckle RA, Edwards NM	Stability of beta-carotene in model systems containing sulphite.	J Food Technol 1977;12:309-16.	AU	eng
53	Bankhead RR, Weingartner KE, Kuntz DA, Erdman JW Jr	Effects of sodium bicarbonate blanch on the retention of micronutrients in soy beverage.	J Food Sci 1978;43:345-60.	US	eng
54	Barreiro JA, Guariguata C, Salas GR	A manual method for predicting nutrient retention during thermal processing of conduction-heated foods in rectangular containers.	J Food Sci 1984;49:478-81.	VE	eng
55	Bassir O, Umoh IB	Nutrient changes in some traditional Nigerian foods during cooking. 1. Vitamin changes.	West Afr J Biol Appl Chem 1976;19:9-13.	NG	eng
56	Batyoumi E-S, Reuter H	Loss of vitamin B1 during UHT treatment of full fat milk.	Milchwiss 1980;35:278-9.	DE	ger
57	Bebic D	Losses of some constituents of frozen vegetables using different methods of preparation and cooking.	Hrana i Ishrana 1973;14:213-8.		cro
58	Bei A dei, Lovotti	The wave that cooks.	Ristorazione Collettiva 1982;7:65-75.	IT	ita
59	Bellini P	Between water and steam.	Ristorazione Collettiva 1984;9:49-52.	IT	ita
60	Bellisario V, Ciappellano S, Povrini M, Testolin G, Cantoni C	Physical-chemical parameters and digestibility of fats in deep-frozen meals.	Riv Ital Sostanze Grasse 1980;57:481-4.	IT	ita
61	Bender AE	Fate of vitamins in food processing operations.	In: Anonymous. Proceedings of University of Nottingham's residential seminar on vitamins. Nottingham: University of Nottingham, 1971:64-88. London: Academic Press, 1978. ISBN 0-12-086450-9.	GB	eng
62	Bender AE	Food processing and nutrition.		GB	eng

63	Bender AE	Loss of vitamins in industrially handled foods and its prevention.	Basel: Karger, 1973. Biblioteca Nutritio et Dieta, No. 18:92-113.	GB	eng
64	Bender AE	Processing damage to protein food.	J Food Technol 1972;7:239-50.	GB	eng
65	Bender AE	The effect of processing on the nutritional value of foods.	Food Rev 1984;11:28-30.	GB	eng
66	Bennink MR, Ono K	The content of vitamin B12, vitamin E and vitamin D of raw cooked beef.	J Food Sci 1982;47:1786-92.	US	eng
67	Bergstroem L	Nutrient losses and gains in the preparation of foods.	Uppsala: Livsmedelsverket, (March) 1997	SE	eng
68	Bergstroem L	Nutrient losses and gains project reports 1993.	In: Report of the Third Annual Meeting of SE the FLAIR Eurofoods-Enfant Project, 10-12 November 1993. Vilamoura, Portugal. Wageningen. FLAIR Eurofoods-Enfant Project, (February) 1994:109-110.	SE	eng
69	Bergstroem L, (ed.)	Yields for foods and dishes in Europe.	In: Bergstroem L. Nutrient losses and gains in the preparation of foods. Uppsala: Livsmedelsverket, (March) 1997	SE	eng
70	Bergstroem L, Castenmiller J, (eds.)	Nutrient losses and gains references.	In: Bergstroem L. Nutrient losses and gains in the preparation of foods. Uppsala: Livsmedelsverket, (March) 1997	SE	eng
71	Berry BW, Leddy K	Beef patty composition: effects of fat content and cooking method.	J Am Diet Assoc 1984;84:654-8.	US	eng
72	Bielig HJ, List D, Kruschel A	Effect of new packaging materials and forms on the retention of heat unstable food constituents during heat sterilization. I. Vitamin B1 in prepared dishes containing meat.	Lebensm-Wiss Technol 1978;11:227-32.	DE	ger
73	Bielig HJ, Schulz-Gursch WH, Treptow H	Comparative studies of different potato cooking processes.	Ernaehr Umsch 1977;24:403-8.	DE	ger
74	Billek G	Changes of fats in foods at higher temperatures.	Fat Sci Technol 1992;94:161-71.	DE	ger
75	Biro G, Lindner K	Nutrient data charts.	Budapest: Medicina Koenyviadó, 1988:244-52.	HU	hun
76	Blanc B	The effects of thermal processing on the contents of nutrients in milk.	Alimenta 1980;19: Sonderausgabe. Milcherhitzungsverfahren: 3-25.	CH	ger

77	Blanc B, Flueckiger E, Ruegg M, Steiger G	Changes of biochemical, technological, and sensorial characteristics of ultra-heat treated (UHT) milk during storage.	Alimenta 1980;19: Sonderausgabe (Special edition) Milcherhitzungsverfahren: 27-47.	CH	ger
78	Blegen E	Nutrient content of raw and cooked beef.	St forsoeksvirks i hustell 1968;20:103-26.	NO	nor
79	Blegen E, Wilsher B	Nutrient content of raw, frozen and cooked cod fillet.	Tidsskr Hermetikkind 1969;9:22.	NO	nor
80	Blumenthal A, Meier M, Kaenel B	Nutrient content of ready-to-eat foods. Part 1. The vitamin C content of fresh and industrially prepared frozen leafy spinach before and after domestic and canteen preparation.	Alimenta 1980;19:95-7.	DE	ger
81	Blumenthal A, Scheffeldt P, Dunnenberger G	The nutrients of prepared foods. Part 3. Changes of the vitamin, magnesium and trace element content of raw and prepared potatoes of the variety Bintje, Maribba, Ostara and Urgenta in relation to storage duration.	Alimenta 1981;20:115-9.	DE	eng
82	Bognár A	Changes in vitamins during the preparation of vegetables in the kitchen.	Ernaehr Umsch 1985;32:177-81.	DE	ger
83	Bognár A	Changes in vitamins during the preparation of vegetables in the kitchen.	Landwirtschaftliche Forschung 1983;40 (Special edition):137-45.	DE	ger
84	Bognár A	Contribution to the search of nutritional-physiological values of meat in relation to thermal treatment.	PhD thesis. Stuttgart: University of Hohenheim, 1971.	DE	ger
85	Bognár A	Effect of cooking methods used at home on the nutrient content of foods.	Schriftenreihe der Schweizerischen Vereinigung fuer Ernaehrung, Basel. 1983;No. 50a:6-25.	DE	ger
86	Bognár A	Effect of heat treatment on amino acid composition and nutritional value of beef.	HAWIA 1972;20:33-5.	DE	ger
87	Bognár A	Effect of new baking procedures on the nutritional value of pork.	HAWIA 1976;24:164-70.	DE	ger
88	Bognár A	Effect of thermal treatment on the content of amino acids in beef.	Ernaehr Umsch 1971;18:200-4.	DE	ger
89	Bognár A	Examination of the effect of conventional and modern cooking procedures and grilling on the nutritional value of pork.	Fleischw 1978;58:1176-82.	DE	ger
90	Bognár A	Examination of the effect of thermal treatment on the behaviour of important nutritional-physiological constituents and the value of appreciation of beef.	HAWIA 1971;19:13-20.	DE	ger
91	Bognár A	Food composition tables for ready-to-eat dishes.	Bonn: AID Verbraucherdienst, 1988.	DE	ger

92	Bognár A	Food composition tables for ready-to-eat dishes. 2nd ed.	Bonn: AID Verbraucherdienst, in press.	DE	ger
93	Bognár A	New insights with respect to cooking of meats. Part 1 and 2.	Modeme Hauswirtschaft 1972;No.3 and 4.	DE	ger
94	Bognár A	Nutrient losses in the preparation of foods.	Bonn: AID Verbraucherdienst, Foliensatz, 1983.	DE	ger
95	Bognár A	Nutrient losses in the preparation of foods. 2nd ed.	Bonn: AID Verbraucherdienst, 1988. Special ed.	DE	ger
96	Bognár A	Nutrient losses of foods during preparation at home. Part IV.	Bonn: AID Verbraucherdienst, 1984.	DE	ger
97	Bognár A	Nutrient losses of foods during preparation at home. Parts I-III.	AID Verbraucherdienst, 1983;28:161-71,179-88,201-10.	DE	ger
98	Bognár A	Study to reduce or remove residues of plant protection products in vegetable foods by the use of technical procedures in the kitchen.	In: Schul Beratung. Stuttgart: Bayerisches Staatsministerium fuer Ernaehrung, Landwirtschaft und Forsten, 1979.V1-V5.	DE	ger
99	Bognár A	Study to reduce residues of plant protection products in vegetable foods using technological kitchen procedures.	Lebensm-Rundsch 1977;73:149-57.	DE	ger
100	Bognár A	Systematics of cooking methods and preservation of nutrients using different cooking methods.	AID Verbraucherdienst, 1979;24:265-77.	DE	ger
101	Bognár A	The pressure cooker as cooking method.	Wirtschaftsgesellschaft der Elektrizitaetswerke mbH, Frankfurt/M. 1979;5-15.	DE	ger
102	Bognár A, Karg G	Empirical comparison of different methods to measure energy and nutrient content of dishes.	Karlsruhe: Bundesforschungsanstalt fuer Ernaehrung, 1984. BFE-R- - 84-04:77-103.	DE	ger
103	Bognár A, Knauss C	Examination on the effect of temperature and packaging on the appreciation and nutritional value of fresh vegetables and fruit when stored in the refrigerator.	Ernaehr Umsch 1989;36:254-63.	DE	ger



104	Bognár A, Piekarski J	Calculation system for food recipes.	In: Castenmiller J, West CE, (eds). Report of the the Third Annual Meeting of the FLAIR Eurofoods-Enfant Project, 10 - 12 November 1993. Vilamoura, Portugal. Wageningen. Flair Eurofoods- Enfant Project, (February) 1994.	DE	eng
105	Bognár A, Piekarski J	Long-term cooking procedure in wet and dry heat.	Garverfahren-Technologie und Anwendung. Bericht zum 5 Wissenschaftlich-technischen Ernaehrungsforum (WTE), Herborn. 1981:38-57.	DE	ger
106	Bognár A, Puechner HJ	Influence of cooking methods on the nutritional value of pork.	Fleischw 1983;63:943-51,1080-6.	DE	ger
107	Bognár A, Rottka H	Development and utilization of nutrient databanks in the Federal Republic of Germany.	Karlsruhe: Bundesforschungsanstalt fuer Ernaehrung, 1984. BFE-R - - 84-04:133.	DE	ger
108	Bognár A, Zacharias R	Quality of dishes that were kept warm.	HAWIA 1977;25:174-81.	DE	ger
109	Bognár A, Zacharias R	Quality of dishes that were kept warm.	In: Schulverpflegung mit warmgehaltenen Speisen aus Zentralkuechen. Stuttgart: Bundesministerium fuer Ernaehrung, Landwirtschaft und Forsten, 1976:91-194.	DE	ger
110	Bognár A, Zacharias R	School food service with kept-warm dishes from central kitchens.	In: Schulverpflegung mit warmgehaltenen Speisen aus Zentralkuechen. Stuttgart: Bundesministerium fuer Ernaehrung, Landwirtschaft und Forsten, 1976.	DE	ger
111	Boka A, Riba E, Lestals V	Effect of the storage period on the biological quality of premixes.	Vses Nauchno Issled Inst Kkombikormov Prom 1983;217:80-4.	LV	rus
112	Boltman DB	The use of deep frozen meals for large scale catering.	S Afr Food Rev 1979;6:33-5.	ZA	eng
113	Bomben JL, Dietrich WC, Hudson JS, Hamilton HK, Farkas DF	Yields and solids loss in steam blanching, cooling and freezing vegetables.	J Food Sci 1975;40:660-4.	US	eng

114	Borowski J, Kozikowski W, Rotkiewicz W, Amarowicz R	Influence of cooking methods on the nutritive value of turkey meat.	Die Nahrung 1986;30:987-93.	PL	ger
115	Bosund I	Nutrient content and industrial processing technique.	Næringsforskning 1968;1:21-32.	SE	swe
116	Boushell R, Potter NN	Effect of soaking-blanching conditions on vitamin C losses and other properties of frozen french fried potatoes.	J Food Sci 1980;45:1207-9.	US	eng
117	Bouton PE, Harris PV, Shorthose WR	Factors influencing cooking losses from meat.	J Food Sci 1976;41:1092-5.	AT	eng
118	Bowers JA, Fryer BA, Engler PP	Vitamin B6 in turkey breast muscle cooked in microwave and conventional ovens.	Poultry Sci 1974;53:844-6.	US	eng
119	Brady DE, Peterson WJ, Shaw AO	Riboflavin and thiamin contents of pork loin muscles and their retention during cooking.	Food Res 1944;9:400-5.		eng
120	Bramblett VD, Judge MD, Harrington RB	Effect of temperature and cut on quality of pork roast.	J Am Diet Assoc 1970;57:132-5.	US	eng
121	Brawand F, Ganzoni L, Heizmann R, Olbrecht U, Walter P	Determination of added vitamin D to foodstuffs by high performance liquid chromatography.	In: Zeuthen P, Cheftel JC, Eriksson C, et al. (eds.). Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:877-99. ISBN 0-85334-279-2.	CH	eng
122	Breen MD, Banasik OJ, Walsh DE	Use of various protein sources in pasta.	Macaroni J 1977;58:26-7,30,32,34.	US	eng
123	Breen MD, Seyam AA, Banasik OJ	Durum wheat air-classified flours and their effect on spaghetti quality (color scores, cooking loss).	Cereal Chem 1977;54:737-46.	US	eng
124	Brenoee C	Fat uptake in deep and shallow frying and its importance for the fat energy percent of the diet.	Husholdningsraadets Tekniske Meddelelser 1973;13:7.	DK	dan
125	Brenoee C, Fredsted I, Bretlau G	Special report on retention of water-soluble vitamins of vegetables boiled in etage saucepan.	Husholdningsraadets Tekniske Meddelelser 1966;6:142-8.	DK	dan
126	Brittin HC, Miles SS	Yield and waste of food prepared using a spatula.	J Am Diet Assoc 1987;87:639-41.	US	eng
127	Brown ML	Present knowledge in nutrition. 6th ed.	Washington: ILSI, 1990. ISBN 0-944398-05-7.	US	eng
128	Bruin S, Hallstroem B, Jowitt R	Food process engineering - a model syllabus.	J Food Eng 1984;3:205-23.	NL, SE BE	eng
129	Bucar F	Technology of roasting and preparation of roast beef as a component of ready-to-serve meals.	Tehnologija Mesa 1977;18:42-4.	HR	cro
130	Buchanan PW	Quantity food preparation: standardizing recipes and controlling ingredients. 2nd ed.	American Dietetic Assoc., cop. 1983.	US	eng

131	Bucko A, Obonova K, Ambrova P	The effects of storage and culinary processing on vitamin C losses in vegetables and potatoes.	Nahrung 1977;21:107-12.	SK	ger
132	Burger IH, Walters CL	Effect of processing on the nutritive value of flesh foods.	Proc Nutr Soc 1973;32:1-8.		eng
133	Bychkov VP, Kozar MI, Popov VI, Boiko NN, Kolchin EV, Khokhlova DS, Yurgov VV	Experimental findings concerning the effect of protons and gamma radiation on foods.	Kosm Biol Aviakosm Med 1974;8:6-10.	RU	rus
134	Callahan JF, Aldrich PJ	New method of calculating yield of recipes.	J Am Diet Assoc 1959;34:45-7.	US	eng
135	Cameron AG	The science of food and cooking. 2nd ed.	London: Edward Arnold Ltd., 1978.	GB	eng
136	Carballido A, Perea Ortega ML	Study of vitamin B1 loss through cooking processes.	An Brom 1968;20:193-227.	ES	spa
137	Carlheim-Gyllenskoeld H	The penetration of salt and of heat into foodstuffs while being cooked.	Stockholm: Acta Polytechnica Scandinavica. Chemistry including metalurgy series 1970;93:7-88.	SE	eng
138	Carlheim-Gyllenskoeld H, Bengtsson N, Brasen U, et al.	Research into cooking.	Paper presented on seminar held on April 16th, 1970. Goeteborg: SIK, 1970. SIK-Rapport 275.	SE	swe
139	Carlin F, Ziprin Y, Zabik ME, et al.	Texturized soy protein in beef loaves: cooking losses, flavor, juiciness and chemical composition.	J Food Sci 1978;43:830-3.	US	eng
140	Carnovale E, Miuccio F, (eds.)	Food composition table.	Rome: Istituto Nazionale della Nutrizione, 1989.	IT	ita
141	Castenmiller J, West CE, (eds.)	Report of the third annual meeting of the FLAIR Eurofoods Infant project, 10 - 12 November 1993. Vilamoura, Portugal.	Wageningen. FLAIR Eurofoods-Enfant Project, (February) 1994.	NL	eng
142	Chan W, Brown J, Buss DH	Miscellaneous Foods.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1994. The fourth supplement to McCance and Widdowson's The Composition of Foods, 5th ed. ISBN 0-85186-360-4.	GB	eng
143	Cheigh HS, Ryu CH, Jo JS, Kwon TW	A type of post-harvest loss: nutritional losses during washing and cooking of rice.	Han'guk Sikip'un Kwhak Hoechi Korean J Food Sci Technol 1977;9:229-33.	KR	eng
144	Chen LM, Peng AC	Effect of acid dip on the shelf life of coleslaw.	J Food Sci 1980;45:1556.	US	eng

145	Chug-Anuja JK, Holden JM, Forman MR, Mangels AR, Beecher GR, Lanza E	The development and application of a carotenoid database for fruits, vegetables, and selected multicomponent foods.	J Am Diet Assoc. 1993;93:318-23.	US	eng
146	Chugtai MID, Khan MR, Akhtar J, Khanum H	Nutritive value of foodstuffs: IX. Some cooked foods prepared by conventional methods.	Pak J Sci Res 1979;31:266-78.	PK	eng
147	Chung SY, Morr CV, Jen JJ	Effect of microwave and conventional cooking on the nutritive value of colossus peas ( <i>Vigna unguiculata</i> ).	J Food Sci 1981;46:272-3.	US	eng
148	Cichy RF	Nutrient retention in food service operations.	Disposal 'The Consultant' 1982;25:489.	US	eng
149	Cipra JE, Bowers JA, Hooper AS	Precooking and reheating of turkey.	J Am Diet Assoc 1971;58:38-40.	US	eng
150	Ciplef RL, Grinwich DL, Castell AG	Consumer acceptance of fresh pork and pork products from littermate boars and barrows.	Can J Anim Sci 1984;64:21-7.	CA	eng
151	Clyde DD, Bertini J, Dmochowski R, Koop H	The vitamin A and C content of coriandrum sativum and the variations in the loss of the latter with various methods of food preparation and preservation.	Qual Plant Plant Foods Hum Nutr 1979;28:317-22.	US	eng
152	Cohen JS, Shults GW, Mason VC, Wierbicki E	Variables effecting the acceptability of radappetized ground beef products. Effects of food grade phosphates, sodium chloride, fat level, and grinding methods.	J Food Sci 1977;42:338-43.	US	eng
153	Contreras S, Harrison DL, Kropf DH, Kastner CL	Electrical stimulation and hot boning: cooking losses, sensory properties, and microbial counts of ground beef.	J Food Sci 1981;46:457-60.	US	eng
154	Cooper RG, Chen TS, King MA	Thermal destruction of folacin in microwave and conventional heating.	J Am Diet Assoc 1978;73:406-10.	US	eng
155	Correll JD, Wells HD	Applied cooking technology for the food service operator.	US: Black Body Corporation, 1979.	US	eng
156	COST 91	Home cooking: Nutrient changes and emerging problems.	Proceeding of a Workshop held at Istituto Nazionale della Nutrizione in Rome on October 14-15, 1982.		eng
157	Craig EM, Minor JM	Food warming and cooking cabinet.	US 1982;4:345,143.	US	eng
158	Crandall WB, Wasserstein LJ	Ceramic utensils.	US 1980;4:229,494.	US	eng
159	Cremer HD, Gork FP, Muskat E	Preparation of food, nutritive value and health aspects, with particular reference to aircraft catering.	Ernaehr Umsch 1976;23:304-7.	DE	ger
160	Cross GA, Fung DYC	The effect of microwaves on nutrient value of foods.	CRC Crit Rev Food Sci Nutr 1982;16:355-81.	US	eng

161	Cross HR, Stanfield MS, Elder RS, Smith GC	A comparison of roasting versus broiling on the sensory characteristics of beef longissimus steaks.	J Food Sci 1979;44:310-1.	US	eng
162	Dagerskog M	Nutritional gains and losses during processing of foods. A literature review.	Goeteborg: SIK, 1973. SIK-Rapport 337.	SE	swe
163	Dagerskog M	Pan frying of meat patties. II: Influence of processing conditions on heat transfer, crust color formation, cooking losses and sensory quality.	Sci Technol Alimentaria 1979;12:225-30.	SE	eng
164	Dahiya S, Kapoor AC	Effect of storage conditions on the protein quality of pearl millet flour.	Nutr Rep Int 1983;28:1351-9.	US	eng
165	Dahl CA	Cook/chill food service system with a microwave oven: quality of food after microwave-heating.	Diss Abstr Int B 1980;40:3078-9.	US	eng
166	Dahl CA, Matthews ME	Cook/chill food service system with a microwave oven: thiamin content in portions of beef loaf after microwave heating.	J Food Sci 1980;45:608-12.	US	eng
167	Dahl CA, Matthews ME	Effect of microwave heating in cook/chill food service systems.	J Am Diet Assoc 1980;77:289-95.	US	eng
168	Dahl CA, Matthews ME	Hospital cook/chill food service systems.	J Am Diet Assoc 1979;75:34-7.	US	eng
169	Dahl CA, Matthews ME, Lund DB	Effect of microwave heating in cook/chill food service system.	J Am Diet Assoc 1981;79:296-301.	US	eng
170	Dahl-Sawyer CA, Jen JJ, Huang PD	Cook/chill food service systems with conduction, convection and microwave reheat subsystems: nutrient retention in beef loaf, potatoes and peas.	J Food Sci 1982;47:1089-95.	US	eng
171	Danfors S	Content of retinylpalmitat and alpha-tocopherol found in margarine after frying.	Uppsala: Livsmedelsverket. Personal communication.	SE	swe
172	Danfors S, Becker W	Cooking effects on foods containing caesium.	Uppsala: Statens Livsmedelsverk, 1989. SLV Rapport: 1989-4.	SE	swe
173	Danfors S, Bruce Aa	Change in sodium and potassium content of potato with different cooking methods.	Vaar Foeda 1984;36:448-52.	SE	swe
174	Danfors S, Bruce Aa	Nutrient losses and gains during the preparation of foods.	Vaar Foeda 1985;37:401-7.	SE	swe
175	Darazs S, Feher KP	Quick-frozen dishes made from phytophagous fish.	Hutoipar 1984;30:7-12.	HU	hun
176	Data ES, Pantastico EB	Loss of ascorbic acid in fresh leafy vegetables subjected to light and different wind velocities.	Philippine Agr 1982;1:75-80.	PH	eng
177	Data ES, Pantastico EB	Physiochemical changes in leafy vegetables as related to wilting after harvest.	Philippine Agr 1982;65:81-92.	PH	eng

178	Davis MA, Funk K, Zabrik ME	Time-temperature and time-weight losses in veal roasts.	J Am Diet Assoc 1973;62:166-70.	US	eng
179	Day BP, Gregory JF	Thermal stability of folic acid and 5-methyltetrahydrofolic acid in liquid model food systems.	J Food Sci 1983;18:581-7,599.	GB	eng
180	Day KC	'Recipe', a computer program for calculating the nutrient contents of foods.	J Hum Nutr 1980;34:181-7.	GB	eng
181	Dedukh NN, Kovalev NI	Dehydration of meat during heating.	Sb Nauchn Tr Leningr Inst Sov Torg 1976;56:110-6.	RU	rus
182	Dehne L, Boegl W, Grossklaus D	The effect of microwave heating on the nutritional value of animal foods. A review. Part 1.	Fleischw 1983;63:231-7.	DE	ger
183	Dennison DB, Kirk JR	Oxygen effect on the degradation of ascorbic acid in a dehydrated food system.	J Food Sci 1978;43:609-12.	US	eng
184	Dequit J	Comparison of content of water-soluble vitamins in some vegetables with different preserving methods.	Ann Falsif Expert Chim 1981;74:89-104.	FR	fre
185	Desarzens C, Bosset JO, Blanc B	The photodegradation of milk and some milk products. Part 1: changes in colour, taste and content of some vitamins.	Lebensm-Wiss Techn 1983;17:241-7.	CS	fre
186	Dexter JE, Matsuo RR, Morgan BC	Effects of processing conditions and cooking time on riboflavin, thiamin, and niacin levels in enriched spaghetti.	Cereal Chem 1982;59:328-32.	CA	eng
187	Dexter JE, Matsuo RR, Morgan BC	Spaghetti stickiness: some factors influencing stickiness and the relationship to other cooking quality characteristics.	J Food Sci 1983;48:1545-51,1559.	CA	eng
188	Diehl JF	Possible radiation-induced changes in the physiological quality of food crops.	Ber Landwirtschaft 1972;50:220-9.	DE	ger
189	Diehl JF	Reduction of radiation-induced vitamin E and B1 losses by irradiation of foods at low temperatures and by exclusion of atmospheric oxygen.	Z Lebensm-Unters Forsch 1979;169(4):276-80.	DE	ger
190	Dong MH, McGown EL, Schwenneker BW, Sauberlich HE	Thiamin, riboflavin, and vitamin B6 contents of selected foods as served.	J Am Diet Assoc 1980;76:156-60.	US	eng
191	Dover RL, Brody AL	Packaging improves food service productivity.	Food Technol 1977;31:40,45-6,48.	US	eng
192	Drake SR, Kluter RA, Himmergardt LC	Textured soy protein improves quality of freeze-dried beef patties.	Food Technol 1977;31:24,28,30-6.		eng
193	Drechsler D	Conveying of thickened sauces and casserole-type products in pipelines.	Fleisch 1979;33:231-3.	DE	ger

194	Dworschak E	Nonenzyme browning and its effect on protein nutrition.	Budapest: National Institute of Food Hygiene and Nutrition, 1980.	HU	eng
195	Eddy TP, Stock A	Losses of vitamin C during machine-peeling and soaking of peeled potatoes.	Proc Nutr Soc 1972;31:87A-88A.	GB	eng
196	Eison-Perchonock MH, Downes TW	Kinetics of ascorbic acid auto-oxidation as a function of dissolved oxygen concentration and temperature.	J Food Sci 1982;47:765-7,773.		eng
197	Elmadfa I, Fritzsche D, Cremer HD	The large vitamin and mineral table.	Muenchen: Graefe und Unzer, 1984.	DE	ger
198	Engler PP, Bowers JA	B-vitamin retention in meat during storage and preparation.	J Am Diet Assoc 1976;69:253-6.	US	eng
199	Engler PP, Bowers JA	Eating quality and thiamin retention of turkey breast muscle roasted and 'slow-cooked' from frozen and thawed states.	Home Econ Res J 1975;4:27-31.	US	eng
200	Erb F, Brice A, Lhopitault JC, Assy Seka N	Changes in the vitamin content of maternal milk during pasteurization and freezing treatments carried out in the milk factory.	Ann Falsif Expert Chim Toxicol 1981;74:105-18.	FR	fre
201	Erdman JW	Effect of preparation and service of food on nutrient value.	Food Technol 1979;33:38-48.	US	eng
202	Evans GG, Ranken MD	Fat cooking losses from nonemulsified meat products.	J Food Technol 1975;10:63-72.	GB	eng
203	Evans SR, Gregory JF, Kirk JR	Thermal degradation kinetics of pyridoxin hydrochloride in dehydrated food model systems.	J Food Sci 1981;46:555-8,563.	US	eng
204	Evenshtein ZM	Corrosion of aluminium in contact with cooked meals at grades of 99.50 and 99.99 degrees Celsius.	Vopr Pitan 1971;30:71-3.	RU	rus
205	Exler J	Composition of foods: finfish and shellfish products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1987. Agricultural Handbook No. 8-15, USDA, Human Nutrition and Information Service.	US	eng
206	Fabech B, Jakobsen J, Knuthsen P, Mikkelsen BE, Nielsen PA, Petersen JH, Schlundt J	Microwave oven - nutrition, microbiology, and other health aspects.	Søborg: Levnedsmiddelstyrelsen, Sundhedsministeriet, 1993.	DK	dan
207	Farr AJ, May KN	Effect of polyphosphates and sodium chloride on cooking yields and oxidative stability of chicken.	Poultry Sci 1970;49:268-75.	US	eng
208	Farrow RP, Kemper K, Chin HB	Nutrient content of processed fruits and vegetables.	J Food Technol 1979;33:52-4.	US	eng
209	Fennema O	Loss of vitamins in fresh and frozen foods.	Food Technol 1977;31:32-5,38.	US	eng

210	Ferretti RJ, Levander OA	Effect of milling and processing on the selenium content of grains and cereal products.	J Agric Food Chem 1974;22:1049-51.	US	eng
211	Fialova JA	Preparation of frozen foods.	Prague: Price, 1968.	CS	cze
212	Fiellietaz Goethart RL de, Lassche JB	Use of microwave ovens in catering.	Voeding 1981;42:407-10.	NL	dut
213	Fiellietaz Goethart RL de, Lassche JB	Use of microwave ovens in catering.	Voedingsmiddelen Technol 1982;15:13-6.	NL	dut
214	Finglas PM, Southgate DAT	Objectives and strategy for future vitamin methods.	J Micronutr Anal 1990;7:229-35.	GB	eng
215	Finnegan T	Frozen convenience foods work 'miracle' at Mercy hospital.	Qk Froz Fd 1974;36:26-9.	US	eng
216	Fisher KH, Dodds ML	Ascorbic acid and ash in vegetables cooked in stainless steel utensils.	J Am Diet Assoc 1952;28:726-31.	US	eng
217	Foegeding EA	Functional properties of turkey salt-soluble proteins.	J Food Sci 1987;52:1495-9.	US	eng
218	Ford JE	The influence of dissolved oxygen in milk on the stability of some vitamins with regard to heating and light exposure.	J Dairy Res 1967;34:239-47.	GB	eng
219	Ford JE, Hurrell RF, Finot PA	Storage of milk powders under adverse conditions. 2. Influence on the content of water-soluble vitamins.	Br J Nutr 1983;49:355-64.	GB	eng
220	Foster PE, McCurdy SM, Martin EL, Hard MM	Consumer quality of beef chuck roasts from two breed types, two feeding regimes, and two oven temperatures.	Home Econ Res J 1979;8:127-37.	US	eng
221	Fourle PC, Basson DS	Changes in the tocopherol content of almond, pecan and macadamia kernels during storage.	J Am Oil Chem Soc 1989;66:1113-4.	US	eng
222	Fredholm L	Knowledge and accuracy are as important as good equipment.	Livsmedelsteknik 1982;6:286-90.	SE	swe
223	Fredholm L, Gustafsson IB, Jonsson L	What happens with the frying fats in shallow and deep frying?	Naeringsforskning 1991;35:132-40.	SE	swe
224	Friedman M	Dietary impact of food processing.	Ann Rev Nutr 1992;12:119-37.	US	eng
225	Fries JA, Graham DM	Reconstituting preplated frozen meals with integral heat.	Food Technol 1972;26:76-7,80,82.	US	eng
226	Fuchs G	Food chemistry and analysis. 2nd ed.	Uppsala: Statens Livsmedelsverk, 1989. Compendium.	SE	swe
227	Fuchs G	The chemistry behind cooking, baking, shallow frying, deep frying, grilling, cold storage.	Uppsala: Statens Livsmedelsverk, 1992. Compendium.	SE	swe
228	Furuya EM, Warthesen JJ	Influence of initial riboflavin content on retention in pasta during photodegradation and cooking.	J Food Sci 1984;49:984-8.	US	eng



229	Furuya EM, Warthesen JJ, Labuza TP	Effects of water activity, light intensity and physical structure of food on the kinetics of riboflavin photodegradation.	J Food Sci 1984;49:525-8.	US	eng
230	Garcia Olmedo R, Carballido A, Silvela S	Vitamins B1, B2 and B6 in precooked foods.	An Brom 1980;32:223-48.	ES	spa
231	Gardner JG	Contract food service/vending.	Boston: Cahners Publ Co, 1973. ISBN 0-843-60568-5.	US	eng
232	Gary JG, Simko MD	Adherence to time and temperature standards and food acceptability.	J Am Diet Assoc 1987;87:1513-15.	US	eng
233	Gatherer A	Practical and nutritional aspects of the use of frozen meals in a meals-on-wheels service.	Royal Soc Health J 1971;91:83-7.	GB	eng
234	Geenen ER, van Jeveren JGC	Waste and yield of some often used vegetables.	Ned Tijdsch Dietisten 1978;33:161-70.	NL	dut
235	Gembicka D	Vitamin content in some vegetables prepared in the hospital kitchen.	Pr Kom Nauk Roln Kom Nauk Lesn PoznanTow Przyj Nauk 1975;39:101-10.	PL	pol
236	George LE, Drake B, Eriksson CE	Terminology of cooking.	In: Zeuthen P, Cheftel JC, Eriksson C, et al. (eds.). Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:301. ISBN 0-85334-279-2.		
237	Gerster H	Vitamin losses with microwave cooking.	Food Sci Nutr 1989;42F:173-81.	CH	eng
238	Gibson RS, McDonald I	The ascorbic acid (vitamin C) content of vegetables cooked in a high speed steam cooker.	HCIMA Rev 1976;2:41-5.	CA	eng
239	Giese J	Advances in microwave food processing.	Food Technol 1992;46:118-23.	US	eng
240	Gill HS, Tewari RN, Singh R	Varietal variation in chemical constituents (ascorbic acid, total soluble solids, and dry matter) in turnip greens.	Sci Cult 1974;40:491-2.	IN	eng
241	Gillback A, Knorr MB, Leander U, Thorell M	Measures for food. Measure, weight, time and temperature in cooking. 4th rev. ed.	Vaellingby: Konsumentverket, 1985.	SE	swe
242	Girhammar U, Nair BM	Baking and nutrient value.	Broedkonditorm 1985;(5):16-20.	SE	swe
243	Glew G	Cook/freeze catering. An introduction to its technology.	London: Faber & Faber, 1973.	GB	eng
244	Glew G	Food preferences of hospital patients.	Proc Nutr Soc 1970;29:339-43.	GB	eng
245	Glew G	Freezer meals.	Nutr Food Sci 1971;23:4-5.	GB	eng

246	Glew G, Hill MA, Millross J	Vitamins. Position now in large-scale catering.	In: Anonymous. Proceedings of the University of Nottingham. Residential seminar on vitamins. Nottingham: University of Nottingham, 1971:89-108.	GB	eng
247	Goerner F, Uherova R	Changes of vitamins in milk during storage.	Nahrung 1980;24:373-9.	SK	ger
248	Goldblith SA, Decareau RV	An annotated bibliography on microwaves: their properties, production and application to food processing.	Cambridge: MIT Press, 1973. ISBN 0-262-07049-9.	US	eng
249	Goldman M, Horev B, Saguy J	Decolorization of beta-carotene in model systems simulating dehydrated foods. Mechanism and kinetic principles.	J Food Sci 1983;48:751-4.	IL	eng
250	Gómez MI	Sources of vitamin C in the Kenya diet and their stability to cooking and processing.	Ecol Food Nutr 1982;12:179-84.	KE	eng
251	Gossault B, Luquet FM, Gagnepain MF	Experimental study on the incidence of UV rays on nutritional elements in baby foods in brown-coloured glasses.	Ann Nutr Aliment 1978;32:499-508.	FR	fre
252	Gould MF, Gollidge D	Ascorbic acid levels in conventionally cooked versus microwave oven cooked frozen vegetables.	Food Sci Nutr 1989;42F:145-52.	GB	eng
253	Graesbeck R, Salonen EM	Vitamin B12.	Prog Food Nutr Sci 1976;2:193-231.	FI	eng
254	Graham DM	Alteration of nutritive value resulting from processing and fortification of milk and milk products.	J Dairy Sci 1974;57:738-45.	US	eng
255	Gray JI, Morton ID	Some toxic compounds produced in food by cooking and processing.	J Hum Nutr 1981;35:23.	US	eng
256	Greenfield H, Southgate DAT	Food composition data. Production, management and use.	London: Chapman & Hall, reprinted with corrections 1994. ISBN 0 412 53750 8	AU, GB	eng
257	Gregory JF, Hiner ME	Thermal stability of vitamin B6 compounds in liquid model food systems.	J Food Sci 1983;48:1323-7.	US	eng
258	Gregory JF, Kirk JR	Assessment of storage effects on vitamin B6 stability and bioavailability in dehydrated food systems.	J Food Sci 1978;43:1801-8.	US	eng
259	Grishin MA, Mariupelskaya LD	Drying of carrots and onions for the preparation of canned vegetable snacks.	Izv Vyssh Uchebn Zaved Pishch Tekhnol 1973;6:151-4.	RU	rus
260	Grossmann A, Knuthsen P	Changes in fat content in preparation of meat and fish. A literature study.	Levnedsmiddelistyrelsen, 1992. CLA92001.	DK	dan
261	Guaglia GB, Audisio VM, Fidanza A	Thermal treatment of foods and vitamins.	Acta Vitaminol Enzymol 1974;28:39-46.	IT	ita

262	Haddad GS, Loewenstein M	Effects of several heat treatments and frozen storage conditions on the thiamin, riboflavin and ascorbic acid content of milk.	J Dairy Sci 1983;66:1601-6.	US	eng
263	Hall KN, Lin CS	Effect of cooking rates in electric or microwave oven on cooking losses and retention of thiamin in broilers.	J Food Sci 1981;46:1292-3.	US	eng
264	Hallberg L, Rossander L, Persson H, Svahn E	Deleterious effects of prolonged warming of meals on ascorbic acid content and iron absorption.	Am J Clin Nutr 1982;36:846-50.	SE	eng
265	Hallstroem B, Skjoeldebrand C, Traegaardh C	Heat transfer and food products.	Elsevier Applied Science Publishers, 1988. ISBN 1-85166-130-1.	SE	eng
266	Hamm DJ, Lund DB	Kinetic parameters for thermal inactivation of pantothenic acid.	J Food Sci 1978;43:631-3.	US	eng
267	Hanisch U	Study of quality criteria for buttermilk.	Die Ernahrungsindustrie 1983;10:70-4.	DE	ger
268	Haralampu SG, Karel M	Kinetic models for moisture dependence of ascorbic acid and beta-carotene degradation in dehydrated sweet potato.	J Food Sci 1983;48:1872-3.	US	eng
269	Haring BSA, van Delft W	Changes in the mineral composition of food as a result of cooking in "hard" and "soft" waters.	Arch Environ Health 1981;36:33-5.	NL	eng
270	Harris RS, Karmas E, (eds.)	Nutritional evaluation of food processing. 2nd ed.	Westport, Connecticut: AVI Publishing Company, Inc., 1975. ISBN 0-87055-189-2.	US	eng
271	Haycock CE	Frozen meals cut weight loss of the astronauts on skylab.	Qk Froz Fd 1975;37:62-3.	US	eng
272	Haytowitz DB, Matthews RH	Composition of foods: legumes and legume products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1986. Agricultural Handbook No. 8-16, USDA, Human Nutrition Information Service.	US	eng
273	Haytowitz DB, Matthews RH	Composition of foods: vegetables and vegetable products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1984. Agricultural Handbook No. 8-11, USDA, Human Nutrition Information Service.	US	eng
274	Haytowitz DB, Matthews RH	Effect of cooking on nutrient retention of legumes.	Cereal Foods World 1983;28:362-4.	US	eng
275	Head MK	Nutrient losses in institutional food handling.	J Am Diet Assoc 1974;65:423-7.	US	eng
276	Head MK, Hansen AR	Stability of L-ascorbic acid added to whole chocolate and low fat milks.	J Dairy Sci 1979;62:352-4.	US	eng

277	Hearne LE, Penfield MP, Goertz GE	Heating effects on bovine semitendinosus: shear, muscle fiber measurements, and cooking losses.	J Food Sci 1978;43:10-12, 21.	US	eng
278	Hein RE, Hutchings IJ	Influence of processing on vitamin-mineral content and biological availability in processed foods.	In: American Medical Association. Nutrients in processed foods. Vitamins-minerals. Acton, Mass.: Science Group Inc., 1974;5:59-68.		eng
279	Heine N, Bowers J, Johnson P	Eating quality of half turkey hens cooked by four methods.	Home Econ Res J 1973;1:210-4.		eng
280	Heinonen M	Carotenoids and retinoids in Finnish foods and the average diet.	Dissertation. University of Helsinki. Department of Food Chemistry and Technology, EKT series 811, 1990. ISBN 952-90-1679-4.	FI	eng
281	Hellstroem V	Preparation of rose hips.	Vaar Foeda 1949;1:23-4.	SE	swe
282	Hendrick TI, Glass L	Chemical changes in milk during exposure to fluorescent light.	J Milk Food Technol 1975;38:129-31.	US	eng
283	Herrmann J, Duan L, Mossa M	Reaction-kinetical calculation of nectars ascorbic acid during the production and storage of fruit.	Nahrung 1978;22:483-90.	DE	ger
284	Herrmann J, Hoppe K, Zwetkowa E	Contribution of the dependence of thiamin destruction in freeze-dried pork to the moisture content at various temperatures.	Nahrung 1978;22:477-81.	DE	ger
285	Higgs DL, Morris VC, Levander OA	Effect of cooking on selenium content of foods.	J Agric Food Chem 1972;20:678.	US	eng
286	Hill CG, Grieger-Block RA	Kinetic data: generation, interpretation and use.	Food Technol 1980;34:56-66.		eng
287	Hill MA	Some nutritional effects of cooking.	J Consumer Studies and Home Econ 1983;1:67-76.	GB	eng
288	Hilmarsdóttir E, Arnadóttir AT	Nutritional effects of pickle fermentation on blood and liver sausages in skyrwhéy.	In: Somogyi JC, Mueller HR, (eds.): Nutritional impact of food processing. Biblioteca Nutritio et Dieta No. 43:47-58. Basel: Karger, 1989.	IS	eng
289	Hoetzel D, Zittermann A	Comparison of quality between fresh and deep frozen foods.	Ernaehr Umsch 1992;39:95-101.	DE	ger

290	Holland B, Brown J, Buss DH	Fish and Fish Products.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1992. The third supplement to McCance and Widdowson's The Composition of Foods, 5th ed. ISBN 0-85186-421-X.		
291	Holland B, Unwin ID, Buss DH	Cereals and Cereal Products.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1988. The third supplement to McCance and Widdowson's The Composition of Foods, 4th ed. ISBN 0-85186-743-X.	GB	eng
292	Holland B, Unwin ID, Buss DH	Fruit and Nuts.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1992. The first supplement to McCance and Widdowson's The Composition of Foods, 5th ed. ISBN 0-85186-386-8.	GB	eng
293	Holland B, Unwin ID, Buss DH	Milk Products and Eggs.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1989. The fourth supplement to McCance and Widdowson's The Composition of Foods, 4th ed. ISBN 0- 85186-366-3.	GB	eng
294	Holland B, Unwin ID, Buss DH	Vegetables, Herbs and Spices.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1991. The fifth supplement to McCance and Widdowson's The Composition of Foods, 4th ed. ISBN 0-85186-376-0.	GB	eng

295	Holland B, Welch AA, Buss DH	Vegetable Dishes.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1992. The second supplement to McCance and Widdowson's The Composition of Foods, 5th ed. ISBN 0-85186-396-5.	GB	eng
296	Holland B, Welch AA, Unwin ID, Buss DH, Paul AA, Southgate DAT	McCance and Widdowson's The Composition of Foods, 5th ed.	The Royal Society of Chemistry, Cambridge and the Ministry of Agriculture, Fisheries and Food, London 1991. ISBN 0-85186-391-4.	GB	eng
297	Holmes ZA, Soeldner AL	Macrostructure of selected raw starches and selected heated starch dispersions.	J Am Diet Assoc 1981;78:153-7.	US	eng
298	Hondo S, Nochizuki T	Studies on saccharides in miso. Part I. Polysaccharides in soybean steamed waste water and miso.	Nippon Shokuhin Kogyo Gakkaishi 1979;26:461-8.	JP	jap
299	Horak FP, Kessler HG	Thermal destruction of thiamin - a second order reaction.	Z Lebensm-Unters Forsch 1981;173:1-6.	DE	ger
300	Horton PB, Dickman SR	Stability of ascorbic acid in reconstituted frozen orange juice.	J Food Protec 1977;40:584-5.	US	eng
301	Hostetler RL, Dutson TR, Smith GC	Effect of electrical stimulation and steak temperature at the beginning of cooking on meat tenderness and cooking loss.	J Food Sci 1982;47:687-8.	US	eng
302	Hottenroth B	The behavior of vitamins in the industrial preparation of heat sterilized canned foods and in the processing of home-grown foods.	Verpack-Rundsch 1977;28:29-36.	DE	ger
303	Hudson MA, Jenkinson J, Holgate ME	Quality of home frozen vegetables. III. Effects of salt treatments and boil-in-the-bag methods on retention of chlorophyll in home frozen perpetual spinach.	J Food Technol 1977;12:427-33.	GB	eng
304	Hulshof PJM, van de Bovenkamp P, Boogerd L, et al.	Food analyses of the Department of Human Nutrition. Part 10. Fish, crustaceans and testaceans.	Wageningen: Department of Human Nutrition, Wageningen Agricultural University, 1990.	NL	eng
305	Hunt C	Nutrition and catering 3: nutrient losses in cook-freeze and cook-chill catering.	Hum Nutr Appl Nutr 1984;38A:50-9.	GB	eng
306	Hurrell RF, Carpenter KJ	The use of three dye-binding procedures for the assessment of heat damage to food proteins.	Br J Nutr 1975;33:101-6.	GB	eng

307	Igene JO, Shorland FB, Pearson AM, Thomas JW, McGuffey K	Effects of dietary fat and vitamin E upon the stability of meat in frozen storage conditions.	In: Anonymous. Proceedings of European meeting of meat research workers, 22 symp. 1976;22.F12:1-6.	US	eng
308	Isakson H	A relational approach to a nutrient losses and gains model.	Workshop handout paper. Eurofoods. Second Workshop. 25-28 August 1985. Norwich, England.	SE	eng
309	Janitz W, Czyzewska S	Thermal breakdown of free thiamin during the presence of technological aid and S-amino acids.	Fleischw 1983;63:1761-3.	PL	ger
310	Jean A, Leon P	Loss of cereal vitamins during technological treatment.	Tec Molit 1972;23:5-27.	IT	ita
311	Jen Y, Manson JE, Stumbo CR, Zahradnik JW	A procedure for estimating sterilisation of and quality factor degradation in thermally processed foods.	J Food Sci 1971;36:692-8.	US	eng
312	Jeremiah LE	Effect of frozen storage and protective wrap upon the cooking losses, palatability, and rancidity of fresh and cured pork cuts.	J Food Sci 1980;45:187-96.	CA	eng
313	Jockel J, Hahn A, Thein G, Hildebrandt G	The composition of chicken fricassee.	Fleischw 1980;60:1828,1830,1832-4,1837-9,1887.	DE	ger
314	Joergensen T	Changes in food value during freezing, canning and preparing.	Copenhagen: Husholdningsraadet. Tekn meddelelser 1966;6:97-104.	DK	dan
315	Johansson G, Laser Reuterswaerd AL	Effect of cooking on fat content of beef and pork.	Proceedings, Vol I. Petaeja E, (ed.). 33rd Int Congr. Meat Sci Technol Helsinki. 1987.	SE	swe
316	Johnson PG, Bowers JA	Freshly cooked and reheated turkey breast muscle. I. Cooking losses and sensory evaluation of muscle and expressed juice. ref to II Physical and chemical characteristics of muscle and expressed juice.	Poultry Sci 1974;53:343-8.	US	eng
317	Johnson WA, Deethardt DE	Nutrient content and edible yield of selected cuts of cooked pork.	J Food Sci 1983;48:1352-3.	US	eng
318	Johnston DE, Kelly D, Dorrian PP	Losses of pectic substances during cooking and the effect of water hardness.	J Sci Food Agric 1983;34:733-6.	US	eng
319	Jones SDM	Chemical composition of selected cooked beef steaks and roasts.	J Can Diet Assoc 1985;46:40-5.	CA	eng
320	Jonsson L	Changes in nutrient value of foods handled in catering establishments.	Goeteborg: SIK, 1980. SIK-Rapport 482.	SE	swe
321	Jonsson L	Nutritional values in frozen foodstuffs.	Livsmedelsteknik 1991;27(4):22-3.	SE	swe
322	Jonsson L	Nutritional changes in foods handled in catering establishment.	Naeringsforskning 1980;24:122-135.	SE	swe

323	Jonsson L	Studies on vitamin retention in steamed potatoes during warm-holding in air and in a nitrogen atmosphere.	Lebensm-Wiss Technol 1981;14:43-6.	SE	eng
324	Jonsson L, Fredholm L, Gustafsson IB	Nutritional and biological effects due to changes in fats during heating.	Naeringsforskning/Scan J Nutr 1992;36:176-80.	SE	swe
325	Jonsson L, Karlstroem B	Changes in nutrient value and sensory quality in warm-holding of fried food.	Naeringsforskning 1976;20:53.	SE	swe
326	Jonsson L, Karlstroem B	Effect of frying and warm-holding on protein quality, linoleic acid content and sensory quality of hamburgers.	Lebensm-Wiss Technol 1981;14:127.	SE	eng
327	Jonsson L, Oeste R	Food processing and nutrient value. 1.	Livsmedelsteknik 1983;26:8-9.	SE	swe
328	Jonsson L, Oeste R	Food processing and nutrient value. 2: Protein.	Livsmedelsteknik 1983;26:64-7.	SE	swe
329	Jonsson L, Oeste R	Food processing and nutrient value. 3: Fat and fat-soluble vitamins.	Livsmedelsteknik 1983;26:150-53.	SE	swe
330	Jonsson L, Oeste R	Food processing and nutrient value. 4: B vitamins.	Livsmedelsteknik 1983;26:226-228.	SE	swe
331	Jonsson L, Oeste R	Food processing and nutrient value. 5: Vitamin C.	Livsmedelsteknik 1983;26:344-7.	SE	swe
332	Jonsson L, Oeste R	Food processing and nutrient value. 6: Minerals and trace elements.	Livsmedelsteknik 1983;26:452-5.	SE	swe
333	Jonsson L, Oeste R	Food processing and nutrient value. 7: Carbohydrates and dietary fibre.	Livsmedelsteknik 1984;27:116-9.	SE	swe
334	Jul, M	Introduction and conclusion. (Subgroup 3: Freezing and thawing.).	In: Zeuthen P, Chefel JC, Eriksson C, et al. (eds.). Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:499-510. ISBN 0-85334-279-2.	DK	eng
335	Kamel BS	Effect of protein extenders on fatty acids, cholesterol, sensory quality and cooking loss of beef patties.	J Food Qual 1982;5:17-31.	KW	eng
336	Kamman JF, Labuza TP, Warthesen JJ	Kinetics of thiamin and riboflavin loss in pasta as a function of constant and variable storage conditions.	J Food Sci 1981;46:1457-61.	US	eng
337	Kamsteeg J, Butijn CA	The effect of storing, washing, and preparation on the vitamin C and nitrate content of spinach.	Vakblad voor Huishoudkunde 1981;2:98-107.	NL	dut
338	Karadzhev I	Changes in the chemical composition of canned infant foods during sterilization.	Khranit Prom-St 1983;32:24-6.	BG	bul
339	Karmas E, Harris RS, (eds.)	Nutritional evaluation of food processing. 3rd ed.	Newyork: AVI. Van Nostrand Reinhold Company Inc., 1988. ISBN 0-442-24762-1.	US	eng



340	Katsaboxakis KZ, Papanicolau DN	The consequences of varying degrees of blanching on the quality of frozen green beans.	In: Zeuthen P, Cheftel JC, Eriksson C, et al. (eds.) Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:684-90. ISBN 0-85334-279-2.	GR	eng
341	Kawabata T, Matsui M, Ishibashi T, Hamano M, Ino M	Formation of N-nitroso compounds during cooking.	Lyon: IARC, 1982. IARC Scientific Publication No. 41:287-97.	JP	eng
342	Kemp JD, Johnson AE, Stewart DF, Ely DG, Fox JD	Effect of dietary protein, slaughter weight and sex on carcass composition, organoleptic properties and cooking losses of lamb.	J Anim Sci 1976;42:575-83.	US	eng
343	Kemp JD, Montgomery RE, Fox JD	Chemical, palatability and cooking characteristics of normal and low quality pork loins as affected by freezer storage.	J Food Sci 1976;41:1-3.	US	eng
344	Kemp JD, Shelley JM, Ely DG, Moody WG	Effects of castration and slaughter weight on fatness, cooking losses and palatability of lamb.	J Anim Sci 1972;34:560-2.	US	eng
345	Kepeja D, Katanic D, Dragojlov O	Changes of proteins and phosphorus in heat-treated pork.	Technol Mesa,k 1974;15:212-4.	HR	cro
346	Kessler HG, Fink U, Horak FP	Calculation and assessment of heat induced changes in nutrients by means of reaction equations.	Zentralinstitut fuer Lebensmittel (ZFL) 1978;35:1585-9.	DE	ger
347	Khan MA, Klein BP, Lee FV	Thiamin content of freshly prepared and left-over Italian spaghetti served in a university cafeteria food service.	J Food Sci 1982;47:2093-4.	US	eng
348	Khan MA, Rao RM	Nutritional quality of meals served by selected food services.	Crit Rev Food Sci Nutr 1983;19:151-71.	US	eng
349	Khil GN	Losses of vitamins and amino acids during production of a dry biovit preparation from an Actinomyces aureofaciens culture liquid.	Tr Ukr Nauchno Issled Inst Spirt Likero Vodoch Promsti 1971;13:147-50.	UA	rus
350	Khil GN, Demchinskaya LA, Fremel VB	Loss of vitamins during steaming of biomyacin culture fluid.	Fermentn Spirt Promst 1967;33:17-8.	UA	rus
351	Kierebinski C	Selected applications of microwaves in the food industry.	Przemysl Spozywezy 1972;26:6-9.	PL	pol
352	Kilara A, Sharkasi TY	Effects of temperature on food proteins and its implications on functional properties.	CRC Crit Rev Food Sci Nutr 1986;23:323-95.	US	eng
353	Kilgore LT, Watson K, Wren N, Rogers RW, Windham F	Fortification of hamburgers with calcium, vitamin A, and ascorbic acid.	J Am Diet Assoc 1977;71:135-9.	US	eng

354	Killeit U	The stability of vitamins. A selection of current literature.	Hoffmann-La Roche AG, D-7889 Grenzach-Wyhlen, 1988.	DE	eng
355	Kim ZU, Cho SH	Studies on white potato processing for mixed cooking with rice as the main dish. I. Preliminary studies of white potato granulation as a main dish.	J Korean Agric Chem Soc 1976;19:183-8.	KR	kor
356	Kim ZU, Cho SH, Yuo YK, Kim HS	Studies on white potato processing for mixed cooking with rice as the main dish. II. Polyphenol oxidase inactivation and safety of treated potato portions.	J Korean Agric Chem Soc 1977;20:43-57.	KR	kor
357	Kim ZU, Yeo YK	Studies on white potato processing for mixed cooking with rice as the main dish. III. Yield of products, process of manufacture, and economics of potato portions.	J Korean Agric Chem Soc 1977;20:263-9.	KR	kor
358	Kimura M, Saito N, Itokawa Y	Cooking loss of vitamin B1 in foods and its nutritional significance.	Bitamin 1982;56:415-23.	JP	jap
359	Kirk J, Dennison D, Kokozka P, Heldman D	Degradation of ascorbic acid in a dehydrated food system.	J Food Sci 1977;42:1274-9.	US	eng
360	Klein BP, Kuo CHY, Boyd G	Folacin and ascorbic acid retention in fresh raw, microwave, and conventionally cooked spinach.	J Food Sci 1981;46:640-1.	US	eng
361	Klein BP, Lee YC, Reynolds PA, Wangles NC	Folacin content of microwave and conventionally cooked frozen vegetables.	J Food Sci 1979;44:286-8.	US	eng
362	Klensin JC, Feskanich D, Lin V, Truswell AS, Southgate DAT	Identification of food components for INFOODS data interchange.	Tokyo: United Nations University Press, 1989. Food and Nutrition Bulletin, Supplement 16. ISBN 92-808-0734-X.	US	eng
363	Koehler HH, Hard MM	Vitamin contents of pre-prepared foods sampled from a hospital food service line.	J Am Diet Assoc 1983;82:622-6.	US	eng
364	Koj F, Swiderski F	Change of the organoleptic properties and the nutritive value of foods ready for consumption and transported in containers.	Excerpta Med Int Congr Ser 1970;213:662.	PL	eng
365	Korschgen BM, Baldwin RE	Moist-heat microwave and conventional cooking of round roasts of beef.	J Microwave Power 1978;13:257-62.	US	eng
366	Korschgen BM, Baldwin RE, Snider S	Quality factors in beef, pork, and lamb cooked by microwaves.	J Am Diet Assoc 1976;69:635-40.	US	eng
367	Kovalev NI, Ivanov EL, Stepanov VN	The effect of culinary treatment on the vitamin and trace element content of legumes.	Nahrung 1974;18:511-5.	RU	rus
368	Kozempel MF, Sullivan JF, Della Monica ES, et al.	Application of leaching model to describe potato nutrient losses in hot water blanching.	J Food Sci 1982;47:1519-23.	US	eng

369	Kramer A	Storage retention of nutrients.	Food Technol 1974;28:50-60.	US	eng
370	Kramer A	The effect of deep freezing and frozen storage on the preservation of nutrients in fruits and vegetables.	Ind Obst-Gemueseverwert 1979;64:212-9.	US	ger
371	Krehl WA, Winters RW	Effect of cooking methods on retention of vitamins and minerals in vegetables.	J Am Diet Assoc 1950;26:966-72.	US	eng
372	Kruse W	Medicine and nutrition.	Ernaehr Umsch 1985;32:133-3.		ger
373	Krylova NN, Krasil'nikova TF, Puil'skaya VP	Use of gamma radiation for extending the storage time of sausage products.	Radiats Obrab Pishch Prod Dokl Vses Nauchn Teknol Konf 1971;206-11.	RU	rus
374	Kvaale O	Changes of nutrient quality in preparation of foods.	NINF-informasjon 1977;2:3-29.	NO	nor
375	Kvaale O	How does preservation influence nutrient values and possible toxic substances of raw foods?	NINF-informasjon 1972;6.	NO	nor
376	Kwiatkowska CA, Finglas PM, Faulks RM	The vitamin content of retail vegetables in the UK.	J Hum Nutr Diet 1989;2:159-72.	GB	eng
377	Kyriakidis NV	Vitamin losses during food processing.	CCGEA 1983;48:309-14.	GR	grc
378	Labuza TP, Kamman JF	Comparison of stability of thiamin salts at high temperature and water activity.	J Food Sci 1982;47:664-5.	US	eng
379	Labuza TP, Riboh D	Theory and application of Arrhenius kinetics to the prediction of nutrient losses in food.	Food Technol 1982;36:66-74.	US	eng
380	Laing BM, Schlueter DL, Labuza TP	Degradation kinetics of ascorbic acid at high temperature and water activity.	J Food Sci 1978;43:1440-3.	US	eng
381	Lal H, Agarwal KN, Gupta M, Agarwal DK	Protein and iron supplementations by altering cooking practices in a community.	Indian J Med Res 1973;61:918-25.	IN	eng
382	Lamberg I, Hallstrom B, Olsson H	Fat uptake in a potato drying/frying process.	Lebensm-Wiss Technol 1990;23:295-300.	SE	swe
383	Landers RE, Rathman DM	Vegetable oils: effect of processing, storage and use on nutritional values.	J Am Oil Chem Soc 1981;58:255.	US	eng
384	Lang K	Influence of cooking on foodstuffs.	World Rev Nutr Diet 1970;12:266-317.	US	eng
385	Laryushkina EY	Dried concentrates with acid hydrolysates of protein.	Trudy, Vseoyuznyi Nauchno issledovatel'skii Institut Konservnoi i Ovoshchesushil'noi Promyshlennosti; 1973;(19):9-13.	RU	rus
386	Laser Reuterswaerd AL, Johansson G	Meat doesn't necessarily make you fat. New knowledge is now available. About cooking meat - fat.	Vaar Naering 1987;(1):6-9.	SE	swe
387	Laser Reuterswaerd AL, Johansson G	Scientific frying tests show: fried ground meat becomes leaner. Sausage absorbs little fat.	Vaar Naering 1990;(1):23-5.	SE	swe

388	Lasevich FG	Vitamin loss during flour storage.	Khlebopek Konditer Promst 1973;2:14-5.	RU	rus
389	Lassche JB, Colen AAM, Weits J	Weight changes of vegetables after cooking.	Voeding 1964;25:600-4.	NL	dut
390	Laszity R	Changes of proteins in foods during processing.	Ernaehrung 1985;9:626-30.	HU	ger
391	Lathrop PJ, Leung HK	Rates of ascorbic acid degradation during thermal processing of canned peas.	J Food Sci 1980;45:152-3.	US	eng
392	Lathrop PJ, Leung HK	Thermal degradation and leaching of vitamin C from green peas during processing.	J Food Sci 1980;45:995-8.	US	eng
393	Lawrie RA	Proteins as human food: proceedings of the sixteenth Easter School in Agricultural Science, University of Nottingham, 1969.	London: Butterworths, 1970. ISBN 0-408-32000-1.	GB	eng
394	Lawson JM, Hunt C, Glew G	Nutrition in catering.	BNF Nutr Bull 1983;8:93-103.	GB	eng
395	Layrisse M, Martinez-Torres C, Méndez-Castellano H, et al.	Relationship between iron bioavailability from diets and the prevalence of iron deficiency.	Food Nutr Bull 1990;12:301.	US	eng
396	Lechner E, Kiermeier F	Ascorbic acid and dehydro ascorbic acid contents of milk.	Z Lebensmittel Unters Forsch 1969;141:23-9.	DE	ger
397	Lee FV, Khan MA, Klein BP	Effect of preparation and service on the thiamin content of oven-baked chicken.	J Food Sci 1981;46:1560-2.	US	eng
398	Lee K, Clydesdale FM	Effect of baking on the forms of iron in iron-enriched flour.	J Food Sci 1980;45:1550.	US	eng
399	Lee SH, Labusa TP	Destruction of ascorbic acid as a function of water activity.	J Food Sci 1975;40:370-3.	US	eng
400	Lee YC, Kirk JR, Bedford CL, Heldman DR	Kinetics and computer simulation of ascorbic acid stability of tomato juice as function of temperature, pH and metal catalyst.	J Food Sci 1977;42:640-4.	US	eng
401	Leichter J, Switzer VP, Landymore AF	Effect of cooking on folate content of vegetables.	Nutr Rep Int 1978;18:475-9.	CA	eng
402	Leinert J, Becker DP, Somogyi JC, Hoetzel D	Effect of cooking method on mineral losses.	Ernaehr Umsch 1981;28:12-4.	DE	ger
403	LeMaguer J, Jackson H	Stability of vitamin A in pasteurized and ultra-high temperature processed milks.	J Dairy Sci 1983;66:2452-8.	CA	eng
404	Leniger HA, Beverloo WA	Food process engineering.	Dortrecht: D Reidel Publ Co, 1975. ISBN 90277-0605-0.	NL	eng

405	Lenz MK, Lund DB	Experimental procedures for determining destruction kinetics of food components.	Food Technol 1980;34:51-5.	US	eng
406	Leth T	Changes in nutrients during prolonged storage of vegetables.	Søborg: Levnedsmiddelstyrelsen, 1986. Statens Levnedsmiddelinstitut; No. 126.	DK	eng
407	Leth T	Loss of vitamin A in the preparation of foods.	Husholdningsraadets Tekniske Meddelelser 1978;6:28.	DK	dan
408	Leth T	Vitamin A and carotene contents of eggs, and loss of vitamin A in the preparation of eggs.	Husholdningsraadets Tekniske Meddelelser 1976;2:19.	DK	dan
409	Livingston GE, Chang CM	Food service operation design for nutrient retention in foods.	Food Technol 1979;33:32,34-7.	US	eng
410	Locker RH, Daines GJ	Cooking loss in beef. The effect of cold shortening, searing and rate of heating; Time course and histology of changes during cooking.	J Sci Food Agric 1974;25:1411-8.	NZ	eng
411	Locker RH, Daines GJ	Effect of mode of cutting on cooking loss in beef.	J Sci Food Agric 1974;25:939-46.	NZ	eng
412	Locker RH, Daines GJ	The effect of repeated freeze-thaw cycles on tenderness and cooking loss in beef.	J Sci Food Agric 1973;24:1273-5.	NZ	eng
413	Lopez A, Williams HL, Cooler FW	Essential elements in fresh and in canned sweet potatoes.	J Food Sci 1980;45:675-8.	US	eng
414	Lopez A, Williams HL, Ward DR	Essential elements in raw, boiled, steamed and pasteurized crabmeat.	J Food Sci 1981;46:1128.	US	eng
415	Louis CJ, Dolan EM	Removal of potassium in potatoes by leaching.	J Am Diet Assoc 1970;57:42-3.	US	eng
416	Lund DB	Effects of blanching, pasteurization and sterilisation on nutrients.	In: Harris RS, Kamas E. Nutritional evaluation of food processing. Westport, Connecticut: AVI Publishing Company, Inc., 1975:205-43.	US	eng
417	Luque A, Moreiras-Varela O, Varela G	The influence of frying on the biological value of fish protein.	FAO, General Fisheries Council for the Mediterranean. Proceedings of technical papers. Rome: FAO, 1963. Publication No. 7.	IT, ES	eng
418	Mabesa LB, Baldwin RE	Ascorbic acid in peas cooked by microwaves.	J Food Sci 1979;44:932-3.	US	eng
419	Machlin LJ, (ed.)	Handbook of vitamins. 2nd ed.	New York: Dekker, 1991. Food Science and Technology, volume 40. ISBN 0-8247-8351-4.	US	eng

420	Machlin LJ, (ed.)	Handbook of vitamins: nutritional, biochemical and clinical aspects.	New York: Dekker, 1984. Food Science and Technology, volume 13. ISBN 0-8247-7051-X.	US	eng
421	Madhwaraj MS, Nair PR, Nair KKS, Kadkol SB, Baliga BR	Estimation of drained weight in canned meat curry.	ISI Bull 1977;29:279-82.	IN	eng
422	Madhwaraj MS, Nair PR, Nair KKS, Kadkol SB, Baliga BR	Estimation of drained weight of canned keema curry - an objective method.	ISI Bull 1978;30:184-5.	IN	eng
423	Maga JA, Cohen MIR	Effect of extrusion parameters on certain sensory, physical and nutritional properties of potato flakes.	Lebensm-Wiss Technol 1978;11:195-7.	US	ger
424	Maga JA, Sizer CE	Ascorbic acid and thiamin retention during extrusion of potato flakes.	Lebensm-Wiss Technol 1978;11:192-4.	US	ger
425	Maga JA, Twomey JA	Effect of baking methods on the fatty acid composition of potatoes.	J Food Sci 1977;42:1669.	US	eng
426	Mai J, Shimo J, Weihrauch J, Kinsella JE	Lipids of fish fillets: changes following cooking by different methods.	J Food Sci 1978;43:1669-74.	US	eng
427	Makinson JH, Greenfield H, Wong ML, Wills RBH	Fat uptake during deep-fat frying of coated and uncoated foods.	J Food Compos Anal 1987;1:93-101.	AU	eng
428	Malcolmson LJ, Matsuo RR	Effects of cooking water composition on stickiness and cooking loss of spaghetti.	Cereal Chem 1993;70:272-5.	CA	eng
429	Man JM de	Light-induced destruction of vitamin A in milk.	J Dairy Sci 1981;64:2031-2.	CA	eng
430	Man JM de	Possibilities of prevention of light-induced quality loss of milk.	Can Inst Food Sci Technol J 1978;11:152-4.	CA	eng
431	Mangino ME, Liao YY, Harper NJ, Morr CV, Zadow JG	Effects of heat processing on the functionality of whey protein concentrates.	J Food Sci 1987;52:1522-4.	US	eng
432	Maradudina NV, Moiseeva EL, Balandina GA	Effect of heating quick-frozen table-ready foods in high frequency ovens on their quality.	Kholod Tekh 1978;7:41-3.	RU	rus
433	Marcoe KK, Haytowitz DB	Estimating nutrient values of mixed dishes from label information.	Food Technol 1993;47:69-75.	US	eng
434	Marcus M, Prabhudesai M, Wassef S	Stability of vitamin B12 in the presence of ascorbic acid in food and serum: restoration by cyanide of apparent loss.	Am J Clin Nutr 1980;33:137-43.	US	eng

435	Mareschi JP, Belliot JP, Foulon C, Gey KF	Loss of the vitamin C content of the potato Binije during storage and conventional methods of preparation.	Int J Vitam Nutr Res 1983;53:402-11.	FR	fre
436	Mareschi JP, Cousin F	Comparison of vitamins in sixty seven current foods.	Méd Nutr 1984;20:39-46.	FR	fre
437	Mario T	Quantity cooking.	Westport: AVI Publ Comp Inc, 1978. ISBN 0-87055-235-8.	US	eng
438	Mariupol'skaya LD	Chemical characteristics of dried canned vegetable snacks.	Izv Vyssh Uchebn Zaved Pishch Tekhnol 1975;1:38-40.	RU	rus
439	Marquard R	Changes in fatty acid composition of different vegetable oils caused by breeding and environmental conditions.	Z Lebensm-Unter Forsch 1973;153:354.	DE	ger
440	Martin CRA	Growth of enzymology.	Br Food J 1980;82:133-5.	GB	eng
441	Martins I, Amorim Cruz JA	Yield factors in cooking foods and dishes. Theory and practice.	In: Castenmiller J, West CE, (eds.). Report of the Third Annual Meeting of the FLAIR Eurofoods-Enfant Project, 10 - 12 November 1993. Vilamoura, Portugal. Wageningen. Flair Eurofoods-Enfant Project. (February) 1994.		
442	Massaioli D, Haddad P	Stability of the vitamin C content of commercial orange juice.	Food Technol Austr 1981;33:136-7.	AU	eng
443	Massey LM Jr	A research note, nutritive quality of long-distance shipped green beans for processing.	J Food Sci 1983;48:1564-5.	US	eng
444	Matsuo RR, Malcolmson LJ, Edwards NM, Dexter JE	A colorimetric method for estimating spaghetti cooking losses.	Cereal Chem 1992;69:27-9.	CA	eng
445	Matthews RH	Guidelines for determining and reporting food yields.	J Am Diet Assoc 1976;69:396-9.	US	eng
446	Matthews RH, Garrison YJ	Food yields summarized by different stages of preparation.	Washington, DC: US Government Printing Office, 1975. Agricultural Handbook No. 102, USDA.	US	eng
447	Maul RE, Funk K, Zabik ME, Zabik MJ	Dieldrin residues and cooking losses in pork loins.	J Am Diet Assoc 1971;59:481-4.	US	eng
448	McLean HE, Bathhurst ETJ, Beaven DW	Vitamin C retention in some cooked vegetables and puddings.	J NZ Diet Assoc 1976;30:5-10.	NZ	eng
449	McLoughlin JV, McKenna BM, (eds.)	Food science and research in food science and nutrition. Vol 5: present status and future direction.	Dublin: Boole Press Ltd. 1984. ISBN 0-906 783-37-2.	IE	eng
450	McMullen EE, Cassilly JP	Thiamin and riboflavin retention in meats cooked uncovered and in oven film.	Home Econ Res J 1976;5:33-9.		eng

451	Meer MA van der, Lassche JB, Pascha CN	Nutritive value and organoleptic qualities of deep-frozen components of meals and the effect of 3 reheating methods on these properties.	Voeding 1973;34:2-15.	NL	dut
452	Meier-Ploeger A, Badelt-Vogt A, Stettler H, Riedel G	Effect of different cooking processes on the loss of ascorbic acid in potatoes and kohlrabi.	Ernaehr Umsch 1981;28:389-92.	DE	ger
453	Meiners CR, Derise NL, Lau HC, Crews MG, Ritchey SJ, Murphy EW	The content of nine mineral elements in raw and cooked mature dry legumes.	J Agric Food Chem 1976;24:1126-30.	US	eng
454	Merrill AL, Adams CF, Fincher LJ	Procedures for calculating nutritive values of home-prepared foods.	Washington: Government Printing Office, 1966. Agricultural Handbook No. 8, USDA, Agriculture Research Service (ARS) No. 62-13.	US	eng
455	Mikkelsen K, Rasmussen EL, Zinck O	Retention of vitamin B1, B2, and B6 in frozen meats.	In: Zeuthen P, Cheftel JC, Eriksson C, et al. (eds.). Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:777-81. ISBN 0-85334-279-2.	DK	eng
456	Millauer C, Wiedmann WM, Killeit U	Influence of different extrusion parameters on the vitamin stability.	In: Zeuthen P, Cheftel JC, Eriksson C, et al. (eds.). Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:208-11. ISBN 0-85334-279-2.	DE	eng
457	Millross J	The future of cook-freeze systems in school meals.	Royal Soc Health J 1973;93:133-6.	GB	eng
458	Minor LJ	Eliminating warmed-over flavor in precooked food.	CQB 1970;11:48.	US	eng
459	Miskovsky A, Stone MB	Effects of chemical preservatives on storage and nutrient composition of soybean curd.	J Food Sci 1987;52:1535.	US	eng
460	Mnkeni AP, Beveridge T	Thermal destruction of pteroylglutamic acid in buffer and model food systems.	J Food Sci 1982;47:2038-41.	CA	eng
461	Mnukova J	Some nutritional changes in frozen foods.	Vyz Lidu 1980;25:134-5.	CS	cze
462	Moberg E	The art of frying.	Vaar Naering 1993;(3):12-4.	SE	swe
463	Modic R, Milosevski V, Djukic M, Stojanovic M, Milanovic R	Weight losses and organoleptic properties of beef pieces made with added brine containing soy protein isolate.	Tehnologija Mesa 1980;21:224-6.	HR	cro



464	Moeller A	Loss of nutrients during preparation/cooking: a practical, standardised and systematic approach.	In: Report of the third annual meeting of the FLAIR Eurofoods-Enfant project, 10-12 November 1993. Vilamoura, Portugal. Wageningen. FLAIR Eurofoods-Enfant Project, (February) 1994:104-108.	DK	eng
465	Mohr DH Jr	Oxygen mass transfer effects on the degradation of vitamin C in food.	J Food Sci 1980;45:1432-3.	US	eng
466	Mokady S, Coyan U, Lieberman L	Stability of vitamin C in fruits and fruit blends.	J Sci Food Agric 1984;35:452-6.	IL	eng
467	Molenaar BAJ	Relationship between inbreeding and meat quality in Pietrain pigs.	Tijdschr Diergeneeskd 1976;101:1380-1.	NL	dut
468	Molonon BR, Bowers JA, Dayton AD	Vitamin B12 and folic acid content of raw and cooked turkey muscle.	Poultry Sci 1980;59:303-7.	US	eng
469	Mondy NI, Ponnampalam R	Effect of baking and frying on nutritive value of potatoes: minerals.	J Food Sci 1983;48:1475-8.	US	eng
470	Moody WG, Bedau C, Langlois BE	Beef thawing and cookery methods. Effect of thawing and cookery methods, time in storage and breed on the microbiology and palatability of beef cuts.	J Food Sci 1978;43:834-8.	US	eng
471	Moore SL, Theno DM, Anderson CR, Schmidt GR	Effect of salt, phosphate and some nonmeat proteins on binding strength and cook yield of a beef roll.	J Food Sci 1976;41:424-6.	US	eng
472	Moreiras-Varela O, Ruiz-Roso B, Varela G	Influence of the CFR (cooking - freezing - reheating) system on the nutritive quality of food protein.	In: Zeuthen P, Chefel JC, Eriksson C. et al. (eds.). Thermal processing and quality of foods. London: Elsevier Applied Science Publishers, 1984:899-902. ISBN 0-85334-279-2.	ES	eng
473	Mosbach K	Enzyme technology, the best potential of the biotechnology.	Kemisk Tidskrift, 1980;(10):42-5.	SE	swe
474	Mosnier MP	Cooling methods for cooked meals.	Rev Gen Froid 1975;65:209-14.	FR	fre
475	Mudambi SR, Rajagopal MV, Varki U	Ascorbic acid loss in vegetables during hostel service.	Indian Food Pack 1981;35:51-7.	IN	
476	Muiccio C, Floridi S, Fidanza A, Fratoni A, De Siena E, Polara A	Effects of cooking on the content of some vitamins in various species of frozen fish.	Acta Vitaminol Enzymol 1974;28:35-8.	IT	ita

477	Muiccio CF, Orban E, Fabrizi F, Bassotti P	Vitamin losses in home cooked foods. COST 91. Home cooking: nutrient changes and emerging problems.	Proceedings of a workshop held in Rome, Oct. 14-15, 1982 (COST 91). Rome: Istituto Nazionale della Nutrizione, 1982:45-60.	IT	eng
478	Muller HG, Tobin G	Nutrition and food processing.	London: Croom Helm Publishers, 1980. ISBN 0-85664-540-0.	GB	eng
479	Mulley EA, Stumbo CR, Hunting WM	Thiamin: a chemical index of the sterilization efficacy of thermal processing.	J Food Sci 1975;40:993-6.	US	eng
480	Murata K, Takarada S, Nogawa M	Loss of supplemental lysine and threonine during the baking of bread.	J Food Sci 1979;44:271-3,281.	JP	eng
481	Murphy EW, Criner PE, Gray BC	Comparison of methods for calculating retentions of nutrients in cooked foods.	J Agric Food Chem 1975;23:1153-7 Am Chem Soc 1975;16:169-73.	US	eng
482	Muskat E	Loss of nutritional value during preparation in a large kitchen.	Chemie 1975;29:1-2,11-8.	DE	ger
483	Muskat E	Losses of nutritional value during food preparation in cafeterias and restaurants.	Mitteilungsblatt GDCh-Fachgruppe Lebensmittelchem Gerichtl Chem 1975;29:11-8.	DE	ger
484	Mykleby R	New food products utilizing dairy ingredients with emphasis on protein.	20th International Dairy Congress, 1978.	US	eng
485	Nadolna I	Studies on retention of selected group B vitamins in meals and daily food intake. I. Thiamin and vitamin B6.	Bromatol Chem Toksykol 1979;12:117-23.	PL	pol
486	Nadolna I	Studies on retention of selected group B vitamins in meals and daily food intake. II. Riboflavin and niacin.	Bromatol Chem Toksykol 1979;12:201-6.	PL	pol
487	Nadolna I, Kunachowicz H	Comparison of analysed and calculated values for vitamin content of dishes.	In: Anonymous. Programme and abstracts of the third Eurofoods meeting, 24-27 May 1987, Warsaw. Warsaw: National Institute of Food and Nutrition, 1987.	PL	eng
488	Nadolna I, Secomska B	Changes in vitamin C contents during preparation and keeping of food.	Roczn Panst Zakl Hig 1980;31:503-8.	PL	pol
489	Naevrt B, Sandstroem B, Cederblad Aa	Reduction of the phytate content of bran by leavening in bread and its effect on zinc absorption in man.	Br J Nutr 1985;53:47-53.	SE	eng
490	Namestnikov AF	Manufacture of preserved foods in large containers and frozen semi-manufactured foods for public canteens.	Konservnaja i Ovoshcesushil' naya Promyshlennost 1977;11:42-44.	RU	rus

491	Nath DR, Rao PLN	Comparative study of certain qualitative characteristics of domestic and wild rabbit meat: muscle fibre diameter, shear force value, cooking loss and taste panel evaluation of rabbit meat.	Indian J Anim Sci 1983;53:864-8.	IN	eng
492	National Research Council	Recommended dietary allowances. 10th ed.	Washington, D.C.: National Academy Press, 1989. ISBN 0-309-04041-8.	US	eng
493	Nau G, Vogt H	Institutional catering at weekends.	Ernaehr Umsch 1978;25:B13-B19,B25-B28.	DE	ger
494	Navankasattusas S, Lund DB	Thermal destruction of vitamin B6 vitamers in buffer solution and cauliflower purée.	J Food Sci 1982;47:1512-8.	US	eng
495	Nesheim RO	Nutrient changes in food processing. A current review.	Fed Proc 1974;33:2267-9.	US	eng
496	Neto ROT	Oxygen uptake and beta-carotene decoloration in a dehydrated food model.	J Food Sci 1981;46:655-69,676.	BR	eng
497	Neubeller J	Relation between the water loss of apples and the composition of fruit peels.	Z Lebensmittel-Unters Forsch 1971;No.147:86-95.	DE	ger
498	Neymark M, Thorell M	Does the content of iron in dishes increase by using cast iron utensils in cooking?	Konsumentinstitutet meddelar 1969;21:43-53.	SE	swe
499	Nielsen HK, de Weck D, Finot PA, Liardon R, Hurrell RF	Stability of tryptophan during food processing and storage. 1. Comparative losses of tryptophan, lysine and methionine in different model systems.	Br J Nutr 1985;53:281-92.	CH	eng
500	Nielsen HK, Klein A, Hurrell RF	Stability of tryptophan during food processing and storage. 2. A comparison of methods used for the measurement of tryptophan losses in processed foods.	Br J Nutr 1985;53:293-300.	CH	eng
501	Nielsen HK, Loeliger J, Hurrell RF	Reactions of proteins with oxidizing lipids. 1. Analytical measurements of lipid oxidation and of amino acid losses in a whey protein-methyl linolenate model system.	Br J Nutr 1985;53:61-73.	CH	eng
502	Nizharadze AN, Belashvill ED, Nebieridze NI	Rapid freezing of fruits.	Kholod Tekh 1974;5:28-9.	RU	rus
503	Noble I, Gomez L	Thiamine and riboflavin retention in beef and veal heart.	J Am Diet Assoc 1951;27:752-5.	US	eng
504	Nowak I, Paulus K	Preservation of prepared meals by heat treatment.	Karlsruhe: Bundesforschungsanstalt für Ernährung, 1978. BFE Bericht 1978/6.	DE	ger
505	Nowak I, Paulus K	The problem of keeping meals warm.	Lebensm-Wiss Technol 1977;10:61-72.	DE	ger
506	Oamen EE, Hansen AP	The effects of ultra-high temperature steam injection and storage on the labile water-soluble vitamins.	J Dairy Sci 1982;65,suppl.1:59.	DE	eng

507	Ockerman HW, Crespo FL	Cooking of fabricated beef.	J Food Sci 1977;42:1410-2.	US	eng
508	Oeste R	Food processing and nutrient value. Compendium in industrial nutrition and food chemistry.	Lund: University of Lund, 1989.	SE	swe
509	Oesterstroem L	Convection steamers - new method for heat treatment in catering and the food industry. Applications and limitations.	Goeteborg: SIK, 1980. SIK-Rapport 467.	SE	swe
510	Oesterstroem L, Gustafsson U	Calculation of the cooking value of potatoes cooked in catering establishments.	Goeteborg: SIK, 1981. SIK-Rapport 499.	SE	swe
511	Ohlson JSR	Processing effects on oil quality.	J Am Oil Chem Soc 1976;53:299-301.	US	eng
512	Ohlsson T	Microwave processing in the food industry.	Europ Food Drink Rev 1991;Spring:7, 9-11.	SE	eng
513	Ohlsson T, Thorsell U	Reheating chilled foods and dishes by microwaves.	Ernaer Umsch 1976;23:116-23.	SE	ger
514	Okoh PN	An assessment of the protein, mineral and vitamin losses in sun-dried Nigerian vegetables.	Nutr Rep Int 1984;29:359-64.	NG	eng
515	Omarov MM, Ulumiev AA, Khuchua GN, Koherga SI	Drying cabbage juice by sublimation.	Konservn Ovoshchesush Prom-St 1976;2:41-3.	RU	rus
516	Osinubi OA, Eka OU	Effect of cooking on the nutritive value of koko/kosai - a traditional breakfast meal of the Hausas in northern Nigeria.	Food Chem 1982;7:181-7.	NG	eng
517	Otto K	Minimum shelf life of fruit juices.	Fluess Obst 1984;51:570, 574-80, 612-	DE	ger
518	Paine-Wilson B, Chen TS	Thermal destruction of folacin: effect of pH and buffer ions.	J Food Sci 1979;44:712-22.	US	eng
519	Pan W-H, Wang H-L, Chang S-C, Chen M-L	Cooking oil absorption by foods during Chinese stir-frying: Implications for estimating dietary fat intake.	J Am Diet Assoc 1993;93:1442-5.	TW	eng
520	Parizek EA, Ramsey CB, Galyean RD, Tatum JD	Sensory properties and cooking losses of beef/pork hamburger patties.	J Food Sci 1981;46:860-7.	US	eng
521	Paul AA, Southgate DAT	McCance and Widdowson's The Composition of Foods. 4th ed.	London: Her Majesty's Stationery Office, 1978. Medical Research Council, 4th revised ed. of MRC Special Report No. 297. ISBN 0-11-450026-3.	GB	eng
522	Paulus K	Changes in the vitamin and mineral contents of foods of plant origin during processing.	Ernaer Umsch 1985;32:104-8.	DE	ger
523	Paulus K	Influence of the preparation on the quality of foods from vegetables, potatoes and fruits.	Ernaer Umsch 1985;32:80-4.	DE	ger
524	Paulus K	Quality problems in communal catering.	Verbraucherdienst B 1977;22:145-52.	DE	ger

525	Paulus K, Heintze K, Zohm H, Fricker A	Effects of heat treatments of spinach at temperatures from 100 to 130 degree C on levels of important constituents. II. Changes of drained weight and dry matter, vitamin C and vitamin B1 levels.	Lebensm-Wiss Technol 1978;11:296-300.	DE	ger
526	Paulus K, Nowak J	Results of the nutritional-physiological quality of different forms of dishes.	M Lebensm-Technol 1978;11:5-17.	DE	ger
527	Paulus K, Nowak J, Zacharias R, Bognár A	Influence of heating and keeping warm on the quality of meals.	Federal Research Centre for Nutrition, Stuttgart 1978;32:447-58.	DE	eng
528	Pelletier O, Nantel C, Leduc R, Tremblay L, Brassard R	Vitamin C in potatoes prepared in various ways.	Can Inst Food Sci Technol J 1977;10:138-42.	CA	eng
529	Perloff B	Recipe calculations for NFCS data base.	Proceedings, Tenth National Nutrient Data Bank Conference. Springfield, VA: National Technical Information Services, U.S. Department of Commerce, 1985.	US	eng
530	Petrovic N, Panin J, Maric L	Smoke concentrate used in the manufacture of prepared meals.	Tehnologija Mesa 1976;17:366-9.	HR	cro
531	Phillips JG	A cook-freeze catering system.	Food Technol NZ 1975;10:13,15-6.	NZ	eng
532	Picha DH	Carbohydrate changes in sweet potatoes during curing and storage.	J Am Soc Hort Sci 1987;112:89-92.	US	eng
533	Pingle U, Ramasastri BV	Effect of water-soluble oxalates in Amaranthus spp. leaves on the absorption of milk calcium.	Br J Nutr 1978;40:591-4.	IN	eng
534	Pironen V, Varo P, Koivistonen P	Stability of tocopherols and tocotrienols during storage of foods.	J Food Comp Anal 1988;1:124-9.	FI	eng
535	Posati LP	Composition of foods: poultry products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1979. Agricultural Handbook No. 8-5, USDA, Human Nutrition and Information Service.	US	eng
536	Posati LP, Kinsella J	III. Eggs and egg products. Comprehensive evaluation of fatty acids in foods.	J Am Diet Assoc 1975;67:111-5.	US	eng
537	Potacel J	Effect of microwave heating on food quality.	Vyz Lidu 1978;33:18-9.	CS	cze
538	Powers PM, Hoover LH	Calculating the nutrient composition of recipes with computers.	J Am Diet Assoc 1989;89:224-32.	US	eng
539	Puaca V	Vitamin stability in a premix with trace elements.	Rad Poljopriv Fak Univ Sarajevu 1976;24:487-93.	HR	cro

540	Purchas RW, Williamson O, Barton RA, Rae AL	Some sources of variation in tenderness and cooking losses in lamb and mutton.	NZ J Agric Res 1969;12:676-90.	NZ	eng
541	Pushpamma P, Geervani P, Kumari K, Krishna	Losses of some nutrients in cereal, millet and legume recipes commonly consumed in Andhra Pradesh.	Indian J Nutr Diet 1982;19:342-9.	IN	eng
542	Quenzer NM, Donnelly LS	Institutional cookery of restructured beef steaks.	J Food Qual 1982;5:301-9.	US	eng
543	Ragnarsson JO	Symposium on nutritional impact of food processing.	Abstracts 1987:2-4.	IS	eng
544	Rahman FMM, Bucle KA	Effects of blanching and sulphur dioxide on ascorbic acid and pigments of frozen capsicums.	J Food Technol 1981;16:671-82.	AU	eng
545	Rand WM, Pennington JAT, Murphy SP, Klensin JC	Compiling data for food composition data bases.	Tokyo: United Nations University Press, 1991. ISBN 92-808-0772-2.	US	eng
546	Ranhotra GS, Gelroth JA, Novak FA, Bock MA	Losses of enrichment vitamins during the cooking of pasta products.	Nutr Rep Int 1983;28:423-6.	US	eng
547	Ray EE, Stiffler DM, Berry BW	Effects of electrical stimulation and hot-boning upon physical changes, cooking time and losses, and tenderness of beef roasts.	Proceedings of the European Meeting of Meat Research Workers; No.26,vol.II,H7:26-9.	DE	eng
548	Rechighl M Jr, (ed.)	Handbook of nutritive value of processed food. Volume I. Food for human use.	Boca Raton: CRC Press, Inc., 1982. CRC Series in Nutrition and Food. ISBN 0-8493-3951-0.	US	eng
549	Reddy NN, Sistrunk WA	Effect of cultivar, size, storage, and cooking method on carbohydrates and some of sweet potatoes.	J Food Sci 1980;45:682-4.	US	eng
550	Reichert JE	Canned goulash as an example of modern production methods for ready-to-eat meals.	Fleischw 1977;57:373-81.	DE	ger
551	Reichert JE	Optimal sterilization temperatures for ready meals.	Fleischw 1974;54:1305-13.	DE	ger
552	Reinacher E	The suitability of frozen fish products for use in communal catering.	Inf Fischwirtsch 1974;21:162-6.	DE	ger
553	Renner E	Similarities in milk and juice production and market.	Confructa 1984;28:414-26.	DE	ger
554	Renqvist UH, de Vreeze AC, Evenhuisse B	The effect of traditional cooking methods on carotene content in tropical leafy vegetables.	Indian J Nutr Diet 1978;15:154-8.		eng
555	Riemschneider R, Kahn-Ghouri, Abedin MZ	Heat preserved foods. 5. Determination and stabilization of thiamin in heat-preserved beef.	ALMTB 1979;18:147-50.	DE	ger
556	Ristow KA, Gregory JF, Damron BL	Thermal processing effects on folacin bioavailability in liquid model food systems, liver and cabbage.	J Agric Food Chem 1982;30:801-6.	US	eng
557	Ritter E de	Stability characteristics of vitamins in processed foods.	Food Technol 1976;30:48-51.	US	eng

558	Rockland LB, Wolf WR, Hahn DM, Young R	Estimation of zinc and copper in raw and cooked legumes: An interlaboratory study of atomic absorption and x-ray fluorescence spectroscopy.	J Food Sci 1979;44:1710-13,1719.	US	eng
559	Rognerud G	Content and retention of ascorbic acid in cooked, frozen vegetables.	Tidsskr Hermetikindustri 1972;58:114-20.	NO	nor
560	Rognerud G	Content of some nutrients in raw and prepared chicken.	Tidsskr Hermetikindustri 1972;58:No.5.	NO	nor
561	Rognerud G, Blegen E	Fat absorption on pan frying.	Bekkestua: Statens Inst Forbruksforskning, Vareundersøkelser, 1971. Melding 24.	NO	nor
562	Rognerud G, Riise E, Blegen E	Content of some nutrients in prepared potatoes.	Bekkestua: Statens Inst Forbruksforskning, Vareundersøkelser, 1971. Melding 26.	NO	nor
563	Rognerud G, Roennevig AS	Content of ascorbic acid in raw and cooked, fresh vegetables.	Forskning og forsøk i landbruket 1976;27:253-67.	NO	nor
564	Rognerud G, Roennevig AS	Retention of ascorbic acid in some vegetable broths during storage.	Forskning og forsøk i landbruket 1977;28:639-49.	NO	nor
565	Rognerud G, Wilsher B	Retention of some nutrients in prepared vegetables. A literature survey.	Bekkestua: Statens Inst Forbruksforskning, Vareundersøkelser, 1972. Intern rapport 5.	NO	nor
566	Rognerud G, Wilsher B	Retention of thiamin in baking bread. A literature survey.	Bekkestua: Statens Inst Forbruksforskning, Vareundersøkelser, 1972. Intern rapport 4.	NO	nor
567	Rogowski B	Effect of storage and heating frozen ready-to-eat meals on vitamin B1 and B2 in the meat.	Fleischw 1976;56:250-2.	DE	ger
568	Rogowski B	Effect of storage conditions (time and temperature) on some nutritional value determining factors in meat dishes.	Fleischw 1980;60:1226-9.	DE	ger
569	Rogowski B	Industrially prepared ready-to-eat meat dishes for wholesalers - an attempt at comparison.	Fleischw 1980;60:1270-5.	DE	ger
570	Rogowski B	The effect of keeping freshly made meat dishes hot on nutrients (vitamins and amino acids).	Fleischw 1976;56:1789-91.	DE	ger
571	Rogowski B, Popp J, Dohla I	Effect of preparation and storage of different meat products on their content of vitamin B1.	Fleischw 1983;63:1619-22.	DE	ger

572	Rollin JL, Matthews ME, Lund DB	Cook/chill foodservice systems.	J Am Diet Assoc 1979;75:440-5.	US	eng
573	Rolls BA, Porter JWG	Some effects of processing and storage on the nutritive value of milk and milk products.	Proc Nutr Soc 1973;32:9-16.		eng
574	Rosenberg U, Boegl W	The influence of microwave on changes in foods in comparison to conventional heat treatment.	Berlin: Dietrich Reimer Verlag, 1981. STH Berichte 11/1981.	DE	ger
575	Rosenbloom NJ, Potter NN	Effects of processing on zinc levels in spinach, beef, and potatoes.	J Food Sci 1981;46:1707-9.	US	eng
576	Ruyaek DF, Paul PC	Conventional and microwave heating of beef: Use of plastic wrap.	Home Econ Res J 1972;1:98-103.		eng
577	Ryley J, Abdel-Kader ZM, Guevara LV, et al.	The prediction of vitamin retention in food processing.	J Micronutr Anal 1990;7:329-47.	GB	eng
578	Ryley J, Glew G	Retention of ascorbic acid, thiamine and folic acid in vegetables in mass feeding - the role of systems and equipment design.	Leeds, UK: University of Leeds, Procter Department of Food Science, Catering Research Unit, 1978:617-9.	GB	eng
579	Saab RMGB, Rao CS, Da Silva RSF	Fortification of bread with L-lysine HCl: losses due to baking process.	J Food Sci 1981;46:662-3.	US	eng
580	Saguy J, Mizrahis S, Villota R, Karel M	Accelerated method for determining the kinetic model of ascorbic acid loss during dehydration.	J Food Sci 1978;43:1861-4.	US	eng
581	Satdi B, Warhesen JJ	Influence of pH and light on the kinetics of vitamin B6 degradation.	J Agric Food Chem 1983;31:876-80.	US	eng
582	Salib AG, Gabr S, Noor E, El-Hennawy S	Studies on the retention of L-ascorbic acid, thiamin and riboflavin as influenced by heat treatments in vegetables.	Chemische und Mikrobiologische Technologie der Lebensmittel 1980;6:186-8.	EG	ger
583	Salmon RE	Slaughter losses and carcass composition of the medium white turkey.	Br Poultry Sci 1979;20:297-302.	CA	eng
584	Salunkhe DK, Wu MT, Do JY	Effects of long-term storage on quality of processed foods. I. Meal, ready-to-eat, individual ration items packed in flexible retortable pouches.	J Food Qual 1979;2:75-103.	US	eng
585	Sanchez A, Register UD, Blankenship JW, Hunter CC	Effect of microwave heating of soybeans on protein quality.	Arch Latinoam Nutr 1981;31:44-51.	MX	eng
586	Saracoglu AS, Ibis C	The content of niacin and iron of Turkish wheat and related bulgur.	Mitt Geb Lebensmittelunters Hyg 1982;73:462-7.	TR	ger
587	Sattar A, de Man JM, Alexander JC	Light-induced degradation of vitamins. II. Kinetic studies on ascorbic acid decomposition in solution.	Can Inst Food Sci Tech J 1977;10:65-8.	CA	eng



588	Saub BJ	Effect of smoke-curing on the nutritional value determining, heat treated components of meat.	Fleischw 1984;64:1172-80.		ger
589	Sawyer CA, Naidu YM	Sensory evaluation of cook/chilled products reheated by conduction, convection and microwave radiation.	J Food Serv Syst 1984;3:89-106.	US	eng
590	Schlemmer U, (ed.)	Bioavailability '93. Nutritional, chemical and food processing implications of nutrient availability. Proceedings, Parts 1 and 2. Ettlingen, May 9-12. 1993.	Karlsruhe: Bundesforschungsanstalt fuer Ernaehrung, 1993. BFE- R - - 93 - 01. ISBN 0933-5463.	DE	eng
591	Schroeder HA	Losses of vitamins and trace minerals resulting from processing and preservation of foods.	Am J Clin Nutr 1971;24:562-73.	DE	eng
592	Schubert J, Wendt H, Ernst M	Method and equipment for cold storage of prepared dishes.	German Democratic Republic, 1983. DD 200067.	DE	ger
593	Schwerdfeger E, Hentschel H	Changes in fibres in preparation of fruit and vegetables.	Ernaer Umsch 1985;32:145-8.	DE	ger
594	Secomska B, Nadolna I	Effect of thermal processing on the retention of group B vitamins in various lunch dishes. Part I. Thiamin and vitamin B6.	Roczn Panst Zakl Hig 1979;30:559.	PL	eng
595	Secomska B, Nadolna I	Effect of thermal processing on the retention of group B vitamins in various lunch dishes. Part II. Riboflavin and niacin.	Roczn Panst Zakl Hig 1980;31:237.	PL	eng
596	Seise G	Cooking time control unit for improvement of the quality of prepared meals.	Ernaehrungsforschung 1982;27:56-7.	DE	ger
597	Selman JD, Rolfe EJ	Effects of water blanching on pea seeds.	J Food Technol 1982;17:219-34.		eng
598	Seuss I	Effect of smoke-curing on the nutritional value determining heat treated components of meat products.	Fleischw 1984;64:1172-80.	DE	ger
599	Seuss I, Honikel K	Influence of heating and cooking medium on the tenderness of beef.	Ernaehr Umsch 1988;35:423-6.	DE	ger
600	Shaner KM, Baldwin RE	Sensory properties, proximate analysis and cooking losses of meat loaves extended with chickpea meal or textured soy protein.	J Food Sci 1979;44:1191-3.	US	eng
601	Shul'ga IP	Change in water-soluble vitamins during the treatment of seeds in the production of vegetable oil.	Izv Vyssh Uchebn Zaved Pishch Tekhnol 1982;1:113-4.	RU	rus
602	Siegel DG, Theno DM, Schmidt GR, Norton HW	Meat massaging: the effects of salt, phosphate and massaging on cooking loss, binding strength and exudate composition in sectioned and formed ham.	J Food Sci 1978;43:331-3.	US	eng

603	Simov'yan SV, Potapov VA	Determination of conditions for uniform high-frequency heating of products, with reference to heat losses.	Izv Vyssh Uchebn Zaved Pishch Tekhnol 1983;6:101-7.	RU	rus
604	Sinar L.J, Mason Y	Sodium in four canned vegetables. Effect of rinsing and heating in water.	J Am Diet Assoc 1975;66:155-7.	US	eng
605	Singh RP	Kinetic analysis of light-induced riboflavin loss in whole milk.	J Food Sci 1975;40:164-7.	US	eng
606	Singh RP, Heldman DR, Kirk JR	Kinetics of quality degradation: ascorbic acid oxidation in infant formula during storage.	J Food Sci 1976;11:304-8.	US	eng
607	Singh RP, Lund DB, Buelow FH	Storage stability of intermediate moisture apples: kinetics of quality change.	J Food Sci 1983;48:939-44.	US	eng
608	Singh SP, Essary EO, Abe H	Influence of thawing methods on the composition of drip from broiler carcasses.	Poultry Sci 1971;50:364-9.	US	eng
609	Sizer CE	Changes occurring during the extrusion of potato flakes.	Diss Abstr Int B 1979;39:3770.	US	eng
610	Skjoeldebrand C, Anas A, Oeste R, Sjoedin P	Prediction of thiamin content in convective heated meat products.	J Food Technol 1983;18:61-73.	SE	eng
611	Skurikhin IM	Changes of the nutritional value of foods caused by thermal culinary treatments.	Voprosy-Pitan'ya 1985;No.2:66-9.	RU	rus
612	Skurikhin IM	On possible variation ranges of foods chemical composition.	Int. Nutr. 2/14.	RU	rus
613	Skurikhin IM	Thermal culinary treatment-induced changes in the nutritive value of foods.	Workshop handout paper. Eurofoods 4th Meeting, Uppsala, 1989.	RU	eng
614	Smith GA, Friedman M	Effect of carbohydrates and heat on the amino acid composition and chemically available lysine content of casein.	J Food Sci 1984;49:817-20,843.	US	eng
615	Snyder PO, Matthews ME	Percent retention of vitamin C in whipped potatoes after pre-service holding.	J Am Diet Assoc 1983;83:454-8.	US	eng
616	Somogyi JC	Influence of preparation method on the content of vitamin C in potatoes and vegetables.	Ernaehr Umsch 1975;22:42-5.	CH	ger
617	Somogyi JC, Kopp PM	Influence of preparation method on the content of thiamin in potatoes and vegetables.	Ernaehr Umsch 1978;25:175-8.	CH	ger
618	Somogyi JC, Miller HR, (eds.)	Nutritional impact of food processing: 25th symposium of the Group of European Nutritionists on nutritional impact of food processing, Reykjavik, Sept. 2-4, 1987.	Basel: Karger AG, 1989. Biblioteca Nutritio et Dieta, No. 43. ISBN 3-8055-4848-6.	CH	eng
619	Soni BL, Sharma DC	Total and ionizable iron in common Indian cooked foods.	Am J Clin Nutr 1974;27:455-7.	IN	eng

620	Southgate DAT, Johnson IT, Fenwick GR	Nutrient Availability: Chemical and Biological Aspects.	Cambridge, UK: The Royal Society of Chemistry, 1989. Special Publication RSC No. 72. ISBN 0-85186-856-8.	GB	eng
621	Speek AJ, Speek-Saichua S, Schreurs WHP	Total carotenoid and beta-carotene contents of Thai vegetables and the effect of processing.	Food Chem 1988;27:245-57.	NL	eng
622	Squires SR, Hanna JG	Concentration and stability of ascorbic acid in marketed reconstituted orange juice.	J Agric Food Chem 1979;27:639-41.	US	eng
623	Sreeramulu N, Ndossi GD, Mtotomwema K	Effect of cooking on the nutritive value of common food plants of Tanzania: Part 1. Vitamin C in some of the wild green leafy vegetables.	Food Chem 1983;10:205-10.	TZ	eng
624	Steele L, Jadhav S, Hadziyev D	The chemical assay of vitamin C in dehydrated mashed potatoes.	Lebensm-Wiss Technol 1976;9:239-45.	CA	ger
625	Stevenson PN	Selective cooking apparatus.	Teckton Inc. 1971;3:615-713.	US	eng
626	Stewart JE, Tamaki JA	Composition of foods: baked products. Raw, processed, prepared.	Washington, DC: US Government Printing Office, 1992. Agricultural Handbook No. 8-18, USDA, Human Nutrition and Information Service.	US	eng
627	Sulkowska J, Charlampowicz L, Pajaczkowska K	Estimation of the suitability of the preparation Engevita for enriching of noodles.	Pr Inst Lab Badaw Przem Spozyw 1979;32:83--94.	PL	pol
628	Sumati Mudambi R, Raja Gopal MV, UV	Ascorbic acid loss in vegetables during hostel service.	Indian Food Packer 1981;35:51-7.	IN	eng
629	Summer JL, Eu SL, Dhillon AS	Ascorbic acid retention in foods. 1. Ascorbic acid content of frozen vegetables in selected retail market.	J Food Nutr 1983;40:43-8.	AU	eng
630	Sutherland CK, Halliday EG, Hinman WF	Vitamin retention and acceptability of fresh vegetables cooked by four household methods and by an institutional method.	Food 1947;12:496-509.		eng
631	Sweeney JP, Gilpen GL, Stanley MG, Martin ME	Effect of cooking methods on broccoli.	J Am Diet Assoc 1959;35:354-8.	US	eng
632	Sweeney JP, March AC	Effect of processing on provitamin A in vegetables.	J Am Diet Assoc 1971;59:238.	US	eng
633	Tachiyashiki K, Domata M, Teramoto Y	Loss of alcohol from wines and spirits during cooking.	Kaseigaku Zasshi/J Home Econ Jap 1983;34:359-62.	JP	jap
634	Taendler K, Haelene H, Poellein H	The stability of natural spices, spice extracts and seasonings in deep frozen meat/sauce dishes during freezing and storage.	Fleischw 1977;57:1928,1930,1932,1934,1936-40,1951-7.	DE	ger

635	Takahashi M	Study of changes of food constituents during cooking. I. Changes of metals in common foods due to cooking.	IKEND 1982;25:33-7.	JP	jap
636	Tanaka M, Dkubo S, Suzuki K, Taguchi T	Available lysine losses in water-soluble protein of mackerel meat by heating.	Nippon Suisan Gakkaishi 1980;46:1539-43.	JP	eng
637	Tammenbaum SR, (ed.)	Nutritional and safety aspects of food processing.	New York: Dekker, 1979. ISBN 0-8247-6723-3.	US	eng
638	Tarora Y	On the assessment of wastage derived from several vegetables used in institutional cooking.	Japanese J Nutr /Eiyogaku Zasshi 1976;34:39-42.	JP	jap
639	Terrell ME	Professional food preparation.	New York: Wiley, 1971. ISBN 0-471-85201-5.		eng
640	Teshitel OV	Effect of freezing on the change in vitamins in rolls.	Izv Vyssh Uchebn Zaved Pishch Tekhnol 1981;6:130-1.	RU	rus
641	Testolin G, Cantoni C, Bellisario V, Ciappellano S, Mari M, Pagliazzo S	Nutritional value of frozen meals in institutional catering.	Industrie Alimentari 1979;18:109-15.	IT	ita
642	Tettleton MSP	Breaded precooked beef patties.	Cooking for Profit 1973;42:36,38,40.		
643	Thomas EL, Burton H, Ford JE, Perkin AG	The effect of oxygen content on flavour and chemical changes during aseptic storage of whole milk after UHT processing.	J Dairy Res 1975;42:285-95.	GB	eng
644	Thomas MH, Atwood BM, Wierbicki E, Taub IA	Effect of radiation and conventional processing on the thiamin content of pork.	J Food Sci 1981;46:824-8.	US	eng
645	Thomi KE	The effects of heating processes upon the nutrient value.	Livsmedelsteknik 1974;6:251-4.	SE	swe
646	Thorkelsson G	The effect of processing on the content of polycyclic aromatic hydrocarbons and volatile N-nitrosoamines in cured and smoked lamb meat.	In: Somogyi JC, Mueller HR, (eds.): Nutritional impact of food processing. Biblioteka Nutritio et Dieta No. 43:188-198. Basel: Karger, 1989.	IS	eng
647	TNO Voeding Zeist	Table on weights and measures of foods and coding instructions.	TNO Voeding Zeist, 1992. Rapport V 92.003.	NL	dut
648	Tolstikhina SF, Shekhtman GP	Experimental storage of new kinds of spice mixtures.	Ovoshchesushil'noi Promyshlennosti 1974;21:36-43.	RU	rus
649	Torrence BL, Vaden AG	EDP recipe adjustment by percentage method in a college foodservice system.	J Am Diet Assoc 1976;69:407-15.	US	eng
650	Trautner K, Somogyi JC	Sugar content of fruits and vegetables: effect of ripeness, variety and storage.	Mitt Geb Lebensmittelunters Hyg 1980;70:497-505.	CH	ger
651	Troller JA, Christian JHB	Water activity and food.	New York: Academic Press, 1978.	US	eng

652	Tronstad T, Blegen E	Retention of thiamin in some meat products on pan-frying and oven grilling.	Hermetikindustri 1972;12.	NO	nor
653	Tsuzuki H, Inoue T, Konishi T, Yoneya T	Relation of metal cooking loss and cooking water volume.	Kyoto-fu Eisei Kogal Kenkyusho Nenpo 1982;27:37-40.	JP	jap
654	Tunger L	Vitamin losses caused by technological processing of oats.	GETMA 1967;17:55-9.	DE	ger
655	Turner M, Mottishaw J, Zacharias R, Bognar A	Sensory quality and nutritive value meals prepared from fresh and preprocessed components.	In: Zeuthen P, Chefel JC, Eriksson C, et al. (eds.). Thermal processes and quality of foods. London: Elsevier Applied Science Publishers, 1984:371-402. ISBN 0-85334-279-2.	GB	eng
656	Ulrich R	Planning of processes for portioning, dispensing and packaging of consumer-scale packs of ready-to-serve frozen meat/sauce dishes.	Fleisch 1979;33:193-6.	DE	ger
657	Umoh IB, Bassir O	Nutrient changes in some Nigerian peasant foods during cooking. IV. Mineral element composition.	Nutr Rep Int 1981;24:105-20.	NG	eng
658	Umoh IB, Bassir O	Nutrient changes in some traditional Nigerian foods during cooking. I. Vitamin changes.	Food Chem 1977;2:155-60.	NG	eng
659	United Kingdom, Department of Health and Social Security	Guidelines on pre-cooked chilled foods.	London: Her Majesty's Stationery, 1980. Department of Health and Social Security.	GB	eng
660	Unklesbay N, Davis ME, Krause G	Nutrient retention in pork, turkey breast and corned beef roasts after infrared and convective heat processing.	J Food Sci 1983;48:865-904.	US	eng
661	Unklesbay N, Davis ME, Krause G	Nutrient retention of portioned menu items after infrared and convective heat processing.	J Food Sci 1983;48:869-73.	US	eng
662	Unklesbay NF, Thompson BW, Unklesbay K	Energy usage for foodservice infrared heat processing of egg sandwich loaf.	J Can Diet Assoc 1982;43:42,47-54.	US	eng
663	Unklesbay NF, Unklesbay KB, Benderwald DL, Demmitt ME	Energy usage for production of omelets in restaurants.	Poultry Sci 1980;59:1036-42.	US	eng
664	US Consumer and Food Economics Institute	Conserving the nutritive values in foods.	Washington, DC: US Government Printing Office, 1976.	US	eng

665	US Food and Drug Administration, Center for Food Safety and Applied Nutrition	Languag user's manual, revised, April 1992.	Available upon request from US Food and Drug Administration, Center for Food Safety and Applied Nutrition, HFS-678, Washington, D.C. 20204.	US	eng
666	Utterstroem L	From the saucepan to a continuous process.	Kemisk Tidskr 1979;4:72-6.	SE	swe
667	Valdehita MT, Redondo A	Influence of the cooking process on some Spanish meals, I Vegetable dishes.	An Brom 1985;37:15-30.	ES	spa
668	Valdehita MT, Redondo A	Influence of the cooking process on some Spanish meals, II Dishes of animal origin.	An Brom 1985;37:31-41.	ES	spa
669	Valdehita MT, Redondo A	Effect of cooking on some Spanish meals, III Dishes of combined animal and vegetable origin.	An Brom 1987;39:187-200.	ES	spa
670	Vanderslice JT, Higgs DJ, Hayes JM, Block G	Ascorbic acid and dehydroascorbic acid content of foods-as-eaten.	J Food Compos Anal 1990;3:105-18.	US	eng
671	Vanossi L	Vitamin-enriched rice.	Tec Molit 1978;29:172-4.	IT	ita
672	Varela G	Heated fats: contribution to the study of the frying process of foods.	Basel: Karger, 1977. Biblioteca Nutritio et Dieta, No. 25:112-21.	ES	fre
673	Varela G, Moreiras-Varela O, de la Higuera M	Nutritional aspects of frozen fish.	In: Downey, WK, (ed.). Food quality and nutrition: research priorities for thermal processing (COST Seminar 22-25 Nov., Dublin). London: Elsevier Applied Science Publishers, 1978. ISBN 0-85334-803-0.	ES	eng
674	Varela G, Moreiras-Varela O, Ruiz-Roso B	Utilization of some oils in repeated frying. Changes in fats and sensory analysis of fried foods.	Grasas y Aceites 1983;34:101-7.	ES	spa
675	Varela G, Ruiz-Roso B	Some effects of deep frying on dietary fat intake.	Nutr Rev 1992;50:256-62.	ES	eng
676	Vidal-Valverde C, Frias J, Valverde S	Changes in the carbohydrate composition of legumes after soaking and cooking.	J Am Diet Assoc 1993;93:547-50.	ES	eng
677	Villota R, Karel M	Prediction of ascorbic acid retention during frying.	J Food Process Preserv 1980;4:141-59.	US	eng
678	Villota R, Saguy I, Karel M	Storage stability of dehydrated food. Evaluation of literature data.	J Food Qual 1980;3:123-212.	US	eng
679	Voelker M	Calculations in the restaurant kitchen.	Stockholm: Gastronomiforlaget 1991. ISBN 91-87444-28-3.	SE	swe
680	Voss G	Qualitative differences between white rice and parboiled rice.	GEMBAN 1979;33:202-5.	DE	ger
681	Wanninger LA	Mathematical model predicts stability of ascorbic acid in food products.	Food Technol 1972;26:42.	US	eng

682	Warrendorf EM, Kitson JA	Retention of ascorbic acid in hospital meals.	Can Inst Food Sci Technol J 1978;11:55-8.	CA	eng
683	Wartenberg EW	To the issue of minimal keeping qualities of fruit juices in different packages.	Verpack-Rundsch 1982;9:58-63.	DE	ger
684	Washuetti J	Identification and quantitative determination of a number of radiolysis products of nicotinic acid after gamma-irradiation.	Mikrochim Acta 1971;3:547-53.	AT	ger
685	Watson B	Courtaulds acetate opts for cryogenic cook-chill?	Chilled Foods 1982;1:41-2.	US	eng
686	Watt BK	Conserving food values.	J Am Diet Assoc 1950;26:106-10.	US	eng
687	Weaver NL, Timm H	Changes in nutritional composition of russet burbank potatoes by different processing methods.	Am Potato J 1983;63:735-44.	US	eng
688	Weits J, Tjalma FE, van der Meer M A, et al.	The content of thiamin, riboflavin and ascorbic acid of vegetables prepared on the scale of large kitchens and households.	Voeding 1965;26:534-46.	NL	dut
689	West RL, Carpenter ZL, Smith GC	Evaluation of tenderness and cooking loss of pork loin chops.	Consolidated Progress Report. Tex Agric Exp Stn Prog Rep June 1972, 3044/3077:66-9.	US	eng
690	Whitehall B	Pizza production by conveyor.	CHK 1983;Nov 10:117.		eng
691	Whitfield FB	Volatiles from interactions of Maillard reactions and lipids.	Crit Rev Food Sci Nutr 1992;31:1-58.	AU	eng
692	Widicus WEA, Kirk JR, Gregory JF	Storage stability of alpha-tocopherol in a dehydrated model food system containing no fat.	J Food Sci 1975;45:1015-8.	US	eng
693	Wilcox EB, Galloway LS	The B-vitamins in raw and cooked lamb. I. Thiamine.	Food Res 1952;17:67-73.		eng
694	Wilcox EB, Galloway LS	The B-vitamins in raw and cooked lamb. II Riboflavin and niacin.	Food Res 1952;17:144-7.		eng
695	Wiles SJ, Nettleton PA, Black AE, Paul AA	The nutrient composition of some cooked dishes eaten in Britain: A supplementary food composition table.	J Hum Nutr 1980;34:189-223.	GB	eng
696	Wilkinson SA, Earle MD, Cleland AC	Kinetics of vitamin A degradation in beef liver purée on heat processing.	J Food Sci 1981;46:32-3.	NZ	eng
697	Williams AK	Caustic peeling of jicama.	Lebensm-Wiss Technol 1979;12:243-4.	US	eng
698	Wilscher B, Riise E, Oeyboe A-M	Content of some nutrients in raw and cooked reindeer meat.	Bekkestua: Statens Inst Forbruksforskning, Vareundersøkelser, 1977.	NO	nor
699	Wituszynska B	Determination of some B vitamins in fresh and canned fish.	Bromatol Chem Toksykol 1973;6:13-22.	PL	pol

700	Woodcock EA, Warthesen JJ, Labuza TP	Riboflavin photochemical degradation in pasta measured by HPLC.	J Food Sci 1982;47:545-9,555.	US	eng
701	Woodroof JG, Philip EN, Morris JR, Pearl RC	Fruit and vegetable processing - past, present, and future.	Food Technol 1990;44:92-95, 101.	US	eng
702	Woollard DC, Edmiston AD	Stability of vitamins in fortified milk powders during a two-year storage period.	J Dairy Sci Technol 1983;18:21-6.	NZ	eng
703	Yagi N, Irokawa Y	Cleavage of thiamine by chlorine in tap water.	J Nutr Sci Vitaminol 1979;25:281-7.	JP	eng
704	Yakushiji I, Kagawa Y	Changes in potassium contents of therapeutic diets during cooking.	J Jap Soc Food Nutr/Eiyo to Shokuryo 1975;28:67-77.	JP	jap
705	Yoshida H, Tatsumi M, Kajimoto G	Relationship between oxidative stability of vitamin E and production of fatty acids in oils during microwave heating.	J Am Oil Chem Soc 1991;68:566-70.	JP	eng
706	Zacharias R	Food preparation in institutional catering.	Ernaehr Umsch 1977;24:304-11,268.	DE	ger
707	Zacharias R	Short-term cool storage of ready prepared meals.	Ernaehr Umsch 1970;17:92-7.	DE	ger
708	Zacharias R, Bognár A	Influence of communal nursing on nutrition.	Ernaehr Umsch 1980;27:243-8.	DE	ger
709	Zacharias R, Bognár A	Studies of the quality of deep-frozen meals for use in school catering.	Ernaehr Umsch 1975;22:36-41.	DE	ger
710	Zacharias R, Duerr H, (red. )	Lebensmittelverarbeitung im Haushalt. 4th ed.	Deutsche Gesellschaft fuer Hauswirtschaft. Stuttgart: Ulmer, 1984. ISBN 3-8001-2130-1.	DE	ger
711	Zallen EM, Hitchcock MJ, Goertz GE	Chilled food systems; effects of chilled holding on quality of beef loaves.	J Am Diet Assoc 1975;67:552-7.	US	eng
712	Zeuthen P, Cheftef JC, Eriksson C, et al. , (eds.)	Processing and quality of foods. Proceedings of the COST 91 bis final seminar, held in Gothenburg, Sweden, 2-5 Oct. 1989.	London: Elsevier Applied Science Publishers, 1990. ISBN 1-85166-498-X.		eng
713	Zeuthen P, Cheftef JC, Eriksson C, et al. , (eds.)	Processing and quality of foods. Volume 1: High temperature/short time (HTST) processing: guarantee for high quality food with long shelflife.	London: Elsevier Applied Science Publishers, 1990. ISBN 1-85166-495-5.		eng
714	Zeuthen P, Cheftef JC, Eriksson C, et al. , (eds.)	Processing and quality of foods. Volume 2: Food biotechnology: avenues to healthy and nutritious products.	London: Elsevier Applied Science Publishers, 1990. ISBN 1-85166-495-3.		eng
715	Zeuthen P, Cheftef JC, Eriksson C, et al. , (eds.)	Processing and quality of foods. Volume 3: Chilled foods: the revolution in freshness.	London: Elsevier Applied Science Publishers, 1990. ISBN 1-85166-497-1.		eng



716	Zeuthen P, Cheftel JC, Eriksson C, et al. , (eds.)	Thermal processes and quality of foods: Proceedings of the concluding seminar held under the auspices of COST (European Cooperation in Scientific and Technical Research) on the thermal processing and quality of foods in Athens. 14-18 Nov. 1983.	London: Elsevier Applied Science Publishers, 1984. ISBN 0-85334-279-2.		eng
717	Ziombiski H, Luszcz A	Changes in fats during frying of different food products under controlled and uncontrolled heating conditions.	Roczn Panst Zakl Hig 1976;27:317-29.	PL	pol
718	Ziprin YA, Carlin AF	Microwave and conventional cooking in relation to quality and nutritive value of beef and beef-soy loaves.	J Food Sci 1976;41:4-8.	US	eng
719	Zobel M	The behaviour of vitamin B6 during industrial and home preparation of foods under the aspect of a sufficient provision of needs (Part III).	Ernaehrung 1990;14:664-71.	DE	ger

**Country, country codes      Language, language codes**

Australia	AU	English	eng
Austria	AT	German	ger
Belgium	BE	Flemish, Dutch, French	fle, dut, fre
Bulgaria	BG	Bulgarian	bul
Canada	CA	English	eng
China	CN	Chinese	chi
Croatia	HR	Serbo-Croatian	cro
Czechoslovakia (former)	CS	Czech	cze
Denmark	DK	Danish	dan
Finland	FI	Finnish	fin
France	FR	French	fre
Germany	DE	German	ger
Greece	GR	Greek	grc
Hungary	HU	Hungarian	hun
Iceland	IS	Icelandic	ice
India	IN	Hindi, English	hin, eng
Italy	IT	Italian	ita
Japan	JP	Japanese	jap
Kenya	KE	Swahili, English	swa, eng
Korea, Dem People's Rep of	KP	Korean	kor
Korea, Rep. of	KR	Korean	kor
Kuwait	KW	Arabic	ara
Latvia	LV	Latvian	lav
Mexico	MX	Spanish	spa
New Zealand	NZ	English	eng
Nigeria	NG	English	eng
Norway	NO	Norwegian	nor
Pakistan	PK	Urdu	urd
Phillipines	PH	English, Spanish	eng, spa
Poland	PL	Polish	pol
Portugal	PT	Portuguese	por
Russian federation	RU	Russian	rus
Slovakia	SK	Slovakian	slo
South Africa	ZA	English	eng
Spain	ES	Spanish	spa
Sweden	SE	Swedish	swe
Switzerland	CH	French, German, Italian	fre, ger, ita

<b>Country, country codes</b>		<b>Language, language codes</b>	
The Netherlands	NL	Dutch	dut
Turkey	TR	Turkish	tur
Ukraine	UA	Russian	rus
United Kingdom	GB	English	eng
United States	US	English	eng

# Yields for foods and dishes in Europe

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<b>Yield or weight yield</b>	A term used for what is obtained of a food or dish after e.g. storage, preparation, processing, warm holding or reheating. Yield is usually expressed in per cent and can be used as factor, e.g. in nutrient calculation of recipes.
<b>Weight change</b>	A term used for loss or gain of weight in food or dish after e.g. storage, preparation, processing, warm holding or reheating. Weight change is the yield value (expressed in per cent) minus 100.

## Inventory of yields

In 1993 a request was sent out to the NLG Project members, mainly people employed at European government agencies, and in Sweden also to food industries, food branch organizations, test kitchens, training schools for restaurant staff, teachers of home economics, dietitians etc. in order to collect weight yields or weight changes during the preparation of foods, e.g. in dishes, breads, cakes and pastries. The intention was to collect yields representing water or fat changes in the preparation of foods, but as several participants also included yield values for refuse from raw to prepared foods, these values were also entered into the file.

## Yield data in two versions

It was suggested that the yield table, like the reference table, should be made available in two versions: an abbreviated one for publication and a more comprehensive one to be used as working tool on the computer. For the computer version, the following information is included: Country code; Source reference code; Food or dish in alphabetical order within food group; Preparation/processing method; Weight of raw purchased food; Weight of raw edible food; Number of

servings; Weight of prepared/processed food; Yield after preparation/processing; Yield status; Number of trials; Weight change; Weight change status; Fat change; Fat change status; Handling losses in the preparation/processing of food or dish; Refuse in prepared/processed food or dish; National food code; Native name of food or dish; Native name of preparation/processing method. This file can also be used as an abbreviated documentation of the experimental work.

Several of the above column headings were included in the inventory spreadsheet that was sent out to the NLG Project participants. The inventory showed that the required information was for the most part not available. Therefore the number of column headings had to be reduced in the published version. At the NLG workshop in Portugal 1993, the following column headings were decided to be included in the publication: Country code; Source reference code; Food or dish in alphabetical order within food group; Preparation/processing method; Amount of starting foods, g; Yield after preparation/processing, %; Yield status; Weight change, - + % and Weight change status.

### Comments on the tables

<b>Country code</b>	The country codes can be found in the Appendix in the NLG Reference Report, page 104.
<b>Source reference code</b>	The NLG Project wishes to express its thanks to the following institutions that have contributed to the yield table.
<b>AB</b>	Bundesforschungsanstalt für Ernährung, Institut für Chemie und Biologie, Stuttgart. NLG References No. 91-2.
<b>BL</b> of	University of Horticulture and Food Industry. Faculty Food Industry, Budapest. NLG Reference No. 75.
<b>Coop</b>	The Swedish Co-operative Union, KF Test Kitchen, Stockholm.
<b>FCT</b>	The Netherlands. Nederlandse Voedingsmiddelentabel. Den Haag: Voorlichtungsbureau voor de Voeding, 34e druk, 1983.
<b>Findus</b>	Svenska Nestlé, Bjuv.
<b>FRI</b>	Food Research Institute, Bratislava.

<b>Friggs</b>	Friggs AB, Bromma.
<b>fy</b>	NLG reference No. 446.
<b>GJ</b>	The Netherlands. See NLG reference No. 234.
<b>GV</b>	Universidad Complutense, Facultad de Farmacia, Departamento de Nutrition, Madrid. Appendix No. 1 in the NLG Overview Report, page 42 and NLG reference No. 672, 675.
<b>INN</b>	Istituto Nazionale della Nutrizione, Rome. NLG reference No. 140.
<b>JP</b>	The Test Kitchen of the Swedish Agricultural Organization, Johanneshov.
<b>KI</b>	Swedish Meat Information, Johanneshov.
<b>KN</b>	Kungsörnen AB, Järna
<b>KoV</b>	National Board of Consumer Policies, Vällingby.
<b>KtM</b>	National Food Agency of Denmark, Søborg. NLG reference No. 12.
<b>LCW</b>	NLG reference No. 389.
<b>LUW</b>	NLG reference No. 304.
<b>MV</b>	M. Voelker, Värmdö.
<b>NNC</b>	National Nutrition Council, Oslo.
<b>PKP</b>	Former Price Committee for Meat
<b>PT + code</b>	National Institute of Health, Nutrition Research Centre, Lisboa Codex. NLG reference No. 441.

<b>RSC, MAFF</b>	The Royal Society of Chemistry, Cambridge. Ministry of Agriculture, Fisheries and Foods, London.  Data/Information from The Composition of Foods and Supplements is reproduced with the permission of The Royal Society of Chemistry and the Controller of Her Majesty's Stationery Office.
<b>SLV</b>	National Food Administration, Uppsala.
<b>VdBF</b>	Van den Bergh Foods, Helsingborg.
<b>Wasa</b>	Wasa, Filipstad.
<b>WMI</b>	NLG reference No. 647.

**Single food or dish in alphabetical order within food group.** The food groups are as follows:

**Vegetables, products, dishes**  
**Fruits and berries, products, dishes**  
**Nuts and seeds, products, dishes**  
**Potatoes and roots, products, dishes**  
**Milk and cheese, products, dishes**  
**Meat and offal, products, dishes**  
**Poultry and game birds, products, dishes**  
**Fish and shellfish, products, dishes**  
**Eggs, products, dishes**  
**Cereals, bread and other products, dishes**  
**Fats, oils, fat dressings and sauces**  
**Miscellaneous**

When the grouping of a food item is not obvious, the food is grouped according to the first food name in the dish or, if the recipe is available, according to the main ingredient.

**Preparation/processing method.** The different term definitions are found in Appendices 1 and 2. 'Trimmed' in this table is generally edible proportion trimmed. 'Fried' is mainly shallow fried.

**Amount of starting foods.** According to different studies the amount of food to be cooked is one factor affecting the yield value. The weights are not indicated systematically. Some systems have 100/1000 g as standard weight even if e.g. the food is a whole chicken. Many systems have only edible proportions of the ingredients included in their recipes.

**Yield after preparation/processing, %.** Some institutions use yield and others weight change values. These reported values are rather summary. More information would be needed in the form of recipe ingredients for each dish and descriptions of the preparation/processing procedures performed. See e.g. the yield form on page 207. The information will give a rough idea about losses and gains for various types of foods. As there are so many factors affecting the yields or weight changes, some institutions are working with interval values as 100, 95, 90 or 0, -5, -10 etc. The values in the column are rounded, even if some values have one decimal. On the disk though, the original values can be reached by changing the format of the figure number. In order to easier compare yield and weight change values, the yield values are calculated to weight change values.

A certain amount of food, e.g. rice, may absorb liquid which gives a gain yield, but if rice is mixed with liquid and boiled it will result in a loss yield.

**Yield status and weight change status** are expressed by the following codes:

<b>T</b>	tested	<b>B</b>	borrowed from literature source or from similar food/dish
<b>C</b>	calculated	<b>E</b>	estimated
<b>M</b>	mean value	<b>A</b>	analysed for nutrients

**Weight change, - + %**, is the yield value minus 100. In the same as for yield, the weight change values are also rounded.

**Three appendices** are included, the first is a list of general preparation/processing terms, the second contains Languel's cooking terms and the third is a form for weight yield studies.

## Conclusion

Yield or weight change values are needed, e.g. as factors in recipe calculation on the computer. A long-term policy could be to compile yields or weight changes at different preparation levels of foods in order to compare the various national values for evaluating the possibilities to use common yield or weight change factors. The present table can be regarded as the beginning of a database where this evaluating work can be performed.



Country code	Source reference code	Food or dish	Preparation/ processing method	Amount of starting foods g	Yield after preparation/ processing %	Yield status	Weight change - + %	Weight change status
		<b>Vegetables, products, dishes</b>						
GB	RSC, MAFF	Agar	soaked		571	T	+471	
IT	INN	Agretti (salsola kali)	boiled	100			-14	
IT	INN	Artichoke	boiled	100			-26	
DE	AB	Asparagus	boiled		100	T	0	
IT	INN	Asparagus	boiled	100			-4	
NL	LCW	Asparagus	boiled	1000	91	T	-9	
NL	FCT, WMI	Asparagus	trimmed		80		-20	
SK	FRI	Asparagus	trimmed		66	T	-34	
SE	Coop, SLV	Asparagus in thick white sauce	boiled	530	91	TC	-9	
SE	Coop	Asparagus soup, canned	heated		93	T	-8	
DE	AB	Asparagus, frozen	boiled		70	T	-30	
NL	LCW	Aubergine	boiled	1000	93	T	-7	
IT	INN	Aubergine	deep fried	100			-20	
IT	INN	Aubergine	grilled	100			-60	
NL	FCT, WMI	Aubergine	trimmed		80		-20	
SK	FRI	Aubergine	trimmed, peeled		79		-21	
GB	RSC, MAFF	Aubergine and potato bhaji	braised				-25	T
GB	RSC, MAFF	Aubergine curry	fried, simmered				-26	T
GB	RSC, MAFF	Aubergine, batter coated, pakora/bhajia	deep fried in vegetable oil				-33	T
SE	SLV, fy	Aubergine, floured	fried	804	93	B	-7	
GB	RSC, MAFF	Aubergine, pea, potato and cauliflower bhaji	braised				-26	T
GB	RSC, MAFF	Aubergine, stuffed with rice	baked, fried, grilled/baked				-29	T
GB	RSC, MAFF	Aubergine, stuffed with vegetables, cheese topping	baked, fried, grilled/baked				-38	T
GB	RSC, MAFF	Bean and lentil chilli	fried, simmered				-25	T
GB	RSC, MAFF	Bean and mixed vegetable casserole	boiled				-15	T
GB	RSC, MAFF	Bean and root vegetable casserole	boiled				-15	T
GB	RSC, MAFF	Bean loaf	fried, baked				-23	T

GB	RSC, MAFF	Bean loaf, red	baked							-3	T
NL	WMI	Bean sprouts	boiled				80			-20	
NL	FCT, WMI	Bean sprouts	edible part				100			0	
GB	RSC, MAFF	Bean, green, curry	heated, boiled, simmered							-16	T
GB	RSC, MAFF	Bean, red kidney and mung, whole, curry	boiled, stir fried, simmered							-20	T
GB	RSC, MAFF	Bean, red kidney, curry, Gujarati	fried in vegetable oil							-37	T
GB	RSC, MAFF	Beanburger, aduki	fried in vegetable oil							-9	T
GB	RSC, MAFF	Beanburger, butter bean	fried in vegetable oil							-11	T
GB	RSC, MAFF	Beanburger, red kidney bean	fried in vegetable oil							-11	T
GB	RSC, MAFF	Beanburger, soya	fried in vegetable oil							-9	T
GB	RSC, MAFF	Beans, aduki, dried	soaked, boiled			215		T		+115	
GB	RSC, MAFF	Beans, black gram, urad gram, dried	soaked, boiled							+208	T
SE	Friggs	Beans, black, dried	soaked, boiled			235		T		+135	
SE	SLV	Beans, brown, dried	soaked, boiled	2556		74	TA			-26	
SE	SLV	Beans, brown, dried	soaked			186	T			+86	
NL	FCT	Beans, brown/white, canned	drained			70				-30	
GB	RSC, MAFF	Beans, butter, dried	soaked, boiled			250	T			+150	
IT	INN	Beans, dried	boiled	100						+142	
SE	KoV	Beans, dried	soaked, boiled							+138	T
IT	INN	Beans, French	boiled	100						-5	
DE	AB	Beans, green	boiled			93	T			-7	
NL	LCW	Beans, green	boiled	1000		91	T			-9	
NL	GJ	Beans, green	boiled			88	T			-12	
PT	SVL7	Beans, green	boiled	211		99	T			-1	
DE	AB	Beans, green	steamed			91	T			-9	
DE	AB	Beans, green	stewed			93	T			-7	
NL	FCT, WMI	Beans, green	trimmed			95				-5	
SK	FRI	Beans, green	trimmed			89	T			-11	
HU	BL	Beans, green	trimmed, cut			90	T			-10	
DE	AB	Beans, green, frozen	boiled			90	T			-10	
DE	AB	Beans, green, frozen	steamed			88	T			-12	
DE	AB	Beans, green, frozen	stewed			94	T			-6	
SE	KoV	Beans, green, haricots verts, yellow	boiled							-5	T
SE	KoV	Beans, green, haricots verts, yellow	trimmed							-6	T
SE	SLV, KoV	Beans, green, in thick white sauce	boiled	707		96	C			-4	
HU	BL	Beans, green, pieces	boiled			92	T			-8	

DE	AB	Beans, green, split, dried	boiled	100	460	T	+360
GB	RSC, MAFF	Beans, haricot, dried	soaked, boiled		260	T	+160
SE	Friggs	Beans, mixed, dried	soaked, boiled		228	T	+128
GB	RSC, MAFF	Beans, pinto, dried	soaked, boiled		238	T	+138
GB	RSC, MAFF	Beans, re-fried	simmered				-43
GB	RSC, MAFF	Beans, red kidney, dried	soaked, boiled		261	T	+161
SE	Friggs	Beans, red kidney, dried	soaked, boiled		221	T	+121
PT	SVB1	Beans, red, dried	soaked, boiled	154	219	T	+119
NL	LCW	Beans, runner	boiled	1000	93	T	-7
NL	WMI	Beans, runner	boiled		91		-9
NL	FCT, WMI	Beans, runner	trimmed		95		-5
DE	AB	Beans, white, dried	soaked, boiled	100	220	T	+120
SE	Friggs	Beans, white, dried	soaked, boiled	100	250	T	+150
SE	SLV	Beans, white, in tomato sauce	soaked, boiled	1030	83	C	-17
GB	RSC, MAFF	Black eye beans, dried	soaked, boiled		264	T	+164
GB	RSC, MAFF	Black gram, dahl curry	soaked, simmered/pressure cooked				-30
GB	RSC, MAFF	Black gram, dahl, dried	soaked, boiled		308	T	+208
GB	RSC, MAFF	Black gram, partial seed coat, dried	soaked, boiled		316	T	+216
GB	RSC, MAFF	Black gram, whole, and red kidney bean curry	boiled, simmered				-68
GB	RSC, MAFF	Black gram, whole, curry, Bengali	soaked, simmered/pressure cooked				-19
GB	RSC, MAFF	Black gram, whole, curry, Gujerati	soaked, boiled, fried, simmered				-24
GB	RSC, MAFF	Black gram, whole, dried	soaked, boiled		308	T	+208
GB	RSC, MAFF	Blackeye bean curry, Gujerati	soaked, boiled, simmered				-19
IT	INN	Broad beans	boiled	100			-20
NL	LCW	Broad beans	boiled	1000	94	T	-6
NL	WMI	Broad beans	boiled		94		-6
PT	SVL10	Broad beans	boiled	180	105	T	+5
NL	FCT, WMI	Broad beans	trimmed		45		-55
IT	INN	Broccoli	boiled	100			-43
PT	SVL1	Broccoli	boiled	172	114	T	+14
NL	WMI	Broccoli	cooked		94		-6
NL	WMI	Broccoli	trimmed		30-60		-70 -40
NL	FCT	Broccoli	trimmed		30		-70



SE	Coop, SLV	Cabbage soup	boiled	1975	94	T	-9
SE	SLV, Coop	Cabbage soup with meat quenelles	boiled	1963	94	C	-6
SE	SLV, Coop	Cabbage soup with pork sausage	boiled	1905	94	B	-6
SE	SLV, Coop	Cabbage soup, vegetarian	boiled	1832	94	B	-6
SE	SLV, Coop	Cabbage, brown (dish)	braised	2343	69	B	-32
NL	LCW	Cabbage, Chinese	boiled	1000	70	T	-30
NL	FCT, WMI	Cabbage, Chinese	trimmed		85		-15
HU	BL	Cabbage, Chinese	trimmed, cut		91	T	-10
HU	BL	Cabbage, Chinese, pieces	boiled		89	T	-11
DE	AB	Cabbage, fermented, Sauerkraut	boiled		92	T	-8
DE	AB	Cabbage, fermented, Sauerkraut	boiled		90	T	-10
NL	LCW	Cabbage, fermented, Sauerkraut	boiled	1000	103	T	-3
NL	FCT, WMI	Cabbage, fermented, Sauerkraut	edible part		100		0
DE	AB	Cabbage, fermented, Sauerkraut	steamed		94	T	-6
DE	AB	Cabbage, fermented, Sauerkraut	stewed		92	T	-8
DE	AB	Cabbage, fermented, Sauerkraut	stewed		110	T	+10
DE	AB	Cabbage, frozen	boiled		82	T	-18
DE	AB	Cabbage, frozen	steamed		79	T	-21
DE	AB	Cabbage, frozen	stewed		81	T	-19
NL	LCW	Cabbage, green	boiled	1000	89	T	-11
NL	FCT, WMI	Cabbage, green	trimmed		80		-20
HU	BL	Cabbage, pieces	boiled		83	T	-17
HU	BL	Cabbage, pieces	braised		56	T	-44
DE	AB	Cabbage, red	boiled		100	T	0
NL	LCW	Cabbage, red	boiled	1000	97	T	-3
NL	GJ	Cabbage, red	boiled		101	T	+1
DE	AB	Cabbage, red	steamed		94	T	-6
DE	AB	Cabbage, red	stewed		105	T	+5
NL	FCT, WMI	Cabbage, red	trimmed		85		-15
SK	FRI	Cabbage, red	trimmed		80	T	-20
DE	AB	Cabbage, red, frozen	boiled		94	T	-6
DE	AB	Cabbage, red, frozen	steamed		88	T	-12
DE	AB	Cabbage, red, frozen	stewed		91	T	-9
GB	RSC, MAFF	Cabbage, red, with apples	braised				-10
SE	Coop, SLV	Cabbage, red, with apples	braised	1408	69	T	-32
IT	INN	Cabbage, Savoy	boiled	100	100		0

NL	LCW	Cabbage, Savoy	boiled	1000	94	T	-6	T
PT	SVL3	Cabbage, Savoy	boiled	195	106	T	+6	T
PT	SVL4	Cabbage, Savoy	boiled	188	112	T	+12	T
NL	FCT	Cabbage, Savoy	trimmed		85		-15	
NL	WMI	Cabbage, Savoy	trimmed		80		-20	
SE	MV	Cabbage, Savoy	trimmed				-28	
HU	BL	Cabbage, Savoy	trimmed, cut		83	T	-17	
HU	BL	Cabbage, Savoy, pieces	boiled		91	T	-9	
DE	AB	Cabbage, Wirsing	boiled		100	T	0	
DE	AB	Cabbage, Wirsing	stewed		98	T	-2	
GB	RSC, MAFF	Callaloo and cho cho	fried, simmered				-15	T
GB	RSC, MAFF	Callaloo and okra	fried, simmered				-11	T
IT	INN	Cardoon	boiled	100			-40	
DE	AB	Cauliflower	boiled		99	T	-1	
DE	AB	Cauliflower	boiled		100	T	0	
IT	INN	Cauliflower	boiled	100			-7	
NL	LCW	Cauliflower	boiled	1000	92	T	-8	
NL	GJ	Cauliflower	boiled		94	T	-6	
PT	SVL5	Cauliflower	boiled	201	106	T	+6	
SE	KoV	Cauliflower	boiled	500	103	T	+3	
SE	KoV	Cauliflower	boiled				+4	T
NL	GJ	Cauliflower	cooked		65	T	-35	
DE	AB	Cauliflower	steamed		95	T	-5	
DE	AB	Cauliflower	stewed		92	T	-8	
HU	BL	Cauliflower	trimmed		77	T	-23	
NL	FCT	Cauliflower	trimmed		70		-30	
NL	WMI	Cauliflower	trimmed		75		-25	
SK	FRI	Cauliflower	trimmed		65	T	-35	
GB	RSC, MAFF	Cauliflower and potato bhaji	stir fried, simmered				-25	T
GB	RSC, MAFF	Cauliflower and potato curry	fried, simmered				-21	T
GB	RSC, MAFF	Cauliflower and vegetable bhaji	browned, simmered				-30	T
SE	SLV	Cauliflower au gratin	baked	820	93	C	-7	
GB	RSC, MAFF	Cauliflower bhaji	browned, simmered				-30	T
GB	RSC, MAFF	Cauliflower cheese	boiled, grilled/baked				-15	T
SE	SLV	Cauliflower in thick white sauce	boiled	926	97	C	-3	
SE	KoV	Cauliflower with few leaves	trimmed				-12	T



GB	RSC, MAFF	Cho cho fritters	deep fried in vegetable oil						-20	T
GB	RSC, MAFF	Coco fritters	deep fried in vegetable oil						-17	T
GB	RSC, MAFF	Coo-coo	boiled						-9	T
GB	RSC, MAFF	Corn fritters	deep fried in vegetable oil						-10	T
NL	FCT,WMI	Corn on cob	trimmed, cob removed			70			-30	
SK	FRI	Corn on cob	trimmed, cob removed			52	T		-48	
GB	RSC, MAFF	Corn pudding	baked in water-bath						-11	T
NL	FCT	Corn salad	trimmed			100			0	
NL	WMI	Corn salad	trimmed			95			-5	
GB	RSC, MAFF	Courgette and potato curry							-14	T
IT	INN	Courgette slices	deep fried	100					-24	T
GB	RSC, MAFF	Courgettes with eggs	fried, stir fried						-18	T
IT	INN	Courgettes, squash, summer	boiled	100					-10	
NL	LCW	Cress, garden	boiled	500		77	T		-23	
NL	FCT	Cress, garden	trimmed			100			0	
NL	LCW	Cucumber	boiled	1000		88	T		-12	
SE	MV	Cucumber	peeled						-14	T
SK	FRI	Cucumber	peeled			85	T		-15	
HU	BL	Cucumber	peeled, cut			67	T		-33	
SE	MV	Cucumber	sliced						-10	T
NL	FCT, WMI	Cucumber	trimmed			90			-10	
HU	BL	Cucumber, fresh pickled	salted, prepared			59	T		-41	
GB	RSC, MAFF	Curry, dudhi, kofta: for curry base	fried, simmered						-38	T
GB	RSC, MAFF	Curry, dudhi, kofta: for frying balls	fried						-33	T
GB	RSC, MAFF	Curry, gobi aloo sag, retail	heated						-7	T
GB	RSC, MAFF	Curry, karela							-29	T
GB	RSC, MAFF	Dal Dhokari	soaked, boiled, liquidized, simmered						-12	T
SE	MV	Dill with fine stalks	stalks removed						-40	T
SE	MV	Dill with tough stalks	stalks removed						-65	T
GB	RSC, MAFF	Dosa, plain	soaked, liquidized, fried						-38	T
NL	LCW	Endives	boiled	1200		73	T		-27	
NL	GJ	Endives	boiled			67	T		-33	
NL	FCT, WMI	Endives	trimmed			85			-15	
SK	FRI	Endives	trimmed			77			-23	T





DE	AB	Kohl rabi, pieces	boiled		94	T	-6	T
HU	BL	Kohl rabi, pieces	boiled		86	T	-14	T
HU	BL	Kohl rabi, pieces	braised		91	T	-9	T
HU	BL	Kohl rabi, pieces	braised in steamer		92	T	-8	T
DE	AB	Kohl rabi, pieces	steamed		90	T	-10	T
HU	BL	Kohl rabi, pieces	steamed		91	T	-9	T
DE	AB	Kohl rabi, pieces	stewed		100	T	0	T
DE	AB	Kohl rabi, pieces, frozen	boiled		94	T	-6	T
DE	AB	Kohl rabi, pieces, frozen	steamed		90	T	-10	T
DE	AB	Kohl rabi, pieces, frozen	stewed		100	T	0	T
HU	BL	Kohl rabi, whole	boiled		93	T	-8	T
HU	BL	Kohl rabi, whole	steamed		94	T	-6	T
GB	RSC, MAFF	Lasagne, spinach	baked				-8	T
GB	RSC, MAFF	Lasagne, vegetable	baked				-12	T
IT	INN	Leeks	boiled	100			-2	T
NL	LCW	Leeks	boiled	1000	85	T	-16	T
NL	GJ	Leeks	boiled		81	T	-19	T
SE	KoV	Leeks	boiled				+2	T
NL	FCT, WMI	Leeks	trimmed		65		-35	T
SE	KoV	Leeks	trimmed				-16	T
SE	KoV	Leeks	boiled	100	102	T	+2	T
GB	RSC, MAFF	Lentil and cheese pie	fried, baked				-11	T
GB	RSC, MAFF	Lentil and nut roast	fried, baked				-11	T
GB	RSC, MAFF	Lentil and potato pie	fried, baked				-16	T
GB	RSC, MAFF	Lentil and rice roast	fried, baked				-8	T
GB	RSC, MAFF	Lentil and tomato flan	fried, simmered, baked				-24	T
GB	RSC, MAFF	Lentil cutlets, breaded	soaked, grinded, fried				-9	T
GB	RSC, MAFF	Lentil pie	fried, baked				-20	T
GB	RSC, MAFF	Lentil rissoles	fried, simmered, deep fried				-25	T
GB	RSC, MAFF	Lentil roast	fried, baked				-11	T
SE	SLV, Coop	Lentil soup	boiled	2071	74	B	-26	T
GB	RSC, MAFF	Lentil soup	fried, simmered				-44	T
GB	RSC, MAFF	Lentil, red/masoor dahl and mung bean dahl curry	boiled, simmered, heated				-23	T
GB	RSC, MAFF	Lentil, red/masoor dahl and tomato curry	boiled, heated, simmered				-37	T
GB	RSC, MAFF	Lentil, red/masoor dahl and tomato curry, Punjabi	fried, boiled				-9	T
GB	RSC, MAFF	Lentil, red/masoor dahl and vegetable curry	boiled, simmered, heated				-23	T

GB	RSC, MAFF	Lentil, red/masoor dahl curry	boiled, simmered, fried						-32	T
GB	RSC, MAFF	Lentil, red/masoor dahl curry, Punjabi	boiled, simmered, fried						-49	T
GB	RSC, MAFF	Lentil, whole/masoor curry, Gujerati	soaked, boiled, fried, heated						-19	T
GB	RSC, MAFF	Lentil, whole/masoor curry, Punjabi	boiled, simmered, fried						-38	T
SE	Friggs	Lentils, red, dried	boiled			241		T	+141	
GB	RSC, MAFF	Lentils, red, dried	soaked, boiled			327		T	+227	
DE	AB	Lentils, whole, dried	boiled		100	250		T	+150	
IT	INN	Lentils, whole, dried	boiled		100				+147	
SE	KoV	Lentils, whole, dried	boiled						+152	T
SE	Friggs	Lentils, whole, dried	boiled			200		T	+100	
GB	RSC, MAFF	Lentils, whole, dried	soaked, boiled			239		T	+139	
SE	Friggs	Lentils, whole, dried, from USA	boiled			267		T	+167	
NL	LCW	Lettuce	boiled		1500	58		T	-42	
NL	FCT, WMI	Lettuce	trimmed			80			-20	
SK	FRI	Lettuce	trimmed			69		T	-31	
HU	BL	Lettuce	trimmed, cut in quarters			79		T	-21	
SE	MV	Lettuce, grown in pot	roots and outer leaves removed						-35	T
SE	SLV	Mimosa salad, mainly fruits, with refuse	refuse removed, prepared		690	89		C	-11	
SE	SLV	Minestrone	boiled		1775	86		B	-14	
SE	RSC, MAFF	Minestrone	fried, simmered						-12	T
GB	RSC, MAFF	Moussaka, vegetable	fried, baked						-12	T
GB	RSC, MAFF	Mulligatawny soup	fried, simmered, sieved/liquidised, heated						-19	T
GB	RSC, MAFF	Mung bean dahl and spinach curry	soaked, fried, simmered						-21	T
GB	RSC, MAFF	Mung bean dahl curry, Bengali	soaked, simmered/pressure cooked						-33	T
GB	RSC, MAFF	Mung bean, whole, and turnip leaves curry	fried, mixed						-2	T
GB	RSC, MAFF	Mung bean, whole, curry, Gujerati	soaked, fried, boiled						-21	T
GB	RSC, MAFF	Mung bean, whole, curry, Punjabi	soaked, simmered/pressure cooked						-17	T
GB	RSC, MAFF	Mung beans, dahl, dried	soaked, boiled			305		T	+205	
SE	Friggs	Mung beans, dried	soaked, boiled			260		T	+160	
GB	RSC, MAFF	Mung beans, whole, dried	soaked, boiled			299		T	+199	
GB	RSC, MAFF	Mushroom bhaji	fried, simmered						-19	T
GB	RSC, MAFF	Mushroom Dopiaza	heated						-5	T

GB	RSC, MAFF	Mushroom pilau	soaked, fried, boiled, simmered					-23	T
GB	RSC, MAFF	Mushroom quiche	baked					-10	T
SE	Coop, SLV	Mushroom sauce	stir fried, simmered	567	72	T		-28	
SE	SLV	Mushroom sauce	stir fried, simmered	652	89	TA		-11	
SE	Coop	Mushroom soup, canned	heated		94	T		-7	
NL	LCW	Mushrooms	boiled	700	60	T		-40	
IT	INN	Mushrooms	deep fried	100				-47	
SE	Coop	Mushrooms	fried		39	T		-61	
SE	SLV, fy	Mushrooms	fried	340	65	B		-35	
HU	BL	Mushrooms	trimmed		85	T		-15	
NL	FCT	Mushrooms	trimmed		70			-30	
NL	WMI	Mushrooms	trimmed		90-95			-5, -10	
SE	KoV	Mushrooms	trimmed					-29	T
SE	Coop, SLV	Mushrooms in thick white sauce	stir fried, boiled	440	64	T		-37	
IT	INN	Mushrooms pleurotus	deep fried	100				-15	
SE	KoV	Mushrooms without stem ends	trimmed					-7	T
SE	KoV	Mushrooms without stem ends, sliced	blanched					-27	T
SE	KoV	Mushrooms without stem ends, sliced	browned					-30	T
SE	KoV	Mushrooms without stem ends, whole	blanched					-22	T
SE	KoV	Mushrooms without stem ends, whole	browned					-32	T
SE	Coop	Mushrooms, canned	fried		56	T		-44	
GB	RSC, MAFF	Mushrooms, garlic	sautéed, grilled					-19	T
GB	RSC, MAFF	Mustard leaves and spinach bhaji	pressure cooked, boiled, pounded, fried					-49	T
GB	RSC, MAFF	Mustard leaves bhaji	pressure cooked, boiled, pounded, fried					-49	T
SE	SLV, Coop	Nettle soup	boiled	1200	92	B		-8	
GB	RSC, MAFF	Okra bhaji, Bangladeshi	stir fried, simmered					-27	T
GB	RSC, MAFF	Okra bhaji, Islami	fried, simmered					-50	T
GB	RSC, MAFF	Okra curry	fried, simmered					-26	T
GB	RSC, MAFF	Okra with tomatoes and onion, Greek	fried, simmered					-34	T
GB	RSC, MAFF	Okra with tomatoes and onion, West Indian	fried, simmered					-30	T
GB	RSC, MAFF	Onion pakora/bhajia	deep fried in vegetable oil					-29	T
GB	RSC, MAFF	Onion sauce	boiled					-13	T
SE	SLV, Coop	Onion sauce	stir fried and boiled	624	89	T		-12	



IT	INN	Peas	boiled	100	87		-13
PT	SVL8	Peas	boiled	200	98	T	-2
HU	BL	Peas	braised		88	T	-12
DE	AB	Peas	steamed		87	T	-13
DE	AB	Peas	stewed		92	T	-8
SE	SLV	Peas and carrots	boiled	403	93	E	-8
SE	Coop	Peas and liquid, canned	heated	408	92	T	-8
HU	BL	Peas in pods	shelled		36	T	-64
SE	KoV	Peas in pods	shelled				-61
SK	FRI	Peas in pods	shelled		47	T	-53
SE	Coop	Peas, carrots and liquid, canned	heated	403	92	T	-8
SE	SLV	Peas, carrots in thick white sauce	boiled	715	96	E	-5
DE	AB	Peas, frozen	boiled		89	T	-11
PT	SVL9	Peas, frozen	boiled	200	94	T	-6
SE	Coop	Peas, frozen	boiled	359	88	T	-12
DE	AB	Peas, frozen	steamed		87	T	-13
DE	AB	Peas, frozen	stewed		92	T	-8
DE	AB	Peas, frozen, thawed	boiled		90	T	-10
DE	AB	Peas, frozen, thawed	steamed		86	T	-14
DE	AB	Peas, frozen, thawed	stewed		90	T	-10
SE	KoV	Peas, marrowfat	boiled				-6
NL	FCT	Peas, marrowfat, canned	drained		65		-35
NL	LCW	Peas, petit pois	boiled	1000	92	T	-8
NL	FCT, WMI	Peas, petit pois	shelled		35		-65
NL	LCW	Peas, snow	boiled	1000	91	T	-10
NL	FCT, WMI	Peas, snow	trimmed		90		-10
GB	RSC, MAFF	Peas, split, dried	soaked, boiled		250	T	+150
GB	RSC, MAFF	Peas, whole, dried	soaked, boiled		270	T	+170
SE	SLV	Peas, whole, yellow, dried	soaked	440	180	TA	+80
IT	INN	Peppers, capsicum	baked	100	96		-4
SE	SLV, fy	Peppers, capsicum	blanched	425	96	B	-4
NL	LCW	Peppers, capsicum	boiled	350	87	T	-13
IT	INN	Peppers, capsicum	deep fried	100	60		-40
IT	INN	Peppers, capsicum	grilled	100	93		-7
NL	FCT	Peppers, capsicum	trimmed		70		-30
NL	WMI	Peppers, capsicum	trimmed		80		-20

ES	GV	Peppers, capsicum, green	fried in margarine	100	60	T	-40	T
ES	GV	Peppers, capsicum, green	fried in olive oil	100	49	T	-51	T
ES	GV	Peppers, capsicum, green	sautéed, stewed in margarine	100	63	T	-37	T
ES	GV	Peppers, capsicum, green	sautéed, stewed in olive oil	100	53	T	-47	T
HU	BL	Peppers, capsicum, green	stalk and seeds removed		82	T	-18	T
SK	FRI	Peppers, capsicum, green	stalk and seeds removed		79	T	-21	T
SE	SLV	Peppers, capsicum, stuffed with ground meat and rice, in tomato sauce	boiled, fried, simmered	1629	86	C	-15	T
GB	RSC, MAFF	Peppers, capsicum, stuffed with rice	parboiled, fried, baked				-12	T
GB	RSC, MAFF	Peppers, capsicum, stuffed with vegetables, cheese topping: for baking peppers	baked				-5	T
GB	RSC, MAFF	Peppers, capsicum, stuffed with vegetables, cheese topping: for preparation of stuffing	parboiled, fried, simmered				-18	T
GB	RSC, MAFF	Pigeon pea dahl and tomato curry	boiled, simmered, liquidized, heated				-45	T
GB	RSC, MAFF	Pigeon pea dahl curry	soaked, boiled, fried, simmered				-48	T
GB	RSC, MAFF	Pigeon pea dahl with tomatoes and peanuts curry	soaked, boiled, liquidized, simmered				-25	T
GB	RSC, MAFF	Pigeon peas, partial seed coat, dried	soaked, boiled		271	T	+171	T
GB	RSC, MAFF	Pigeon peas, whole, dried	soaked, boiled		270	T	+170	T
SK	FRI	Pumpkin	peeled, thick, seeds removed		71	T	-29	T
NL	LCW	Purslane	boiled	1500	63	T	-37	T
NL	WMI	Purslane	cooked		60		-40	T
NL	FCT, WMI	Purslane	trimmed		95		-5	T
GB	RSC, MAFF	Quorn and vegetable pie	fried, boiled, baked				-19	T
GB	RSC, MAFF	Quorn chilli	fried, simmered				-24	T
GB	RSC, MAFF	Quorn korma	heated				-12	T
GB	RSC, MAFF	Ratatouille	fried, simmered				-22	T
NL	LCW	Salsify	boiled	1000	90	T	-10	T
NL	FCT, WMI	Salsify	trimmed		65		-35	T
GB	RSC, MAFF	Sev/ganthia, chick pea flour, salt, water	deep fried				-30	T
SE	MV	Shallots	peeled				-19	T
GB	RSC, MAFF	Shepherd's pie, vegetable	fried, baked				-11	T
GB	RSC, MAFF	Shepherd's pie, vegetable, retail	heated				-11	T

GB	RSC, MAFF	Shiitake, mushroom, dried	soaked		542	T	+442
HU	BL	Sorrel	boiled		63	T	-37
HU	BL	Sorrel	trimmed		92	T	-8
SE	SLV, Coop	Soya bean patties	fried	462	85	B	-15
GB	RSC, MAFF	Soya beans, dried	soaked, boiled		256	T	+156
SE	Friggs	Soya beans, dried	soaked, boiled		230	T	+130
SE	SLV	Soya sausage, canned	fried	100	95	B	-5
SE	Friggs	Soya TVP 'meat', TVP=Textured Vegetable Protein	boiled		275	T	+175
SE	Friggs	Soya TVP 'chicken' casserole	boiled		410	T	+310
SE	Friggs	Soya TVP 'Hungarian goulash' casserole	boiled		480	T	+380
SE	Friggs	Soya TVP 'Stroganoff' casserole	boiled		380	T	+280
SE	Friggs	Soya TVP for casserole	boiled		300	T	+200
SE	Friggs	Soya TVP green pepper casserole	boiled		370	T	+270
SE	Friggs	Soya TVP minced, mix	boiled		230	T	+130
SE	Friggs	Soya TVP minced, sauce	boiled		460	T	+360
DE	AB	Spinach	blanched		92	T	-8
SE	KoV	Spinach	blanched				-20
DE	AB	Spinach	boiled		74	T	-26
DE	AB	Spinach	boiled		87	T	-13
DE	AB	Spinach	boiled		75	T	-25
HU	BL	Spinach	boiled		62	T	-38
IT	INN	Spinach	boiled	100			-16
NL	LCW	Spinach	boiled	1500	64	T	-36
NL	GJ	Spinach	boiled		60	T	-40
DE	AB	Spinach	steamed		93	T	-7
DE	AB	Spinach	steamed		90	T	-10
DE	AB	Spinach	stewed		84	T	-16
DE	AB	Spinach	stewed		82	T	-18
SE	SLV	Spinach	stir fried	518	67	E	-33
HU	BL	Spinach	trimmed		90	T	-10
NL	FCT, WMI	Spinach	trimmed		90		-10
SE	KoV	Spinach	trimmed				-5
SK	FRI	Spinach	trimmed		76	T	-24
GB	RSC, MAFF	Spinach and potato bhaji	fried, simmered				-37
GB	RSC, MAFF	Spinach and potato curry	fried, boiled				-37



GB	RSC, MAFF	Spinach bhaji	pressure cooked, boiled, pounded, fried						-49	T
GB	RSC, MAFF	Spinach curry	fried, simmered						-35	T
GB	RSC, MAFF	Spinach flan	fried, baked						-16	T
SE	Coop, SLV	Spinach in thick white sauce	boiled	518	90	T			-10	
GB	RSC, MAFF	Spinach Mchicha	steamed, fried						-33	T
GB	RSC, MAFF	Spinach pakora/bhajia	deep fried in vegetable oil						-37	T
GB	RSC, MAFF	Spinach pie	blanched, fried, baked						-23	T
GB	RSC, MAFF	Spinach roulade	boiled, fried						-24	T
SE	SLV	Spinach soup	boiled	1450	91	TA			-9	
DE	AB	Spinach, frozen	boiled		100	T			0	
SE	Coop	Spinach, frozen	boiled		102	T			+2	
DE	AB	Spinach, frozen	stewed		85	T			-15	
NL	LCW	Spring greens	boiled	1000	80	T			-20	
NL	GJ	Spring greens	boiled		80	T			-20	
NL	FCT, WMI	Spring greens	trimmed		85				-15	
SE	MV	Swiss chard	trimmed						-15	T
GB	RSC, MAFF	Tempoh burgers, coated with flour	fried in vegetable oil						-9	T
GB	RSC, MAFF	Tinda gourd and potato curry							-15	T
GB	RSC, MAFF	Tofu burger, coated with wheatgerm	baked						-6	T
GB	RSC, MAFF	Tomato and mushroom sauce							-20	T
GB	RSC, MAFF	Tomato chutney	boiled						-38	T
GB	RSC, MAFF	Tomato sauce	fried gently, simmered						-20	T
GB	RSC, MAFF	Tomato sauce	fried, simmered						-44	T
SE	SLV, Coop	Tomato sauce	boiled	525	87	B			-13	
PT	INSP4	Tomato sauce made with tomatoes, onions, parsley, prepared olive oil, margarine and salt	prepared	747	65	T			-35	
NL	LCW	Tomatoes	boiled	1000	78	T			-22	
NL	WMI	Tomatoes	cooked		88				-12	
SE	MV	Tomatoes	seeded, cut to strips						-63	
SE	MV	Tomatoes	skinned, seeded, diced						-40	
NL	FCT, WMI	Tomatoes	trimmed		95				-5	
SK	FRI	Tomatoes	trimmed		87	T			-13	
GB	RSC, MAFF	Tomatoes, stuffed with rice: for baking	baked						-22	T
GB	RSC, MAFF	Tomatoes, stuffed with rice: for filling	fried, simmered						-12	T
GB	RSC, MAFF	Tomatoes, stuffed with vegetables	fried, simmered, baked						-43	T

IT	INN	Turnip tops	boiled	100					-5
NL	LCW	Turnip tops	boiled	1500	63	T			-37
PT	SVL6	Turnip tops	boiled	195	117	T			+17
NL	FCT, WMI	Turnip tops	trimmed	100	90				-10
IT	INN	Turnip tops (Sicilian variety)	boiled	100	96				-4
GB	RSC, MAFF	Vegetable bake	baked						-15
GB	RSC, MAFF	Vegetable bhaji	fried, simmered						-31
GB	RSC, MAFF	Vegetable casserole	boiled						-15
SE	SLV, Coop	Vegetable casserole	braised	3648	85	B			-15
GB	RSC, MAFF	Vegetable chilli	fried, simmered						-15
GB	RSC, MAFF	Vegetable curry, Pakistani	boiled, fried, simmered						-24
GB	RSC, MAFF	Vegetable curry, Islami	fried, simmered						-25
GB	RSC, MAFF	Vegetable curry with yogurt	fried, simmered, heated						-21
GB	RSC, MAFF	Vegetable curry, West Indian	fried, steamed						-11
GB	RSC, MAFF	Vegetable curry, frozen, mixed vegetables	stir fried, simmered						-20
GB	RSC, MAFF	Vegetable filling for dosa	fried, simmered						-23
GB	RSC, MAFF	Vegetable in milk base crumble	boiled, baked						-15
GB	RSC, MAFF	Vegetable in tomato base crumble	fried, boiled, baked						-31
HU	BL	Vegetable marrow	cleaned		75	T			-25
SE	SLV	Vegetable mix	stewed	1258	90	E			-10
SE	SLV	Vegetable patties	fried	425	95	B			-5
GB	RSC, MAFF	Vegetable pie	boiled, simmered, baked						-15
GB	RSC, MAFF	Vegetable pilau	soaked, fried, boiled, simmered						-22
SE	SLV, Coop	Vegetable pudding: cabbage, mixed vegetables and ground meat	baked	1615	89	B			-11
GB	RSC, MAFF	Vegetable risotto	fried, stir fried, boiled, simmered, heated						-31
GB	RSC, MAFF	Vegetable risotto, brown rice	fried, stir fried, boiled, simmered, heated						-31
GB	RSC, MAFF	Vegetable samosas: for filling	fried						-26
GB	RSC, MAFF	Vegetable samosas: for pastry	deep fried						-14
SE	SLV	Vegetable soufflé	baked	956	90	E			-10
GB	RSC, MAFF	Vegetable soup	fried, simmered						-12
SE	SLV	Vegetable soup, clear	boiled	1504	93	TA			-7
SE	SLV, Coop	Vegetable soup, cream of	boiled	1590	94	B			-6
GB	RSC, MAFF	Vegetable stuffing for pancakes: for filling	boiled						-20

SE	SLV	Vegetables, boiled, in baked egg batter	baked	916	92	C	-8
NL	WMI	Vegetables, mixed, for soup	boiled		85		-15
NL	WMI	Vegetables, mixed, mean	boiled		82		-18
NL	WMI	Vegetables, mixed, summertypes	trimmed		85		-15
NL	WMI	Vegetables, mixed, vintertypes	trimmed		80		-20
GB	RSC, MAFF	Vine leaves, stuffed with rice	fried, simmered				-36
NL	WMI	Zucchini	cooked		88		-12
NL	WMI	Zucchini	trimmed		90		-10
SK	FRI	African oil palm fruit	pressed to oil		45	T	-55
SE	Coop, SLV	Apple and water thickened with potato starch	boiled	1100	91	T	-9
GB	RSC, MAFF	Apple chutney	boiled				-32
GB	RSC, MAFF	Apple crumble	baked				-7
NO	NNC	Apple pie	baked		95	E	-5
GB	RSC, MAFF	Apple pie, one crust, plain or wholemeal	baked				-4
GB	RSC, MAFF	Apple pie, two crust, plain or wholemeal	baked				-4
SE	Coop, SLV	Apple pie/apple crumble	baked	943	86	T	-14
GB	RSC, MAFF	Apple sauce, homemade	stewed				-17
SE	Coop, SLV	Apple soup	boiled	1481	89	T	-11
SE	SLV, Coop	Apple stew with sugar	boiled	1350	91	B	-9
SE	Coop, SLV	Apples	baked	892	82	T	-19
NL	WMI	Apples	cored				-10
SE	KoV	Apples	cored				-7
SK	FRI	Apples	cored		91	T	-9
HU	BL	Apples	peeled		91	T	-9
NL	WMI	Apples	peeled				-10
SE	KoV	Apples	peeled, cored				-20
NL	FCT	Apples	trimmed		80		-20
NL	WMI	Apples	trimmed		80-100		-0 -20
SE	SLV	Apples and dried bread crumbs	baked	857	93	E	-7
NL	WMI	Apricots	peeled, stones removed		67	T	-33
HU	BL	Apricots	stones removed		93		-7
NL	FCT	Apricots	stones removed		90		10
SK	FRI	Apricots	stones removed		90	T	-10

GB	RSC, MAFF	Apricots, canned in juice	drained		64 (57-71)	T	-36
GB	RSC, MAFF	Apricots, canned in syrup	drained		64 (50-82)	T	-36
SE	Coop, SLV,	Apricots, dried, soaked, thickened with potato starch	boiled	1001	84	T	-16
SE	KoV	Avocado	pared, stone removed				-33
NL	FCT, WMI	Bananas	peeled		70		-30
SK	FRI	Bananas	peeled		59	T	-41
SE	SLV	Bananas, dipped in batter	deep fried	648	90	E	-10
SE	SLV	Berries or fruit, fresh or frozen, stew, thickened with potato starch	boiled	904	88	B	-12
NL	FCT	Blackberries	trimmed		100		0
SK	FRI	Blackberries	trimmed		99	T	1
GB	RSC, MAFF	Blackcurrant pie, two crust, plain or wholemeal	baked				-4
SE	Coop, SLV	Blackcurrant syrup and water thickened with potato starch	boiled	929	97	T	-3
NO	NNC	Blackcurrant syrup concentrate	ready to serve		500	T	+400
SE	SLV	Blackcurrant syrup concentrate, 1+3	ready to serve	118	354	C	+254
SK	FRI	Blackcurrants	stalks removed		97	T	-3
NL	FCT	Blackcurrants	trimmed		80		-20
GB	RSC, MAFF	Blackcurrants, canned in juice	drained		54	T	-46
SK	FRI	Blueberries/bilberries	spoiled berries removed		98	T	-2
NL	FCT	Blueberries/bilberries			100		0
SE	Coop, SLV	Blueberry soup, thickened with potato starch	boiled	822	94	T	-6
GB	RSC, MAFF	Boysenberries, canned in syrup	drained		53	T	-47
NL	FCT	Cherries	stones removed		80		-20
SK	FRI	Cherries	stones removed		89	T	-11
GB	RSC, MAFF	Cherries, canned in syrup, no stones	drained		47 (38-55)	T	-53
GB	RSC, MAFF	Cherries, canned in syrup, plus stones	drained		61	T	-39
SK	FRI	Cherries, sour	stones removed		90	T	-10
SK	FRI	Cranberries	spoiled berries removed		95		-5
NL	FCT	Cranberries			100		0
NL	FCT	Currants, red	trimmed		80		-20
SK	FRI	Currents, red	stalks removed		96	T	-4
SK	FRI	Currents, white	stalks removed		94	T	-6
NL	FCT	Dates, dried	stones removed		90		-10
SK	FRI	Elderberries	stalks removed		70	T	-30
GB	RSC, MAFF	Fruit cocktail, canned in juice	drained		65 (55-72)	T	-35

GB	RSC, MAFF	Fruit cocktail, canned in syrup	drained			66	T	-34	T
GB	RSC, MAFF	Fruit crumble with pie filling	baked					-4	T
GB	RSC, MAFF	Fruit crumble, plain or wholemeal	baked					-7	T
GB	RSC, MAFF	Fruit flan, pastry base: for pastry	baked					-14	T
GB	RSC, MAFF	Fruit fool: for fruit purée	boiled					-36	T
GB	RSC, MAFF	Fruit pie, one crust, plain or wholemeal	baked					-4	T
GB	RSC, MAFF	Fruit pie, two crust, plain or wholemeal	baked					-4	T
GB	RSC, MAFF	Fruit pie, with pie filling, two crust, plain or	baked					-4	T
SE	SLV	Fruit salad (grapes, oranges, apples, pears, bananas, with refuse)	refuse removed	1162		77	C	-24	
SE	Coop, SLV	Fruit soup, made with mixed, dried fruits, soaked and thickened with potato starch	soaked, boiled	1320		87	T	-13	
SE	Coop, SLV	Fruit stew, made with mixed, dried fruits, soaked, thickened with potato starch	soaked, boiled	977		83	T	-17	
SE	Coop, SLV	Fruit syrup and water, thickened with potato starch	boiled	914		88	T	-12	
NO	NNC	Fruit syrup concentrate	ready to serve			500	T	+400	
SE	Coop, SLV	Fruit syrup sauce, thickened with potato starch	boiled	539		90	T	-10	
SE	Coop, SLV	Fruit syrup soup, thickened with potato starch	boiled	1072		86	T	-14	
SK	FRI	Gooseberries	tops and tails removed			98	T	-2	
NL	FCT	Gooseberries	trimmed			70		-30	
GB	RSC, MAFF	Gooseberries, canned in syrup	drained			53	T	-47	
NL	FCT	Grapefruit	peeled, pips removed			70		-30	
NL	WMI	Grapefruit	peeled, pips removed			60		-40	
SE	KoV	Grapefruit	peeled, pips removed					-28	T
SK	FRI	Grapefruit	peeled, pips removed			69	T	-31	
GB	RSC, MAFF	Grapefruit, canned in juice	drained			52 (30-66)	T	-48	
GB	RSC, MAFF	Grapefruit, canned in syrup	drained			52	T	-48	
SE	KoV	Grapes	spoiled grapes removed					-2	T
NL	FCT	Grapes	trimmed			80		-20	
GB	RSC, MAFF	Guava, canned in syrup	drained			62	T	-38	
NO	NNC	Jam, purée, marmelade, reduced sugar	boiled			90	B	-10	
NL	FCT	Kiwi fruit	pared			80		-20	
NL	WMI	Kiwi fruit	pared			83		-17	
SE	KoV	Kiwi fruit	pared					-15	T
GB	RSC, MAFF	Lemon curd	cooked slowly					-17	T
GB	RSC, MAFF	Lemon meringue pie	baked					-19	T



NL	WMI	Paw-paw = papaya	trimmed		50		-50
GB	RSC, MAFF	Paw-paw, canned in juice	drained		59	T	-41
NL	WMI	Peaches	peeled, stones removed		82	T	-18
SE	KoV	Peaches	peeled, stones removed				-17
NL	FCT	Peaches	stones removed		90		-10
SK	FRI	Peaches	stones removed		91	T	-9
GB	RSC, MAFF	Peaches, canned in juice	drained	68 (54-76)		T	-32
GB	RSC, MAFF	Peaches, canned in syrup	drained	62 (58-68)		T	-38
NL	WMI	Pears	cored	95		T	-5
SK	FRI	Pears	cored	90		T	-10
HU	BL	Pears	cored, stems removed	89		T	-11
NL	WMI	Pears	pared	85			-15
NL	FCT	Pears	trimmed	80			-20
NL	WMI	Pears	trimmed	85-95			-15
GB	RSC, MAFF	Pears, canned in juice	drained	60 (54-63)		T	-40
GB	RSC, MAFF	Pears, canned in syrup	drained	61 (51-76)		T	-39
SE	KoV	Pears, medium and big	cored				-5
SE	KoV	Pears, medium and big	pared, cored				-18
SE	KoV	Pears, small	cored				-7
SE	KoV	Pears, small	pared, cored				-26
SK	FRI	Pineapple	skinned, cored, top removed	60		T	-40
NL	WMI	Pineapple	trimmed	50			-50
NL	FCT	Pineapple	trimmed	80			
GB	RSC, MAFF	Pineapple, canned in juice	drained	54 (37-62)		T	-46
GB	RSC, MAFF	Pineapple, canned in syrup	drained	56 (48-63)		T	-44
NL	WMI	Plantains	peeled	75			-25
HU	BL	Plums	stones removed	90		T	-10
SE	KoV	Plums	stones removed				-7
SK	FRI	Plums	stones removed	93		T	-7
NL	FCT, WMI	Plums	trimmed	80			-20
GB	RSC, MAFF	Plums, canned in syrup, no stones	drained	45 (37-62)		T	-55
SK	FRI	Plums, Dog plums	stones removed	28		T	-5
SK	FRI	Plums, mirabelles	stones removed	94		T	-6
SK	FRI	Plums, Sloe plums	stones removed	93		T	-7
NL	WMI	Pomelo	trimmed	59			-41
SE	SLV	Prune soufflé	baked	510		B	-10

NL	FCT	Prunes	stones removed		85			-15
SE	Coop	Prunes	stewed	773	80	B		-20
GB	RSC, MAFF	Prunes, canned in juice, no stones	drained		46 (42-49)	T		-54
GB	RSC, MAFF	Prunes, canned in juice, plus stones	drained		51	T		-49
GB	RSC, MAFF	Prunes, canned in syrup, no stones	drained		64	T		-36
GB	RSC, MAFF	Prunes, canned in syrup, plus stones	drained		71	T		-29
SE	Coop, SLV	Prunes, soaked and thickened with potato starch	boiled	977	80	T		-20
NL	WMI	Pumpkin			67			-33
SK	FRI	Quinces	seeds, stems, blossom ends removed		83	T		-17
SK	FRI	Raspberries	spoiled berries removed		98	T		-3
NL	FCT	Raspberries			100			0
GB	RSC, MAFF	Raspberries, canned in syrup	drained		52	T		-48
NL	LCW	Rhubarb	boiled	1000	98	T		-2
NL	FCT, WMI	Rhubarb	trimmed		85			-15
SK	FRI	Rhubarb	trimmed		78	T		-22
SK	FRI	Rhubarb	trimmed		78	T		-22
SE	SLV, Coop	Rhubarb and water, thickened with potato starch	boiled	1182	91	B		-9
GB	RSC, MAFF	Rhubarb, canned in syrup	drained		56	T		-44
SE	Coop, SLV	Rosehip soup, thickened with potato starch	boiled	1115	99	T		-1
SK	FRI	Rosehips	seeds, tops removed		55	T		-45
SK	FRI	Rowan berries/sorb apples	spoiled berries removed		95	T		-5
NL	WMI	Sharon fruit	trimmed		98			-2
NL	FCT, WMI	Strawberries	caps and stems removed		95			-5
SK	FRI	Strawberries	caps and stems removed		95	T		-6
GB	RSC, MAFF	Strawberries, canned in syrup	drained		38 (33-46)	T		-62
NL	WMI	Sweetie	trimmed		30			-70
SK	FRI	Water melon	rind and seeds removed		58	T		-43
		<b>Nuts and seeds, products, dishes</b>						
GB	RSC, MAFF	Almond curry	fried, simmered					-54
NL	FCT	Almonds	trimmed		50			-50
NL	FCT	Cashew nuts			100			0
NL	FCT	Chestnuts	trimmed		85			-15
NL	WMI	Chestnuts	trimmed		75			-25



SK	FRI	Coconut		pressed to oil		47	T	-53	T
SK	FRI	Cottonseeds		pressed to oil		37	T	-63	T
SK	FRI	Flaxseeds		pressed to oil		57	T	-43	T
SK	FRI	Hazelnuts		pressed to oil		33	T	-67	T
NL	FCT	Hazelnuts		trimmed		50		-50	
SK	FRI	Mustard seeds		pressed to oil		36	T	-64	T
GB	RSC, MAFF	Nut and rice roast		fried, baked				-11	T
GB	RSC, MAFF	Nut and seed roast		fried, baked				-13	T
GB	RSC, MAFF	Nut and vegetable roast		fried, baked				-11	T
GB	RSC, MAFF	Nut croquettes		fried, floured, fried				-22	T
GB	RSC, MAFF	Nut cutlets, retail		fried in vegetable oil				-12	T
GB	RSC, MAFF	Nut roast		fried, baked				-13	T
GB	RSC, MAFF	Nut, mushroom and rice roast		fried, baked				-26	T
NL	FCT	Paranuts		trimmed		50		-50	
GB	RSC, MAFF	Peanut brittle		boiled				-18	T
SK	FRI	Peanuts		pressed to oil		50	T	-50	T
NL	FCT	Peanuts		trimmed		70		-30	
NL	WMI	Peanuts		trimmed		75		-25	
SK	FRI	Poppy seeds		pressed to oil		48	T	-52	T
SK	FRI	Rape seeds		pressed to oil		35	T	-65	T
SK	FRI	Safflower seeds		pressed to oil		42	T	-58	T
SK	FRI	Sesame seeds		pressed to oil		31	T	-69	T
SK	FRI	Sunflower seeds		pressed to oil		48	T	-52	T
SK	FRI	Walnuts		pressed to oil		45	T	-55	T
NL	FCT, WMI	Walnuts		trimmed		60		-40	
		<b>Potatoes and roots, products, dishes</b>							
DE	AB	Beetroots		boiled		99	T	-1	
IT	ININ	Beetroots		boiled	100			-14	
NL	LCW	Beetroots		boiled, peeled	1200	85	T	-15	
SE	KoV	Beetroots		boiled, peeled				-17	T
SE	KoV	Beetroots		peeled				-20	T
NL	FCT, WMI	Beetroots		trimmed		80		-20	
SK	FRI	Beetroots		trimmed, peeled		79	T	-21	
SE	KoV	Beetroots, boiled		peeled				-15	T

GB	RSC, MAFF	Carrot and orange soup	boiled, sieved/ liquidized, heated						-19	T
GB	RSC, MAFF	Carrot halva	boiled, simmered						-62	T
GB	RSC, MAFF	Carrot, potato and pea bhaji							-27	T
DE	AB	Carrots	boiled			92		T	-8	
IT	ININ	Carrots	boiled	100					-13	
NL	LCW	Carrots	boiled	1000		91		T	-9	
NL	GJ	Carrots	boiled			90		T	-10	
SK	FRI	Carrots	ends trimmed, peeled			81		T	-19	
SE	MV	Carrots	hand-peeled						-22	T
SE	MV	Carrots	tourned						-70	T
NL	FCT, WMI	Carrots	trimmed			90			-10	
PT	SVR1	Carrots	boiled	130		87		T	-13	
SE	KoV	Carrots	boiled	328		92		T	-8	
SE	SLV	Carrots in thick, white sauce	boiled	919		93		C	-7	
SE	KoV	Carrots without tops	boiled						-11	T
SE	KoV	Carrots without tops	hand-scraped, green parts removed						-16	T
DE	AB	Carrots, diced	boiled			94		T	-6	
DE	AB	Carrots, diced	steamed			92		T	-8	
DE	AB	Carrots, diced	stewed			96		T	-4	
DE	AB	Carrots, diced, frozen	boiled			88		T	-12	
DE	AB	Carrots, diced, frozen	steamed			84		T	-16	
DE	AB	Carrots, diced, frozen	stewed			87		T	-13	
DE	AB	Carrots, diced/sliced	boiled			92		T	-8	
DE	AB	Carrots, frozen	boiled			86		T	-14	
HU	BL	Carrots, pieces	boiled			86		T	-14	
HU	BL	Carrots, pieces	braised			83		T	-17	
HU	BL	Carrots, pieces	steamed			95		T	-5	
HU	BL	Carrots, whole	boiled			92		T	-8	
HU	BL	Carrots, whole	peeled			74		T	-26	
DE	AB	Celeriac	boiled			103		T	+3	
NL	LCW	Celeriac	boiled	1000		96		T	-4	
SE	Coop	Celeriac	boiled	806		108		T	+8	
NL	WMI	Celeriac	cooked			86			-14	
SK	FRI	Celeriac	peeled, trimmed			68		T	-32	

NL	FCT, WMI	Celeriac	trimmed		70		-30
HU	BL	Horseradish	grated		73	T	-27
SE	MV	Horseradish	peeled		66	T	-20
SK	FRI	Horseradish	peeled		88	T	-34
SE	Coop, SLV	Jansson's temptation, potatoes, pickled sprats, onion, cream	baked	1388		T	-12
SE	SLV	Jerusalem artichoke soup, cream of	boiled	1366	91	C	-9
IT	INN	Jerusalem artichokes	boiled	100			0
SE	KoV	Jerusalem artichokes	boiled				-9
SE	KoV	Jerusalem artichokes	peeled				-18
SE	Coop	Lobscouse, salt beef and mashed potatoes	boiled	1266	86	T	-14
SK	FRI	Parsley roots	peeled		70	T	-30
SE	KoV	Parsnips	peeled				-27
SE	MV	Parsnips	peeled				-20
SK	FRI	Parsnips	peeled, trimmed		76	T	-24
SE	KoV	Parsnips, peeled	boiled				+6
DE	AB	Pommes frites from raw	deep fried		54	T	-46
DE	AB	Pommes frites, frozen	baked	100	55	T	-45
DE	AB	Pommes frites, frozen	deep fried	100	60	T	-40
GB	RSC, MAFF	Potato and cauliflower, pakora/bhajia	deep fried				-23
GB	RSC, MAFF	Potato and egg pie	baked				-7
GB	RSC, MAFF	Potato and fenugreek leaves bhajji	fried, simmered				-27
GB	RSC, MAFF	Potato and green pepper bhajji	fried, simmered				-20
GB	RSC, MAFF	Potato and leek soup	boiled, simmered				-14
SE	Coop, SLV	Potato and leek soup	stir fried, boiled	1573	86	T	-14
GB	RSC, MAFF	Potato and onion bhajji	fried, simmered				-28
GB	RSC, MAFF	Potato and pea curry	fried, simmered				-38
GB	RSC, MAFF	Potato bhajji	fried, simmered				-23
GB	RSC, MAFF	Potato cakes	fried				-9
DE	AB	Potato croquettes	deep fried, baked	100	72	T	-28
DE	AB	Potato croquettes	deep fried, twice	100	82	T	-18
GB	RSC, MAFF	Potato curry, Bombay	heated, boiled, simmered				-28
GB	RSC, MAFF	Potato curry, Gujerati	stir fried, boiled, simmered				-35
GB	RSC, MAFF	Potato curry, Punjabi	fried, boiled, simmered				-29
DE	AB	Potato dumplings, made with boiled potatoes	boiled	100	102	T	+2

DE	AB	Potato dumplings, made with half boiled and half raw potatoes	boiled	100	95	T	-5	
DE	AB	Potato dumplings, made with raw potatoes	boiled	100	108	T	+8	
SE	Coop, SLV	Potato dumplings, made with raw potatoes, stuffed with diced, fried salt pork and onions	stir fried, boiled	1489	95	T	-5	
GB	RSC, MAFF	Potato pakora/bhajia, batter coated	deep fried				-33	T
DE	AB	Potato patties, made with boiled potatoes	fried	600	70		-30	
SE	Coop, SLV	Potato patties, made with mashed potatoes, breaded	fried	600	92	T	-8	
GB	RSC, MAFF	Potato powder, instant	made up	100	490	T	+390	
DE	AB	Potato puffs, frozen	baked	100	85	T	-15	
DE	AB	Potato puffs, frozen	deep fried	100	75	T	-25	
DE	AB	Potato puffs, frozen	fried	100	85	T	-15	
DE	AB	Potato puffs, raw potatoes	fried	100	70	T	-30	
SE	SLV	Potato stew, raw potatoes	boiled	913	98	TA	-2	
IT	INN	Potato wedges	deep fried	100			-36	
GB	RSC, MAFF	Potato, carrot and pea pakora/bhajjal, batter coated	deep fried				-29	T
GB	RSC, MAFF	Potato, onion and mushroom bhajji	fried, simmered				-26	T
IT	INN	Potatoes	boiled	100	100		0	
NL	LCW	Potatoes	boiled	1200	102	T	+2	
NL	GJ	Potatoes	boiled		101	T	+1	
SE	SLV, Coop	Potatoes and vegetables (vegetable pytipanna)	fried	1038	88	B	-12	
SE	SLV, fy	Potatoes au gratin	baked	1090	92	B	-8	
DE	AB	Potatoes in skins	boiled		99	T	-1	
DE	AB	Potatoes in skins	boiled		98	T	-2	
SE	KoV	Potatoes in skins	boiled				-2	T
SE	MV	Potatoes in skins	hand-peeled				-20	T
HU	BL	Potatoes in skins	peeled		72	T	-28	
NL	FCT	Potatoes in skins	peeled		70-95		-30-5	
NL	WMI	Potatoes in skins	peeled		80		-20	
SE	KoV	Potatoes in skins	peeled				-20	T
DE	AB	Potatoes in skins	steamed		98	T	-2	
DE	AB	Potatoes in skins, boiled	peeled		80	T	-20	
SE	KoV	Potatoes in skins, boiled	peeled				-10	T
SK	FRI	Potatoes in skins, late variety	peeled, trimmed		81	T	-19	
SE	MV	Potatoes in skins, new	machine-peeled				-20	T
SE	MV	Potatoes in skins, new	scrubbed				-10	T

SE	MV	Potatoes in skins, new, boiled, cooled	sliced							-20	T
PT	SVR5	Potatoes in skins, new, peeled after cooking	boiled	435	96					-4	T
PT	SVR7	Potatoes in skins, old	boiled	431	99					-1	T
SE	KoV	Potatoes in skins, old	boiled, peeled							-12	T
SE	MV	Potatoes in skins, old	machine-peeled							-38	T
SE	KoV	Potatoes in skins, old or of poor quality	peeled							-24	T
SE	KoV	Potatoes in skins, old or of poor quality, boiled	peeled							-12	T
DE	AB	Potatoes in skins, steamed	peeled		80					-20	T
GB	RSC, MAFF	Potatoes with eggs	fried							-16	T
DE	AB	Potatoes, boiled, peeled	baked		77					-23	T
DE	AB	Potatoes, boiled, peeled	fried		77					-23	T
GB	RSC, MAFF	Potatoes, duchesse	baked							-13	T
SE	Coop, SLV	Potatoes, mashed	boiled	1076	98					-2	T
DE	AB	Potatoes, peeled	boiled		97					-3	T
IT	ININ	Potatoes, peeled	boiled	100						-13	
DE	AB	Potatoes, peeled	deep fried	100	54					-46	T
DE	AB	Potatoes, peeled	deep fried, baked	100	49					-51	T
DE	AB	Potatoes, peeled	deep fried, twice	100	44					-56	T
SE	Coop, SLV	Potatoes, peeled	fried	657	88					-12	T
ES	GV	Potatoes, peeled	fried in margarine	100	51					-49	T
ES	GV	Potatoes, peeled	fried in olive oil	100	52					-48	T
ES	GV	Potatoes, peeled	sautéed, stewed in margarine	100	75					-25	T
ES	GV	Potatoes, peeled	sautéed, stewed in olive oil	100	53					-47	T
DE	AB	Potatoes, peeled	steamed		97					-3	T
DE	AB	Potatoes, peeled	stewed		100					0	T
DE	AB	Potatoes, peeled, diced/sliced	baked		75					-25	T
DE	AB	Potatoes, peeled, diced/sliced	boiled		97					-3	T
DE	AB	Potatoes, peeled, diced/sliced	braised		97					-3	T
DE	AB	Potatoes, peeled, diced/sliced	deep fried		52					-48	T
DE	AB	Potatoes, peeled, diced/sliced	fried		80					-20	T
DE	AB	Potatoes, peeled, diced/sliced	roasted		75					-25	T
DE	AB	Potatoes, peeled, diced/sliced	steamed		97					-3	T
DE	AB	Potatoes, peeled, diced/sliced	stewed		97					-3	T
PT	SVR8	Potatoes, peeled, oil and salt	deep fried	529	64					-36	T
PT	SVR4	Potatoes, peeled, old	boiled	312	99					-1	T
DE	AB	Potatoes, peeled, shredded	baked		64					-36	T

DE	AB	Potatoes, peeled, shredded	fried		70	T	-30
SE	Coop	Potatoes, peeled, shredded	fried		68	T	-32
PT	SVR9	Potatoes, peeled, stewed with onions, olive oil, oil, parsley, salt and water	stewed	911	72	T	-28
DE	AB	Potatoes, peeled, whole	stewed		97	T	-3
DE	AB	Potatoes, peeled, whole	boiled		100	T	-3
DE	AB	Potatoes, peeled, whole	steamed		100	T	-3
PT	SVR10	Potatoes, small pieces, baked with olive oil, oil, salt and water	baked	720	53	T	-48
NL	LCW	Radish	boiled	1000	96	T	-5
NL	FCT, WMI	Radish	trimmed		95		-5
SK	FRI	Radish, black	peeled		77	T	-23
NL	FCT, WMI	Radish, black	trimmed		90		-10
SK	FRI	Radishes, red, with tops	trimmed		66	T	-34
SE	SLV	Root vegetable patties	fried		90	E	-10
DE	AB	Rösti	fried	100	75	T	-25
NL	LCW	Salsify	boiled		90	T	-10
NL	FCT, WMI	Salsify	trimmed		65		-35
NL	LCW	Swede	boiled	1000	92	T	-8
SE	KoV	Swede	peeled				-13
NL	FCT, WMI	Swede	trimmed		80		-20
SE	KoV	Swede, diced	boiled				-3
SE	SLV	Swedes and potatoes	boiled, mashed	1503	98	TA	-3
SE	KoV	Swedes and potatoes	boiled, mashed		93	T	-7
GB	RSC, MAFF	Sweet potato and green banana casserole	baked				-10
GB	RSC, MAFF	Sweet potato and onion layer	parboiled, boiled, baked				-24
GB	RSC, MAFF	Turnip and onion bhaji	fried, simmered				-20
GB	RSC, MAFF	Turnip bhaji	fried, simmered				-25
IT	INN	Turnips	boiled	100			-7
PT	SVR2	Turnips	boiled	231	90	T	-10
SK	FRI	Turnips	peeled		80	T	-21
		<b>Milk and cheese, products, dishes</b>					
GB	RSC, MAFF	Blancmange	boiled				-8
SE	SLV	Camembert, breaded	deep fried	207	90	E	-10







SE	SLV, Coop	Beef patties	fried	765	75	B	-25	
SE	SLV, KoV	Beef rolls, filled	fried, simmered	678	59	B	-41	
SE	Coop, SLV	Beef sauce, ground meat	braised	839	76	T	-24	
GB	RSC, MAFF	Beef steak pudding	steamed				+2	T
GB	RSC, MAFF	Beef stew	browned, simmered				-25	T
SE	KoV, SLV	Beef Stroganoff	braised	752	59	T	-41	
PT	SMB4	Beef with dry meat sausage, olive oil, potatoes, onions, peas, carrots, tomatoes, salt and water	stewed	2061	59	T	-41	
DE	AB	Beef, big pieces, > 0,5 kg	boiled/steamed, well done	100	60	T	-40	
DE	AB	Beef, big pieces, > 0,5 kg	braised, medium	100	71	T	-29	
DE	AB	Beef, big pieces, > 0,5 kg	braised, well done	100	65	T	-35	
DE	AB	Beef, big pieces, > 0,5 kg	fried, medium	100	72	T	-28	
DE	AB	Beef, big pieces, > 0,5 kg	fried, well done	100	62	T	-38	
DE	AB	Beef, big pieces, > 0,5 kg	grilled, medium	100	72	T	-28	
DE	AB	Beef, big pieces, > 0,5 kg	grilled, well done	100	62	T	-38	
SE	KoV	Beef, bones with meat	boned				-59	T
GB	RSC, MAFF	Beef, brisket	boiled				-34	T
HU	BL	Beef, brisket	boiled		61	T	-39	
SE	KoV	Beef, brisket	boiled				-21	T
SE	Coop	Beef, brisket with bones	boiled		64	T	-36	
SE	Coop	Beef, brisket without bones	boiled		51	T	-49	
SE	MV	Beef, brisket without bones	boiled, sliced				-61	T
SE	KoV	Beef, brisket, cured	boiled				-28	T
SE	MV	Beef, brisket, cured, without bones	boiled, sliced				-42	T
SE	KoV	Beef, brisket, rolled up	boiled				-33	T
SK	FRI	Beef, brisket/breast	boiled		59	T	-41	
SK	FRI	Beef, brisket/breast	stewed		64	T	-36	
SK	FRI	Beef, brisket/breast	trimmed		83	T	-17	
SE	SLV, KoV	Beef, chuck, blade, back rib	boiled	744	71	T	-39	
SE	KoV	Beef, chuck, blade, back rib	boiled				-29	T
SE	KoV, SLV	Beef, chuck, blade, back rib	boned				-14	T
SE	KoV	Beef, chuck, blade, back rib	braised	600	68	T	-32	
HU	BL	Beef, chuck, round	braised		70	T	-31	
SE	SLV, KoV	Beef, cube roll	fried	600	76	B	-24	
SE	KoV	Beef, cube roll with bone	boned				-20	T
SE	KoV	Beef, cube roll with bone	roasted				-16	T

SE	MV	Beef, cubes, frozen	thawed, cooked							-41	T
SE	KoV	Beef, eye round, salted	boiled							-43	T
SK	FRI	Beef, fat	boiled	1500		60	T			-40	
SE	SLV, fy	Beef, fat	fried			76	B			-24	
SK	FRI	Beef, fat	stewed	1500		64	T			-36	
SK	FRI	Beef, fat	trimmed			80	T			-20	
HU	BL	Beef, fillet	fried			75	T			-25	
HU	BL	Beef, fillet	fried			72	T			-28	
SK	FRI	Beef, flank	boiled	1500		62	T			-38	
SK	FRI	Beef, flank	stewed	1500		63	T			-37	
SK	FRI	Beef, flank	trimmed			90	T			-10	
GB	RSC, MAFF	Beef, forerib	roasted							-20	T
DE	AB	Beef, ground	fried, medium	100		78	T			-22	
DE	AB	Beef, ground	grilled, medium	100		70	T			-30	
SK	FRI	Beef, haunch (knuckle, topside, silverside, top rump)	boiled	1500		48	T			-52	
SK	FRI	Beef, haunch	fried	1500		54	T			-46	
SK	FRI	Beef, haunch	roasted	1500		46	T			-54	
SK	FRI	Beef, haunch	stewed	1500		51	T			-49	
SK	FRI	Beef, haunch	trimmed			89	T			-12	
HU	BL	Beef, head	boiled			73	T			-27	
SE	KI	Beef, knuckle	roasted, almost well done	1300						-23	T
SE	KI	Beef, knuckle	roasted, well done	1300						-30	T
SE	KoV	Beef, knuckle without bone	roasted, medium							-14	T
SE	KoV	Beef, knuckle without bone	roasted, well done							-24	T
SE	SLV	Beef, knuckle, rolls	braised	678		59	B			-41	
SK	FRI	Beef, lean	boiled	1500		49	T			-51	
SK	FRI	Beef, lean	fried	1500		56	T			-44	
SE	SLV	Beef, lean	fried	505		79	B			-21	
ES	GV	Beef, lean	fried in margarine	100		52	T			-48	
ES	GV	Beef, lean	fried in olive oil	100		53	T			-47	
SK	FRI	Beef, lean	roasted	1500		50	T			-50	
ES	GV	Beef, lean	sautéed, stewed in margarine	100		64	T			-36	
ES	GV	Beef, lean	sautéed, stewed in olive oil	100		58	T			-42	
SK	FRI	Beef, lean	stewed	1500		53	T			-47	
SK	FRI	Beef, lean	trimmed			80	T			-20	

SE	KoV	Beef, meat bones or shank	boiled									-12	T
GB	RSC, MAFF	Beef, mince	stewed									-28	T
HU	BL	Beef, neck	boiled			62					T	-39	
PT	SMB3	Beef, roast with olive oil, butter, oil and salt	roasted		1024						T	-25	
HU	BL	Beef, rump	boiled			61					T	-39	
HU	BL	Beef, rump	braised			66					T	-34	
HU	BL	Beef, rump steak	braised			65					T	-35	
GB	RSC, MAFF	Beef, rump steak	fried									-29	T
GB	RSC, MAFF	Beef, rump steak	grilled									-24	T
SK	FRI	Beef, rump/loin end	boiled		1500	49					T	-51	
SK	FRI	Beef, rump/loin end	fried		1500	58					T	-42	
SK	FRI	Beef, rump/loin end	roasted		1500	51					T	-49	
SE	KoV, SLV	Beef, rump/loin end	roasted		1009	86					T	-14	
SE	KI	Beef, rump/loin end	roasted, almost medium		1200							-15	T
SE	KI	Beef, rump/loin end	roasted, medium		1300							-22	T
SE	MV	Beef, rump/loin end	roasted, sliced									-35	T
SK	FRI	Beef, rump/loin end	stewed		1500	53					T	-47	
SK	FRI	Beef, rump/loin end	trimmed			78					T	-22	
SE	MV	Beef, rump/loin end, frozen	thawed, roasted, sliced									-35	T
SE	MV	Beef, rump/loin end, roasted	sliced									-15	T
HU	BL	Beef, shank	boiled			73					T	-27	
HU	BL	Beef, shortloin	braised			59					T	-42	
HU	BL	Beef, shortloin	roasted			69					T	-31	
HU	BL	Beef, shortloin steak	braised			62					T	-38	
HU	BL	Beef, shortloin steak	roasted			65					T	-35	
SE	KoV	Beef, shoulder	boiled									-33	T
SE	KoV	Beef, shoulder	boned									-14	T
SE	KI	Beef, shoulder	roasted, almost medium		1100							-13	T
SE	KI	Beef, shoulder	roasted, medium		1200							-21	T
SE	KI	Beef, shoulder	roasted, well done									-30	T, M
GB	RSC, MAFF	Beef, silverside	boiled									-41	T
HU	BL	Beef, silverside	boiled			55					T	-45	
HU	BL	Beef, silverside	braised			73					T	-27	
SE	MV	Beef, silverside	roasted medium, sliced									-37	T
HU	BL	Beef, silverside steak	braised			70					T	-30	
HU	BL	Beef, sirloin	boiled			68					T	-32	

HU	BL	Beef, sirloin	braised		68	T	-33
PT	SMB2	Beef, sirloin	grilled	246	78	T	-22
GB	RSC, MAFF	Beef, sirloin	roasted				-22
HU	BL	Beef, sirloin	roasted		77	T	-23
SE	KI	Beef, sirloin	roasted, medium	1300			-14
SE	KI	Beef, sirloin	roasted, rare	1400			-9
PT	SMB1	Beef, sirloin with butter and salt	fried	374	80	T	-20
SE	MV	Beef, sirloin, frozen	thawed, cut, trimmed				-21
HU	BL	Beef, sirloin, sliced	braised		70	T	-30
SE	SLV, KoV	Beef, sirloin, sliced	fried	506	76	B	-24
HU	BL	Beef, sirloin, steak	roasted		74		-26
DE	AB	Beef, small pieces, < 0,5 kg	boiled/steamed, well done	100	60	T	-40
DE	AB	Beef, small pieces, < 0,5 kg	braised, well done	100	64	T	-36
DE	AB	Beef, small pieces, < 0,5 kg	deep fried, medium	100	84	T	-16
DE	AB	Beef, small pieces, < 0,5 kg	fried, medium	100	73	T	-27
DE	AB	Beef, small pieces, < 0,5 kg	fried, well done	100	62	T	-38
DE	AB	Beef, small pieces, < 0,5 kg	grilled, medium	100	70	T	-30
DE	AB	Beef, small pieces, < 0,5 kg	grilled, well done	100	64	T	-36
GB	RSC, MAFF	Beef, stewing steak	stewed				-36
GB	RSC, MAFF	Beef, topside	roasted				-24
SE	KoV	Beef, topside/round	roasted, medium				-17
GB	RSC, MAFF	Beefburgers	fried				-24
HU	BL	Blood pudding (pig blood)	boiled		89	T	-11
HU	BL	Blood pudding (pig blood), sliced	fried		91	T	-9
SE	SLV, KoV	Blood pudding, lean, sliced	dry fried	600	92	B	-8
SE	KoV	Blood pudding, sliced	fried				-8
NO	PKP	Blood pudding, sliced	dry fried		82		-18
SE	SLV	Bloodbread, soft	soaked, boiled	224	446	T	+346
GB	RSC, MAFF	Bolognese sauce	browned, simmered				-41
SE	SLV	Chili con carne	boiled, stir fried, simmered	1599	79	C	-21
GB	RSC, MAFF	Chili con carne	fried, simmered				-31
SE	MV	Deer, frozen, with bones	thawed, roasted, boned, sliced				-65
SE	KoV, SLV	Goulash, beef	braised	1550	68	T	-32
SE	SLV, Coop	Goulash, ground meat with sour cream	braised	1028	79	C	-21
SE	SLV, Coop	Goulash, ground meat, plain	braised	1028	76	C	-24

GB	RSC, MAFF	Grillsteaks		grilled						-25	T
GB	RSC, MAFF	Haggis		boiled						-5	T
NO	PKP	Hamburger		fried		92			T	-8	
SE	Coop, SLV	Hamburger		fried	400	83			T	-17	
SE	Coop	Hamburger, frozen		fried		90			T	-10	
GB	RSC, MAFF	Hare		stewed						-40	T
SE	SLV	Hare with bones		stewed	2295	78			B	-22	
DE	AB	Hare, big pieces with bones		fried	100	77			T	-23	
DE	AB	Hare, big pieces with bones		fried, edible part trimmed	100	57			T	-43	
NL	FCT, WMI	Hare, ready to cook		boned		80				-20	
DE	AB	Hare, small pieces with bones		boiled/steamed /jugged, well done	100	78			T	-22	
DE	AB	Hare, small pieces with bones		boiled/steamed/jugged, well done, edible part trimmed	100	59			T	-41	
DE	AB	Hare, small pieces with bones		braised, well done	100	73			T	-27	
DE	AB	Hare, small pieces with bones		braised, well done, edible part trimmed	100	56			T	-44	
HU	BL	Head, pig		boiled		73			T	-28	
SE	SLV	Heart		stewed	1481	76			E	-24	
IT	INN	Heart, beef		deep fried	100					-35	
IT	INN	Heart, beef		grilled	100					-44	
GB	RSC, MAFF	Heart, beef		stewed						-29	T
SK	FRI	Heart, pig		boiled	1500	52			T	-49	
SK	FRI	Heart, pig		stewed	1500	52			T	-49	
SK	FRI	Heart, pig		trimmed		97			T	-3	
GB	RSC, MAFF	Hot pot		baked						-29	T
GB	RSC, MAFF	Irish stew		boiled, simmered						-34	T
SE	SLV	Kalops (Swedish beef stew)		braised	1464	87			TA	-13	
SE	SLV	Kidney sauté		braised	819	74			E	-26	
IT	INN	Kidney, beef		deep fried	100					-29	
IT	INN	Kidney, beef		roasted	100					-36	
GB	RSC, MAFF	Kidney, beef		stewed						-39	T
GB	RSC, MAFF	Kidney, lamb		fried						-37	T
SE	Coop	Kidney, pig		blanched, browned, boiled		57			T	-43	
DE	AB	Kidney, pig		braised	100	80			T	-20	
HU	BL	Kidney, pig		roasted		73			T	-28	

GB	RSC, MAFF	Kidney, pig	stewed						-39	T
SE	MV	Kidney, pig	trimmed						-13	T
SE	SLV, Coop	Lamb casserole	braised	996	76	B			-24	
SE	SLV	Lamb fricasée	boiled, boned	1889	66	C			-34	
GB	RSC, MAFF	Lamb kheema	fried simmered						-25	T
SE	SLV, Coop	Lamb patties	fried	765	75	B			-25	
SE	SLV	Lamb with cabbage	boiled	1749	76	C			-24	
GB	RSC, MAFF	Lamb, scrag and neck	stewed						-25	T
DE	AB	Lamb, big pieces with bones	braised, well done	1000	63	T			-37	
DE	AB	Lamb, big pieces with bones	braised, well done, edible part trimmed	1000	48	T			-52	
DE	AB	Lamb, big pieces with bones	fried, well done	1000	64	T			-36	
DE	AB	Lamb, big pieces with bones	fried, well done, edible part trimmed	1000	49	T			-51	
DE	AB	Lamb, big pieces, meat only	braised, well done	1000	57	T			-43	
GB	RSC, MAFF	Lamb, breast	roasted						-19	T
SE	KoV	Lamb, brisket	boiled						-33	T
SE	KoV	Lamb, brisket	boned						-17	T
GB	RSC, MAFF	Lamb, chops, loin	grilled						-31	T
SE	SLV	Lamb, chops, loin	fried, boned	506	50	E			-50	
SE	MV	Lamb, cubes, frozen	thawed, cooked						-32	T
GB	RSC, MAFF	Lamb, cutlets	grilled						-24	T
SE	KoV	Lamb, leg	boned						-19	T
GB	RSC, MAFF	Lamb, leg	roasted						-29	T
SE	KoV	Lamb, leg	roasted						-18	T
SE	SLV	Lamb, leg	roasted, boned		56	C			-44	
SE	KoV	Lamb, saddle	boiled						-32	T
SE	KoV	Lamb, saddle	boned						-15	T
SE	MV	Lamb, saddle	boned, trimmed						-60	T
GB	RSC, MAFF	Lamb, shoulder	roasted						-23	T
DE	AB	Lamb, small pieces with bones	boiled/steamed/stewed, well done	100	64	T			-36	
DE	AB	Lamb, small pieces with bones	boiled/steamed/stewed, well done, edible part trimmed	100	50	T			-50	
DE	AB	Lamb, small pieces with bones	braised, well done	100	64	T			-36	
DE	AB	Lamb, small pieces with bones	braised, well done, edible part trimmed	100	50	T			-50	

DE	AB	Lamb, small pieces with bones	fried, well done	100	73	T	-27
DE	AB	Lamb, small pieces with bones	fried, well done, edible part trimmed	100	55	T	-45
DE	AB	Lamb, small pieces with bones	grilled, well done	100	73	T	-27
DE	AB	Lamb, small pieces with bones	grilled, well done, edible part trimmed	100	55	T	-45
IT	INN	Liver (mutton, horse, pork, beef)	deep fried	100			-25
IT	INN	Liver (mutton, horse, pork, beef)	grilled	100			-36
SE	SLV	Liver patties	fried	693	93	TA	-7
SE	SLV	Liver stew	braised	560	89	TA	-11
DE	AB	Liver, beef	fried	100	82	T	-18
GB	RSC, MAFF	Liver, beef	stewed				-18
SK	FRI	Liver, beef	boiled	1200	66	T	-34
SK	FRI	Liver, beef	fried	1200	79	T	-21
SK	FRI	Liver, beef	stewed	1200	67	T	-33
SK	FRI	Liver, beef	trimmed		97	T	-3
SE	KoV	Liver, beef, sliced	fried				-28
SE	Coop, SLV	Liver, beef, sliced, floured	fried	441	72	T	-28
GB	RSC, MAFF	Liver, calf	fried				-16
SE	KoV	Liver, calf	fried				-24
SE	MV	Liver, calf, medium size, frozen	trimmed				-6
GB	RSC, MAFF	Liver, lamb	fried				-12
SK	FRI	Liver, pig	boiled	1200	65	T	-35
DE	AB	Liver, pig	fried	100	82	T	-18
SK	FRI	Liver, pig	fried	1200	84	T	-17
GB	RSC, MAFF	Liver, pig	stewed				-26
SK	FRI	Liver, pig	stewed	1200	66	T	-34
SE	MV	Liver, pig	trimmed				-7
SK	FRI	Liver, pig	trimmed		97	T	-3
HU	BL	Liver, pig, sliced	fried		83	T	-17
PT	SMO2	Liver, veal	grilled	115	75	T	-25
PT	SMO1	Liver, veal with dripping fat pork, butter and salt	fried	258	83	T	-17
HU	BL	Liverwurst, pig liver	boiled		94	T	-6
HU	BL	Liverwurst, pig liver	fried		95	T	-5
SK	FRI	Lungs, pig	boiled	2000	90	T	-10
SK	FRI	Lungs, pig	trimmed		95	T	-5

SE	Coop, SLV	Meat and vegetable soup, ground meat	boiled		2482	86	T	-14	
GB	RSC, MAFF	Meat and vegetable soup, Scotch broth, lamb	boiled, simmered					-19	T
NO	PKP	Meat balls, beef	fried			83	T	-17	
SE	SLV, Coop	Meat balls, beef	fried		765	75	B	-25	
SE	SLV	Meat balls, beef 70 %, pork 30 %	fried		818	91	TA	-9	
SE	Coop	Meat balls, canned	reheated			95	T	-5	
SE	Coop	Meat balls, frozen, raw	fried			89	T	-11	
DE	AB	Meat balls, pork	deep fried		100	81	T	-19	
DE	AB	Meat balls, pork	fried		100	84	T	-16	
NO	PKP	Meat balls, pork	fried			83	T	-17	
SE	SLV, Coop	Meat balls, pork	fried		765	75	B	-25	
DE	AB	Meat balls, pork	grilled		100	78	T	-22	
SE	Coop	Meat balls, small, frozen, raw	fried			101	T	+1	
DE	AB	Meat balls/patties	deep fried			83	T	-17	
DE	AB	Meat balls/patties	dry fried			83	T	-17	
DE	AB	Meat balls/patties	fried			80	T	-20	
GB	RSC, MAFF	Meat curry	fried, simmered					-19	T
DE	AB	Meat loaf or other larger shape	baked			70	T	-30	
DE	AB	Meat loaf or other larger shape	boiled			70	T	-30	
DE	AB	Meat loaf or other larger shape	braised			79	T	-21	
DE	AB	Meat loaf or other larger shape	fried			79	T	-21	
SE	Coop, SLV	Meat loaf, beef	baked		765	77	T	-23	
SE	SLV	Meat loaf, beef 70 %, pork 30 %	baked		795	79	TA	-22	
DE	AB	Meat loaf, pork	baked		100	76	T	-24	
SE	Coop, SLV	Meat loaf, pork	baked		765	77	T	-23	
DE	AB	Meat loaf, pork	braised		100	76	T	-24	
SE	Coop, SLV	Meat patties	fried		818	75	T	-25	
SE	Coop	Meat patties, canned	heated			89	T	-11	
SE	SLV, fy	Meat pie	baked		1110	86	B	-14	
SE	SLV, Coop	Meat pirozhki	baked		1684	76	C	-25	
SE	Coop, SLV	Meat rolls, ground meat	fried		673	75	T	-25	
GB	RSC, MAFF	Meat samosas	fried, deep fried					-14	T
SE	Coop, SLV	Meat sandwich, ground meat, topped with a fried egg, Parisian sandwich	fried		510	88	T	-12	
SE	Coop	Meat sauce, ground meat	stir fried, simmered		820	76	T	-24	
SE	SLV	Meat sauce, ground, beef 70 %, pork 30 %	stir fried, simmered		820	78	TA	-22	



IT	INN	Meat slice, pork, beef	deep fried	100			-26
DE	AB	Meat, breaded	deep fried		80	T	-20
DE	AB	Meat, breaded	fried		80	T	-20
IT	INN	Meat, slice, veal, breaded	deep fried	100			-12
SE	SLV, KoV	Moose meat	roasted	869	72	B	-28
SE	SLV, Coop	Moose patties	fried	765	75	B	-25
SE	SLV, Coop	Moose sauce, ground meat	stir fried, simmered	820	76	B	-24
SE	SLV, KoV	Moose stew	braised	1411	68	B	-32
GB	RSC, MAFF	Moussaka	fried, baked				-22
GB	RSC, MAFF	Mutton biryani	fried, simmered				-31
GB	RSC, MAFF	Mutton curry	fried, simmered				-42
ES	GV	Pork	fried in olive oil	100	53	T	-47
SE	Coop, SLV	Pork and onion sauce	fried, boiled	771	78	T	-22
SE	Coop, SLV	Pork patties	fried	780	75	B	-25
DE	AB	Pork quenelles	simmered	100	87	T	-13
SE	SLV, Coop	Pork sauce, ground meat	braised	820	76	B	-24
SE	SLV, KoV	Pork with vegetables	stewed	1142	59	B	-41
SK	FRI	Pork, belly	boiled	2000	71	T	-30
GB	RSC, MAFF	Pork, belly	grilled				-26
SK	FRI	Pork, belly	roasted	2000	60	T	-40
SK	FRI	Pork, belly	trimmed		90	T	-10
SE	KoV	Pork, belly and shoulder, cured	fried	348	67	T	-34
SE	Coop	Pork, belly and shoulder, cured	boiled	446	79	T	-21
SE	SLV, KoV	Pork, belly, cured, breaded	shallow fried	640	54	C	-46
SE	KoV	Pork, belly, cured, sliced	crisp fried				-60
SE	KoV	Pork, belly, cured, sliced	soft fried				-47
SE	MV	Pork, belly, cured, without rind, sliced	fried				-55
DE	AB	Pork, big pieces	boiled/steamed	100	65	T	-35
DE	AB	Pork, big pieces	braised	100	65	T	-35
DE	AB	Pork, big pieces	fried	100	65	T	-35
DE	AB	Pork, big pieces	grilled	100	65	T	-35
SE	KI	Pork, bones with meat	boned				-70
HU	BL	Pork, butt, portion	braised		74	T	-26
GB	RSC, MAFF	Pork, chops	grilled				-37
SE	KoV	Pork, chops with bone	boned				-14
HU	BL	Pork, chops with bone	braised		74	T	-27

HU	BL	Pork, chops with bone	braised		75	T	-25	
HU	BL	Pork, chops with bone	fried		67	T	-33	
HU	BL	Pork, chops with bone	fried		71	T	-29	
SE	KoV	Pork, chops with bone	fried				-25	T
HU	BL	Pork, chops with bone, breaded	fried		81	T	-19	
SE	KoV	Pork, chops with bone, loin	fried	465	70	T	-30	
SE	KoV	Pork, chops with bone, loin	fried	550	75	T	-25	
PT	SMP1	Pork, chops with bone, loin	grilled	350	69	T	-31	
SE	SLV, Coop	Pork, chops with bone, loin, breaded	fried	590	84	B	-16	
HU	BL	Pork, chops, sliced	braised		70	T	-31	
HU	BL	Pork, chops, sliced	braised		71	T	-29	
HU	BL	Pork, chops, steak, breaded	fried		79	T	-21	
SE	KoV	Pork, collar/chaps	roasted				-28	T
SE	MV	Pork, collar/chaps	roasted, sliced				-38	T
SE	KoV	Pork, collar/chaps	roasted	709	72	T	-28	
SE	MV	Pork, collar/chaps, frozen	roasted, sliced				-42	T
SE	MV	Pork, eye of loin	fully trimmed				-29	T
SE	MV	Pork, eye of loin, frozen	fully trimmed				-33	T
DE	AB	Pork, fat, small pieces	boiled/steamed/stewed	100	65	T	-35	
DE	AB	Pork, fat, small pieces	braised	100	65	T	-35	
DE	AB	Pork, fat, small pieces	deep fried	100	70	T	-30	
DE	AB	Pork, fat, small pieces	fried	100	68	T	-32	
DE	AB	Pork, fat, small pieces	grilled	100	70	T	-30	
DE	AB	Pork, fat, small pieces, breaded	deep fried	100	78	T	-22	
DE	AB	Pork, fat, small pieces, breaded	fried	100	78	T	-22	
HU	BL	Pork, fillet	fried	HU	81	T	-20	
SE	MV	Pork, fillet	fully trimmed				-30	T
HU	BL	Pork, fillet	braised	HU	78	T	-23	
SE	MV	Pork, fillet, frozen	fully trimmed				-34	T
SE	Coop, SLV	Pork, fillet, sliced	fried	500	72	T	-28	
HU	BL	Pork, fillet, steak	braised	HU	75	T	-26	
HU	BL	Pork, fillet, steak	fried	HU	80	T	-20	
SE	Coop, SLV	Pork, fillet, whole	fried	500	73	T	-27	
SE	KoV	Pork, ham	boned				-10	T
SE	KoV	Pork, ham	rind removed				-5	T
SE	KI	Pork, ham	roasted, almost well done	1300			-33	T, M

SE	SLV	Pork, ham in baked eggs	baked	861	83	T	-17	
SE	KoV	Pork, ham with bone	roasted				-32	T
SE	MV	Pork, ham, cured	boiled, sliced				-55	T
SE	KoV	Pork, ham, cured, without bone	boiled/baked				-28	T
SE	Coop	Pork, ham, smoked	dry fried	300	85	T	-15	
SE	MV	Pork, ham, smoked, Bayonne	sliced				-18	T
SE	Coop, SLV	Pork, ham, smoked, sauce, made with milk	boiled	624	78	B	-22	
SE	KoV	Pork, ham, without bone	boiled				-25	T
SE	KoV	Pork, ham, without bone	roasted				-34	T
SE	MV	Pork, ham, without bone	roasted, sliced				-50	T
SE	KoV	Pork, hock	boiled				-22	T
SE	KoV	Pork, hock	boned				-30	T
SE	KoV	Pork, hock	fat and rind removed				-21	T
SE	KoV	Pork, hock, cured	boiled				-18	T
SE	MV	Pork, hock, cured, with bone	boiled				-30	T
IT	ININ	Pork, lean	grilled	100			-25	
DE	AB	Pork, lean, small pieces	boiled/steamed/stewed	100	60	T	-40	
DE	AB	Pork, lean, small pieces	braised	100	60	T	-40	
DE	AB	Pork, lean, small pieces	deep fried	100	65	T	-35	
DE	AB	Pork, lean, small pieces	fried	100	65	T	-35	
DE	AB	Pork, lean, small pieces, breaded	deep fried	100	74	T	-26	
DE	AB	Pork, lean, small pieces, breaded	fried	100	74	T	-26	
SE	SLV	Pork, lean, smoked, bacon-sliced	dry fried	250	85	T	-15	
SK	FRI	Pork, leg	boiled	1500	61	T	-39	
SK	FRI	Pork, leg	fried	1500	71	T	-29	
GB	RSC, MAFF	Pork, leg	roasted				-28	T
SK	FRI	Pork, leg	roasted	1500	56	T	-44	
SK	FRI	Pork, leg	stewed	1500	60	T	-40	
SK	FRI	Pork, leg	trimmed		90	T	-11	
SE	KoV	Pork, loin	boned				-18	T
SE	KoV	Pork, loin with bone	roasted				-21	T
SE	KI	Pork, loin with bone	roasted, well done	1400			-25	T, M
SE	KoV	Pork, loin with bone, smoked	boned, trimmed, net removed				-13	T
SE	Coop	Pork, loin with bone, smoked	fried	500	86	T	-14	
SE	Coop	Pork, loin with bone, smoked	heated	500	95	T	-5	

SE	MV	Pork, loin without bone, smoked	baked/fried, sliced						-30	T
SE	KI	Pork, loin/chops with bone	roasted, well done	1200					-25	T, M
HU	BL	Pork, round (Felsál)	braised		69			T	-31	
HU	BL	Pork, round (Felsál)	fried		63			T	-37	
HU	BL	Pork, round (Rózsa)	braised		75			T	-25	
HU	BL	Pork, round (Rózsa)	fried		75			T	-25	
HU	BL	Pork, round, steak (Felsál)	braised		67			T	-33	
HU	BL	Pork, round, steak (Felsál)	fried		79			T	-21	
HU	BL	Pork, shank	fried		68			T	-33	
HU	BL	Pork, shank, smoked	boiled		87			T	-14	
SK	FRI	Pork, shoulder	boned, trimmed		88			T	-12	
HU	BL	Pork, shoulder	braised		67			T	-33	
HU	BL	Pork, shoulder	fried		72			T	-28	
SE	KoV	Pork, shoulder	roasted						-31	T
SK	FRI	Pork, shoulder	roasted	1500	58			T	-42	
SK	FRI	Pork, shoulder	stewed	1500	63			T	-37	
SE	KI	Pork, shoulder blade roast with bone	roasted						-24	T, M
SE	MV	Pork, shoulder, cured, without bone	boiled, sliced						-40	T
HU	BL	Pork, shoulder, sliced	braised		67			T	-34	
HU	BL	Pork, shoulder, sliced	fried		63			T	-37	
SE	SLV, KoV	Pork, shoulder, sliced	fried	368	75			B	-25	
HU	BL	Pork, side rib	fried		67			T	-33	
HU	BL	Pork, side rib, sliced	fried		63			T	-38	
HU	BL	Pork, side rib, smoked	boiled		79			T	-21	
HU	BL	Pork, spare rib	fried		75			T	-25	
HU	BL	Pork, spare rib, sliced	boiled		82			T	-18	
HU	BL	Pork, spare rib, sliced	fried		63			T	-37	
HU	BL	Pork, spare rib, smoked	boiled		84			T	-17	
HU	BL	Pork, thin flank	boiled		48			T	-52	
HU	BL	Pork, thin flank, stuffed	fried		82			T	-18	
SE	KoV	Pork, topside	roasted	100	66			T	-34	
SE	MV	Pork, wild pig, without bone	roasted, sliced						-51	T
SE	SLV	Pyti i panna (Put in the Pan Leftovers)	fried	1151	89			TA	-11	
SE	Coop	Pyti i panna with raw beef	fried		81			T	-19	
SE	Coop	Pyti i panna, canned	heated		86			T	-14	
SE	SLV	Polsa, boiled barley mixed with boiled meat and	heated	608	90			E	-10	

GB	RSC, MAFF	Quiche Lorraine, plain or wholemeal shortcrust pastry	fried, baked						-26	T
GB	RSC, MAFF	Rabbit	stewed						-31	T
PT	SMG4	Rabbit stewed with onions, white wine, olive oil, salt and water	stewed	833		54	T		-46	
NL	FCT, WMI	Rabbit, ready to cook	boned			85			-15	
NL	FCT, WMI	Rabbit, wild, ready to cook	boned			80			-20	
SE	MV	Reindeer, cubes, frozen	thawed, cooked						-41	T
SE	SLV	Sailor's beef	braised	2060		90	TA		-10	
SE	Coop	Sausage or liver cake	baked	1253		90	T		-10	
GB	RSC, MAFF	Sausage rolls, flaky pastry	baked						-14	T
GB	RSC, MAFF	Sausage rolls, short crust pastry	baked						-8	T
SE	SLV	Sausage Stroganoff	browned, boiled	714		87	TA		-13	
SE	Coop	Sausage Stroganoff	browned, boiled	800		76	T		-24	
GB	RSC, MAFF	Sausage, beef	fried						-25	T
GB	RSC, MAFF	Sausage, beef	grilled						-25	T
DE	AB	Sausage, Bockwurst	boiled	100		100	T		0	
SE	JP	Sausage, Bratwurst	grilled	450		95	T		-5	
DE	AB	Sausage, Bratwurst, Nürnberger type	deep fried	100		79	T		-21	
DE	AB	Sausage, Bratwurst, Nürnberger type	fried	100		79	T		-21	
DE	AB	Sausage, Bratwurst, Nürnberger type	grilled	100		79	T		-21	
DE	AB	Sausage, Bratwurst, Oberländer, red	deep fried	100		95	T		-5	
DE	AB	Sausage, Bratwurst, Oberländer, red	fried	100		95	T		-5	
DE	AB	Sausage, Bratwurst, Oberländer, red	grilled	100		95	T		-5	
SE	JP	Sausage, breakfast	fried	400		95	T		-5	
SE	JP	Sausage, breakfast	simmered	400		95	T		-5	
SE	MV	Sausage, Falu	cooked						-12	T
SE	SLV, KoV	Sausage, Falu, lean, sliced	fried	408		92	B		-8	
SE	KoV	Sausage, Falu, piece	boiled						0	T
SE	KoV	Sausage, Falu, sliced	fried						-8	T
SE	Coop, SLV	Sausage, Falu, sliced	boiled	446		83	T		-17	
SE	SLV	Sausage, Falu, with sliced cheese, tomatoes and	roasted	1490		91	E		-9	
SE	Coop	Sausage, isterband	fried	500		78	T		-22	
SE	KoV	Sausage, meat or pork	boiled						+1	T
SE	MV	Sausage, pork	boiled, sliced						-8	T
GB	RSC, MAFF	Sausage, pork	fried						-30	T
GB	RSC, MAFF	Sausage, pork	grilled						-28	T

SE	Coop, SLV	Sausage, pork and Falu, with potatoes and vegetables	boiled	1391	86	T	-14	
GB	RSC, MAFF	Sausage, pork, low fat	fried				-18	T
GB	RSC, MAFF	Sausage, pork, low fat	grilled				-27	T
SE	Coop	Sausage, stångkory	fried	500	78	T	-22	
DE	AB	Sausage, thick	broiled/roasted		79	T	-21	
DE	AB	Sausage, thick	deep fried		79	T	-21	
DE	AB	Sausage, thick	dry fried		79	T	-21	
DE	AB	Sausage, thick	fried		79	T	-21	
DE	AB	Sausage, type hot dog, Franks	baked		95	T	-5	
DE	AB	Sausage, type hot dog, Franks	boiled		97	T	-3	
DE	AB	Sausage, type hot dog, Franks	braised		95	T	-5	
DE	AB	Sausage, type hot dog, Franks	broiled/roasted		95	T	-5	
DE	AB	Sausage, type hot dog, Franks	dry fried		95	T	-5	
DE	AB	Sausage, type hot dog, Franks	fried		95	T	-5	
SE	JP	Sausage, type hot dog, Franks	fried		95	T	-5	
SE	JP	Sausage, type hot dog, Franks	simmered		95	T	-5	
SE	SLV	Sausage, used as Falu sausage	fried	400	92	B	-8	
SE	JP	Sausage, Wiener	simmered	400	95	B	-5	
SE	JP	Sausage, Wiener	fried	405	95	B	-5	
SE	SLV	Sausage, Wiener with vegetables	braised	1656	86	C	-14	
GB	RSC, MAFF	Shepherd's pie	baked				-1	T
IT	INN	Spleen, beef	deep fried	100			-26	
IT	INN	Spleen, beef	grilled	100			-23	
GB	RSC, MAFF	Steak and kidney pie	baked				-21	T
GB	RSC, MAFF	Sweetbread	boiled, fried				-40	T
SE	MV	Sweetbread, calf	boiled				-3	T
HU	BL	Tongue, beef, smoked	boiled		88	T	-12	
HU	BL	Tongue, beef, smoked	boiled		90	T	-11	
HU	BL	Tongue, beef, smoked	braised		84	T	-16	
GB	RSC, MAFF	Tripe	boiled				-44	T
HU	BL	Tripes, beef	boiled		71	T	-29	
SK	FRI	Trotters, beef	boiled	1500	63	T	-37	
SK	FRI	Trotters, beef	boned, trimmed		54	T	-46	
SK	FRI	Trotters, beef	stewed	1500	66	T	-34	
HU	BL	Trotters, pig, with bones	boiled		85	T	-15	
PT	SMP2	Trotters, pig, with bones	boiled, pressure cooked	481	75	T	-25	



DE	AB	Chicken	baked			75	T	-25	
DE	AB	Chicken	boiled			70	T	-30	
DK	KtM	Chicken	boiled	840				-12	T
DK	KtM	Chicken	boiled	850				-18	T
GB	RSC, MAFF	Chicken	boiled					-22	T
SE	KoV	Chicken	boiled					-32	T
SE	KoV	Chicken	boiled					-32	T
DK	KtM	Chicken	boiled, boned	850		53	T	-47	
DK	KtM	Chicken	boiled, boned	840		56	T	-44	
DK	KtM	Chicken	boiled, boned, skinned	840		46	T	-54	
NL	WMI	Chicken	boned			80		-20	
SE	KoV	Chicken	boned					-20	T
DE	AB	Chicken	braised			70	T	-30	
DE	AB	Chicken	braised			70	T	-30	
DE	AB	Chicken	broiled/roasted			75	T	-25	
DE	AB	Chicken	broiled/roasted, edible part trimmed			58	T	-42	
DE	AB	Chicken	deep fried			75	T	-25	
NL	FCT	Chicken	edible part trimmed			75		-25	
DE	AB	Chicken	fried			75	T	-25	
SE	KoV	Chicken	fried					-32	T
HU	BL	Chicken	grilled			78	T	-22	
NL	WMI	Chicken	inner organs removed					-7	
NL	WMI	Chicken	meat trimmed			58		-42	
GB	RSC, MAFF	Chicken	roasted					-14	T
NL	WMI	Chicken	skinned					-15	
DE	AB	Chicken	stewed			49	T	-51	
DE	AB	Chicken (boiling fowl)	boiled			70	T	-30	
GB	RSC, MAFF	Chicken curry	fried, simmered					-30	T
GB	RSC, MAFF	Chicken curry, retail	heated					-11	T
SE	SLV	Chicken liver and ground meat paté	stir fried, baked			77	C	-23	
SE	SLV	Chicken liver sauté	braised	587		79	C	-21	
HU	BL	Chicken paprika	braised			71	T	-30	
SE	SLV	Chicken patties, frozen	fried			75	B	-25	
SE	SLV	Chicken pie	baked	3066		83	C	-17	
SE	SLV, Coop	Chicken soup	boiled	1898		86	B	-14	



DK	KtM	Chicken, boiled	boned	740			-32	T
DK	KtM	Chicken, boiled	boned	700			-36	T
GB	RSC, MAFF	Chicken, breaded	fried				-5	T
HU	BL	Chicken, breaded	fried		70	T	-30	
IT	INN	Chicken, breast	baked	100			-33	
IT	INN	Chicken, breast	boiled	100			-10	
DE	AB	Chicken, breast	deep fried	100	69	T	-31	
IT	INN	Chicken, breast	deep fried	100			-17	
DE	AB	Chicken, breast	fried	100	86	T	-14	
HU	BL	Chicken, breast	fried		70	T	-30	
HU	BL	Chicken, breast	fried in microwave oven		63	T	-37	
IT	INN	Chicken, breast	grilled	100			-11	
IT	INN	Chicken, breast	microwaved	100			-24	
IT	INN	Chicken, breast and leg	boiled	100			-24	
DE	AB	Chicken, breast fillet without skin	deep fried		79	T	-21	
DE	AB	Chicken, breast fillet without skin	fried		86	T	-14	
DE	AB	Chicken, breast fillet without skin, breaded	deep fried		78	T	-22	
DE	AB	Chicken, breast fillet without skin, breaded	fried		86	T	-14	
DE	AB	Chicken, breast, breaded	deep fried	100	78	T	-22	
DE	AB	Chicken, breast, breaded	fried	100	86	T	-12	
DE	AB	Chicken, half	boiled/steamed		70	T	-30	
DE	AB	Chicken, half	boiled/steamed, edible part trimmed		40	T	-60	
DE	AB	Chicken, half	braised		70	T	-30	
DE	AB	Chicken, half	braised, meat with skin trimmed		40	T	-60	
DE	AB	Chicken, half	fried		78	T	-22	
DE	AB	Chicken, half	fried, meat with skin trimmed		58	T	-42	
DE	AB	Chicken, half	grilled		72	T	-28	
DE	AB	Chicken, half	grilled, meat with skin trimmed		55	T	-45	
SE	Coop	Chicken, half, boiled	skinned, boned		61		-39	
DE	AB	Chicken, leg	baked	170	69	T	-31	
DE	AB	Chicken, leg	baked, edible part trimmed	170	50	T	-50	
DE	AB	Chicken, leg	braised		64	T	-36	
DE	AB	Chicken, leg	braised, edible part trimmed		47	T	-53	

DE	AB	Chicken, leg	broiled/roasted		69	T	-31
DE	AB	Chicken, leg	broiled/roasted, edible part trimmed		45	T	-55
DE	AB	Chicken, leg	deep fried		69	T	-31
DE	AB	Chicken, leg	deep fried, edible part trimmed		45	T	-55
DE	AB	Chicken, leg	fried		64	T	-36
DE	AB	Chicken, leg	fried, edible part trimmed		47	T	-53
HU	BL	Chicken, leg	fried		68	T	-32
HU	BL	Chicken, leg	fried in microwave oven		57	T	-43
DE	AB	Chicken, leg	stewed		64	T	-36
DE	AB	Chicken, leg	stewed, edible part trimmed		47	T	-53
GB	RSC, MAFF	Chicken, leg quarter	roasted				-33
DE	AB	Chicken, leg, breaded	baked		79	T	-21
DE	AB	Chicken, leg, breaded	baked, edible part trimmed		62	T	-38
DE	AB	Chicken, leg, breaded	deep fried		79	T	-21
DE	AB	Chicken, leg, breaded	deep fried, edible part trimmed		62	T	-38
DE	AB	Chicken, meat and skin	baked		54	T	-46
DE	AB	Chicken, meat and skin	boiled		57	T	-43
HU	BL	Chicken, meat and skin	boiled		72	T	-28
PT	SMG1	Chicken, meat and skin	boiled	289	71	T	-29
DE	AB	Chicken, meat and skin	braised		57	T	-43
DE	AB	Chicken, meat and skin	broiled/roasted		54	T	-46
PT	SMG2	Chicken, meat and skin	grilled	439	63	T	-37
HU	BL	Chicken, meat and skin	roasted		76	T	-25
HU	BL	Chicken, parts	boiled		67	T	-34
DE	AB	Chicken, parts	boiled	1500	70	T	-30
DE	AB	Chicken, parts	boiled, edible part trimmed	1500	40	T	-60
HU	BL	Chicken, parts	braised		69	T	-31
HU	BL	Chicken, parts	roasted		72	T	-29
PT	SMG3	Chicken, stewed with onions, tomatoes, salt, parsley, olive oil and water	stewed	913	47	T	-53
HU	BL	Chicken, stewing	boiled		76	T	-24
SE	SLV	Chicken, stewing/hen	boiled, edible part trimmed	1506	47	C	-53
SE	SLV	Chicken, stewing/hen, fricassée	boiled, edible part trimmed	1944	60	C	-40
DE	AB	Chicken, thigh	deep fried	100	69	T	-31

DE	AB	Chicken, thigh	deep fried, edible part trimmed	100	50	T	-50
DE	AB	Chicken, thigh	fried	100	64	T	-36
DE	AB	Chicken, thigh	fried, edible part trimmed	100	47	T	-53
DE	AB	Chicken, thigh, breaded	deep fried	100	79	T	-21
DE	AB	Chicken, thigh, breaded	deep fried, edible part trimmed	100	62	T	-38
GB	RSC, MAFF	Chicken, wing quarter	roasted				-27
NL	FCT, WMI	Duck	boned		75	T	-25
HU	BL	Duck	braised		67	T	-33
GB	RSC, MAFF	Duck	roasted				-33
SE	KoV	Duck	roasted				-36
SE	KoV	Duck	roasted				-36
HU	BL	Duck	roasted		53	T	-47
DK	KtM	Duck (mean of 2 ducks)	roasted	2900			-29
DK	KtM	Duck (mean of 2 ducks)	roasted, boned	2900	44	T	-56
DK	KtM	Duck (mean of 2 ducks)	roasted, boned, skinned	2900	39	T	-61
SE	MV	Duck with giblets, frozen	roasted, carved				-75
HU	BL	Duck with rice	boiled		62	T	-38
DE	AB	Duck, half	boiled/steamed	100	66	T	-34
DE	AB	Duck, half	boiled/steamed, meat with skin trimmed	100	46	T	-54
DE	AB	Duck, half	braised	100	60	T	-40
DE	AB	Duck, half	braised, meat with skin trimmed	100	46	T	-54
DE	AB	Duck, half	fried	100	53	T	-47
DE	AB	Duck, half	fried, boned	100	40	T	-60
HU	BL	Duck, parts	roasted		54	T	-46
DK	KtM	Duck, roasted (mean of 2 ducks)	boned	2050			-38
DE	AB	Goose	braised	100	64	T	-36
DE	AB	Goose	braised, meat with skin trimmed	100	40	T	-60
DE	AB	Goose	roasted	100	63	T	-37
DK	KtM	Goose	roasted	2200			-27
GB	RSC, MAFF	Goose	roasted				-33
SE	KoV	Goose	roasted				-42
DK	KtM	Goose	roasted, boned	2200	43	T	-57

DK	KtM	Goose		roasted, boned, skinned	2200	38	T	-62
DE	AB	Goose		roasted, meat with skin trimmed	100	40	T	-60
HU	BL	Goose, meat and skin		braised		63	T	-37
DK	KtM	Goose, roasted		boned	1600			-41
GB	RSC, MAFF	Grouse		roasted				-23
DK	KtM	Hen		boiled	1150			-23
DK	KtM	Hen		boiled	1300			-32
HU	BL	Hen		boiled		72	T	-29
SE	KoV	Hen		boiled				-34
DK	KtM	Hen		boiled, boned, skinned	1150	58	T	-42
DK	KtM	Hen		boiled, boned, skinned	1300	45	T	-55
SE	KoV	Hen		boned				-21
SE	SLV	Hen fricassée		boiled, edible part trimmed	1443	60	C	-40
SE	MV	Hen, frozen		thawed, boiled, boned, skinned				-70
DK	KtM	Hen, boiled		boned	890			-25
DK	KtM	Hen, boiled		boned	880			-34
DK	KtM	Hen, meat		boiled	860			-42
HU	BL	Hen, parts		boiled		71	T	-29
GB	RSC, MAFF	Liver, chicken		fried				-16
HU	BL	Liver, chicken		fried		69		-31
SE	Coop	Liver, chicken		fried	239	69	T	-31
HU	BL	Liver, goose		fried		64	T	-36
NL	FCT, WMI	Partridge		boned				-40
GB	RSC, MAFF	Partridge		roasted				-35
NL	WMI	Pheasant		boned				-33
NL	FCT	Pheasant		edible part trimmed		45		-55
GB	RSC, MAFF	Pheasant		roasted				-29
GB	RSC, MAFF	Pigeon		roasted				-36
HU	BL	Pullet (young hen)		fried		78	T	-23
HU	BL	Pullet, sliced		fried		72	T	-29
HU	BL	Pullet, stuffed		fried		74	T	-26
NL	FCT, WMI	Turkey		boned				-25
DE	AB	Turkey		braised	100	70	T	-30
HU	BL	Turkey		fried		72	T	-28

DE	AB	Turkey		roasted	100	75	T	-25	
DE	AB	Turkey		roasted, meat with skin trimmed	100	57	T	-43	
GB	RSC, MAFF	Turkey		roasted				-18	T
SE	KoV	Turkey		roasted				-27	T
DK	KtM	Turkey		roasted	2600			-31	T
DK	KtM	Turkey		roasted, boned	2600	54	T	-46	
DK	KtM	Turkey		roasted, boned, skinned	2600	48	T	-52	
SE	SLV	Turkey casserole with mushrooms and onions		braised, boned	1586	62	C	-38	
DE	AB	Turkey schnitzel		fried	100	74	T	-26	
DE	AB	Turkey schnitzel		fried, deep fried	100	65	T	-35	
DE	AB	Turkey schnitzel, breaded		deep fried	100	70	T	-30	
DE	AB	Turkey schnitzel, breaded		fried	100	80	T	-20	
HU	BL	Turkey, breast		fried		67	T	-33	
PT	SMG5	Turkey, breast		grilled	286	72		-28	
DE	AB	Turkey, breast, big		grilled	100	66	T	-34	
DE	AB	Turkey, breast, big		roasted	100	71	T	-29	
IT	INN	Turkey, breast, cock		baked in oven	100			-31	
IT	INN	Turkey, breast, cock		boiled	100			-2	
IT	INN	Turkey, breast, cock		deep fried	100			-15	
IT	INN	Turkey, breast, cock		grilled	100			-11	
IT	INN	Turkey, breast, cock		microwaved	100			-28	
DE	AB	Turkey, breast, small		boiled/steamed	100	77	T	-23	
DE	AB	Turkey, breast, small		braised	100	65	T	-35	
DE	AB	Turkey, breast, small		roasted	100	70	T	-30	
SE	MV	Turkey, frozen		thawed, roasted, boned				-43	T
IT	INN	Turkey, leg, cock		boiled	100			-30	
SE	KoV	Turkey, mini		roasted				-19	T
DK	KtM	Turkey, roasted		boned	1800			-22	T
DE	AB	Turkey, thigh		fried	100	68	T	-32	
DE	AB	Turkey, thigh		fried, meat with skin trimmed	100	50	T	-50	
IT	INN	Anchovy		deep fried	100			-33	

**Fish, shellfish products, dishes**

SE	MV	Anglerfish, skinned, drawn	filleted							-20	T
SE	MV	Anglerfish, whole	filleted							-76	T
SE	MV	Anglerfish, whole	skinned, drawn							-55	T
IT	INN	Bass	baked in oven	100						-25	
IT	INN	Bass	poached	100						-14	
IT	INN	Bass, frozen	baked in oven	100						-24	
IT	INN	Bass, frozen	poached	100						-14	
PT	SF2	Bream	poached	208					T	-10	
PT	SF1	Bream with onions, tomato, olive oil, oil, white wine, salt and water	baked	1027					T	-34	
SE	MV	Burbot, liver	part of whole fish			10				-90	T
SE	MV	Burbot, roe	part of whole fish			20				-80	T
SE	MV	Burbot, whole	edible part trimmed							-35	T
SE	KoV	Cisco, drawn, without head	poached							-5	T
SE	KoV	Cisco, whole	edible part trimmed							-39	T
IT	INN	Cod	grilled	100						-32	
IT	INN	Cod	poached	100						-14	
SE	MV	Cod without head	filleted							-36	T
SE	KoV	Cod, cut	poached							-13	T
SE	KoV	Cod, cut	steamed in foil							-18	T
SE	KoV	Cod, drawn, without head	baked in foil							-17	T
SE	KoV	Cod, drawn, without head	edible part trimmed							-24	T
SE	KoV	Cod, drawn, without head	filleted							-36	T
SE	KoV	Cod, drawn, without head, cut	edible part trimmed							-21	T
PT	SF4	Cod, dried, salted and soaked	grilled	168					T	-12	
PT	SF3	Cod, dried, salted and soaked	poached	159					T	+6	
GB	RSC, MAFF	Cod, fillets	baked							-19	T
GB	RSC, MAFF	Cod, fillets	poached							-14	T
SE	Coop, SLV	Cod, fillets	poached	497					T	-13	
SE	KoV	Cod, fillets	poached							-20	T
SE	KoV	Cod, fillets	steamed in foil							-21	T
SE	SLV	Cod, fillets, breaded	fried	613					TA	-9	
SE	KoV	Cod, fillets, breaded	fried							-20	T
SE	KoV	Cod, fillets, frozen	poached							-25	T
SE	KoV	Cod, fillets, frozen	steamed in foil							-19	T
NL	LUV	Cod, fillets	microwaved						TA	-25	

IT	INN	Cod, frozen	baked	100			-30
IT	INN	Cod, frozen	poached	100			-17
GB	RSC, MAFF	Cod, steak, frozen	grilled				-15
GB	RSC, MAFF	Cod,dried, salted	boiled				+19
GB	RSC, MAFF	Crab	boiled				-20
GB	RSC, MAFF	Crayfish, salt water or Scampi, breaded, frozen	fried				-23
PT	SFM1	Cuttle fish	grilled	252	68	T	-32
NL	WMI	Dab	edible part trimmed		60		-40
NL	LWU	Dab/Lemon sole, drawn: whole or without head	microwaved		80	T, M	-20
NL	LWU	Dab/Lemon sole, drawn: whole or without head, microwaved	edible part trimmed		55	TA, M	-45
IT	INN	Dentex	baked	100			-29
IT	INN	Dentex	poached	100			-15
IT	INN	Dentex, frozen	baked	100			-25
IT	INN	Dentex, frozen	poached	100			-15
NL	LWU	Dogfish, slice	microwaved		80	T	-20
NL	LWU	Dogfish, slice, microwaved	edible part trimmed		85	TA	-15
NL	FCT, WMI	Eel	edible part trimmed		65		-35
SE	SLV	Eel, drawn	baked	624	74	TA	-26
SE	SLV	Eel, drawn, pieces	poached	612	84	TA	-16
NL	LWU	Eel, drawn, without head	microwaved		65	T	-35
NL	LWU	Eel, drawn, without head, microwaved	edible part trimmed		60	TA	-40
IT	INN	Eel, river	deep fried	100			-34
IT	INN	Eel, river	grilled	100			-28
SE	MV	Eel, whole	drawn, head removed				-12
SE	MV	Eel, whole, smoked	cut into pieces with bone				-28
SE	MV	Eel, whole, smoked	sliced				-28
NL	LWU	Eel, whole, smoked drawn	filleted		60	TA	-40
GB	RSC, MAFF	Fish and vegetable curry, Bengladeshi	fried, simmered				-15
SE	SLV	Fish au gratin	boiled, baked	1022	90	TA	-10
SE	SLV, Coop	Fish au gratin with mashed potatoes	baked	1587	84	T	-16
GB	RSC, MAFF	Fish au gratin with mashed potatoes (fish pie)	baked				-10
SE	SLV, Coop	Fish au gratin with shellfish sauce	baked	1379	84	B	-16
SE	KoV	Fish balls, canned, breaded	fried	620	96	T	-4
SE	Findus	Fish balls, frozen	poached	500	114	T	+14
SE	SLV, Coop	Fish balls, in thick, white sauce, canned	reheated	877	95	B	-5

DE	AB	Fish breaded or floured	baked		90	T	-10
DE	AB	Fish breaded or floured	broiled or roasted		90	T	-10
DE	AB	Fish breaded or floured	deep fried		90	T	-10
DE	AB	Fish breaded or floured	fried		90	T	-10
GB	RSC, MAFF	Fish cakes	fried				-2
GB	RSC, MAFF	Fish cakes, cod, breaded, homemade	fried				-5
GB	RSC, MAFF	Fish cakes, salmon, breaded, homemade	fried				-5
SE	SLV	Fish croquettes	deep fried	777	85	E, C	-15
GB	RSC, MAFF	Fish curry, Bangladeshi	fried, simmered				-21
SE	KoV	Fish fillets, breaded, frozen	fried				-4
SE	KoV	Fish fillets, breaded, home made	fried				-5
DE	AB	Fish fingers, frozen	baked		88	T	-12
DE	AB	Fish fingers, frozen	broiled or roasted		91	T	-9
DE	AB	Fish fingers, frozen	deep fried		90	T	-10
DE	AB	Fish fingers, frozen	fried		87	T	-13
GB	RSC, MAFF	Fish fingers, frozen	fried				-10
SE	KoV	Fish fingers, frozen	fried				-7
GB	RSC, MAFF	Fish fingers, frozen	grilled				-7
SE	KoV	Fish fingers or breaded fish fillets	fried	500	94	T	-6
SE	SLV, fy	Fish fritters	deep fried	782	90	B	-10
SE	SLV	Fish paté	baked		85	B	-15
SE	SLV	Fish paté with shellfish	baked	1087	85	E	-15
SE	SLV, fy	Fish pie	baked	1043	86	B	-14
GB	RSC, MAFF	Fish pie. See fish au gratin					
SE	SLV	Fish pudding on rice	baked	1697	84	TA	-16
SE	Coop, SLV	Fish soup	simmered	2378	86	T	-14
SE	SLV	Fish with vegetables	poached	881	85	E	-15
NL	FCT	Fish, fat	edible part trimmed		60		-40
DE	AB	Fish, fresh-water, breaded	fried	100	81	T	-19
DE	AB	Fish, fresh-water, breaded	fried, edible part	100	58	T	-42
DE	AB	Fish, fresh-water, whole	poached/steamed/stewed	100	80	T	-20
DE	AB	Fish, fresh-water, whole	poached/steamed/stewed, edible part trimmed	100	62	T	-38
SE	SLV	Fish, ground, with cream and potato flour	baked	991	90	B	-10
NL	FCT	Fish, lean	edible part trimmed		60		-40
NL	FCT	Fish, medium fat	edible part trimmed		60		-40



DE	AB	Fish, sea-water	poached/steamed/stewed	100	84	T	-16
DE	AB	Fish, sea-water, breaded	deep fried	100	80	T	-20
DE	AB	Fish, sea-water, breaded	fried	100	78	T	-22
PT	SF12	Fish, stewed with potatoes, onions, tomatoes, olive oil, oil, white wine, salt and water	stewed	1586	78	T	-22
NL	LUW	Flounder, whole, drawn	microwaved		85	T	-15
NL	LUW	Flounder, whole, drawn, microwaved	edible part trimmed		35	TA	-65
IT	INN	Garfish	deep fried	100			-38
IT	INN	Garfish	grilled	100			-37
IT	INN	Garfish	poached	100			-14
IT	INN	Gilthead	poached	100			-14
NL	LUW	Gurnard, red and grey, drawn: whole; or without skin and head; or without head	microwaved		80	T, M	-20
NL	LUW	Gurnard, red and grey, drawn: whole; or without skin and head; or without head, microwaved	edible part trimmed		70	TA, M	-30
NL	WMI	Haddock	edible part trimmed		75		-25
GB	RSC, MAFF	Haddock	steamed				-22
GB	RSC, MAFF	Haddock curry, Bengali	fried, simmered, baked				-40
GB	RSC, MAFF	Haddock, breaded	fried				+25
SE	KoV	Haddock, drawn, with head	edible part trimmed				-35
SE	KoV	Haddock, drawn, with head	filleted				-46
SE	MV	Haddock, drawn, with head	filleted				-60
SE	KoV	Haddock, fillets, breaded	fried				-8
SE	KoV	Haddock, fillets, frozen	poached				-22
SE	KoV	Haddock, fillets, frozen	steamed in foil				-14
SE	KoV, SLV	Haddock, frozen	cooked in water or foil	504	82	M	-18
GB	RSC, MAFF	Haddock, smoked	steamed				-15
SE	KoV	Haddock, whole, drawn	poached				-14
NL	LUW	Haddock, whole, drawn or fillets	microwaved		80	T, M	-20
NL	LUW	Haddock, whole, drawn or fillets, microwaved	edible part trimmed		55	TA, M	-45
SE	KoV	Haddock, whole, drawn,	baked in foil				-10
SE	KoV	Haddock, whole, drawn, breaded	roasted				-9
SE	KoV	Hake, cut	poached				-3
SE	KoV	Hake, drawn, without head, cut	edible part trimmed				-22
ES	GV	Hake, floured	fried in margarine	100	84	T	-16
ES	GV	Hake, floured	fried in olive oil	100	80	T	-20

ES	GV	Hake, floured	sautéed, stewed in margarine	100	107	T	+7
ES	GV	Hake, floured	sautéed, stewed in olive oil	100	113	T	+13
GB	RSC, MAFF	Halibut	steamed				-13
SE	KoV	Halibut, Atlantic or white, fillets, frozen	poached				-22
SE	KoV	Halibut, Atlantic or white, fillets, frozen	steamed in foil				-24
SE	SLV, fy	Halibut, Atlantic, breaded	fried	616	85	B	-15
SE	SLV, KoV	Halibut, Atlantic, frozen	poached or steamed in foil	500	77	M	-23
NL	FCT	Herring	edible part trimmed		50		-50
GB	RSC, MAFF	Herring	fried				-13
GB	RSC, MAFF	Herring	grilled				-9
GB	RSC, MAFF	Herring curry, Bengali	fried, simmered, baked				-40
SE	KoV	Herring, Baltic, butterfly fillets	poached		74	T	-26
SE	Coop, SLV	Herring, Baltic, butterfly fillets, breaded	fried	658	89	T	-11
SE	SLV	Herring, Baltic, butterfly fillets, double with filling, breaded	fried	714	94	TA	-6
SE	KoV	Herring, Baltic, butterfly fillets, double with filling, breaded	fried				-9
SE	SLV, Coop	Herring, Baltic, butterfly fillets, with dill seeds and tomatoes	poached	715	91	B	-9
SE	KoV	Herring, Baltic, drawn, breaded	fried				-10
SE	SLV, Coop	Herring, Baltic, smoked, in baked eggs	prepared, baked	936	85	B	-15
SE	KoV	Herring, Baltic, whole	butterfly filleted				-44
NL	LUW	Herring, drawn, steamed	filleted		55	T	-45
NL	LUW	Herring, drawn: whole or without head	microwaved		75	T, M	-25
NL	LUW	Herring, drawn: whole or without head, microwaved	edible part trimmed		70	TA, M	-30
NL	LUW	Herring, matje cured, whole, drawn, without head	boned		95	T	-5
SE	SLV	Herring, salted	poached	500	79	T	-21
SE	SLV	Herring, salted, breaded	fried	556	92	B	-8
SE	SLV	Herring, salted, patties	fried	746	92	B	-8
SE	MV	Herring, smoked	filleted				-40
NL	LUW	Herring, smoked, drawn	filleted		55	T	-45
NL	LUW	Herring, smoked, drawn, without head, fried	boned		95	T	-5
SE	MV	Herring, without head, salted,	filleted				-43
GB	RSC, MAFF	Kedgeriee (cod, rice, eggs)	heated				-10
GB	RSC, MAFF	Kipper	baked				-17
GB	RSC, MAFF	Lemon sole	fried				+15

GB	RSC, MAFF	Lemon sole	steamed					-13	T
GB	RSC, MAFF	Lobster	boiled					-19	T
NL	FCT	Lobster	edible part trimmed		10			-90	
NL	LUW	Lobster, northern whole, cooked	shell removed		25		T	-75	
SE	Coop	Lutfisk with skin and some bones	poached	750	51		T	-49	
SE	Coop	Lutfisk with skin and some bones, put in water	poached	946	40		T	-60	
SE	Coop	Lutfisk with skin and some bones, put in water, poached	skinned and boned	446	85		T	-15	
SE	Coop	Lutfisk with some skin	poached	750	47		T	-53	
SE	Coop	Lutfisk with some skin, poached	skinned	350	93		T	-7	
IT	INN	Mackerel	boiled	100				-35	
IT	INN	Mackerel	deep fried	100				-22	
NL	WMI	Mackerel	edible part trimmed		74			-26	
GB	RSC, MAFF	Mackerel	fried					-16	T
IT	INN	Mackerel	grilled	100				-27	
SE	SLV, KoV	Mackerel	poached, edible part trimmed	1130	49		C	-51	
NL	LUW	Mackerel, drawn: whole or without head	microwaved		80		T, M	-20	
NL	LUW	Mackerel, drawn: whole or without head, microwaved	edible part trimmed		70		TA, M	-30	
NL	LUW	Mackerel, fillets	steamed		75		T	-25	
SE	KoV	Mackerel, fillets, breaded	fried					-9	T
SE	KoV	Mackerel, whole	edible part trimmed					-39	T
SE	KoV	Mackerel, whole	filleted					-36	T
SE	MV	Mackerel, whole	filleted					-42	T
SE	KoV	Mackerel, whole	poached					-9	T
SE	KoV	Mackerel, whole	steamed in foil					-7	T
IT	INN	Mullet	baked	100				-25	
IT	INN	Mullet	poached	100				-15	
GB	RSC, MAFF	Mussels	boiled					-33	T
NL	FCT	Mussels	edible part trimmed		20			-80	
NL	WMI	Mussels	edible part trimmed		24			-76	
PT	SFM2	Octopus	boiled, pressure cooked	487	51		T	-49	
IT	INN	Octopus	deep fried	100	36			-64	
NL	FCT	Oysters	edible part trimmed		10			-90	
IT	INN	Perch	baked	100				-21	
IT	INN	Perch	poached	100				-14	

SE	KoV	Perch, fillets	poached	503	79	B	-21	T
SE	SLV, KoV	Perch, fillets, breaded	fried	609	94	B	-6	T
IT	INN	Perch, frozen	baked	100			-20	T
IT	INN	Perch, frozen	poached	100			-14	T
SE	MV	Perch, Ocean, drawn	filleted				-65	T
SE	MV	Perch, Ocean, whole	filleted				-72	T
NL	Luw	Perch, Ocean, whole, drawn	microwaved		85	T	-15	T
NL	Luw	Perch, Ocean, whole, drawn, microwaved	edible part trimmed		45	T	-55	T
SE	MV	Pike, drawn, raw	cut to portion sizes				-38	T
SE	KoV	Pikeperch or Sander, whole	edible part trimmed				-41	T
SE	KoV	Pikeperch or Sander, whole	poached				-6	T
SE	KoV	Pikeperch or Sander, whole	steamed in foil				-15	T
SE	KoV	Pikeperch or Sander, whole, breaded	roasted				-12	T
GB	RSC, MAFF	Plaice	steamed				-9	T
GB	RSC, MAFF	Plaice, breaded	fried				+21	T
SE	KoV	Plaice, drawn with head	edible part trimmed				-50	T
SE	KoV	Plaice, drawn, with head	filleted				-65	T
NL	Luw	Plaice, drawn, without head, fried	boned		60	T	-40	T
NL	Luw	Plaice, drawn: whole or without head or fillets	microwaved		80	T, M	-20	T
NL	Luw	Plaice, drawn: without head, microwaved	edible part trimmed		50	TA	-50	T
SE	KoV	Plaice, fillets	steamed in foil				-10	T
SE	SLV, Coop	Plaice, fillets, breaded	fried	615	85	C	-15	T
SE	KoV	Plaice, fillets, frozen	poached				-11	T
SE	SLV, Coop	Plaice, fillets, frozen	fried	536	83	C	-18	T
SE	SLV, KoV	Plaice, fillets, frozen	steamed in foil	504	90	C	-10	T
NL	WMI	Plaice, fried	edible part trimmed		60		-40	T
SE	KoV	Plaice, whole	poached				-4	T
SE	KoV	Plaice, whole, breaded	fried				-9	T
SE	MV	Plaice, with head	filleted				-65	T
SE	KoV	Plaice, without bones, frozen	fried				-5	T
SE	KoV	Plaice, without bones, frozen	poached				-6	T
GB	RSC, MAFF	Prawn and mushroom curry	fried, simmered				-18	T
GB	RSC, MAFF	Prawn pilau	soaked, fried, simmered				-23	T
SE	KoV	Rainbow trout	poached				-4	T
SE	SLV, Coop	Rainbow trout, breaded	fried	843	86	C	-15	T
SE	KoV	Rainbow trout, drawn with head	to edible part				-31	T

NL	LUW	Rainbow trout, whole, drawn	microwaved		80	T	-20
NL	LUW	Rainbow trout, whole, drawn, microwaved	to edible part		65	T	-35
SE	SLV	Roe, cod, canned	fried	423	95	E	-5
GB	RSC, MAFF	Roe, cod, hard	fried				-7
GB	RSC, MAFF	Roe, herring, soft	fried				-20
GB	RSC, MAFF	Saithe	steamed				-24
NL	LUW	Saithe, fillets	microwaved		80	T	-20
SE	SLV	Salmon	dry fried	606	80	C	-20
GB	RSC, MAFF	Salmon	steamed				-10
SE	SLV, KoV	Salmon	poached	654	75	M	-25
NL	WMI	Salmon slice	edible part trimmed		90		-10
NL	LUW	Salmon trout, whole, drawn and without head, microwaved	edible part trimmed		65	TA	-35
NL	LUW	Salmon trout, whole, drawn or fillets	microwaved		85	T	-15
NL	LUW	Salmon, Atlantic, slice	microwaved		80	T	-20
NL	LUW	Salmon, Atlantic, slice, microwaved	edible part trimmed		80	TA	-20
SE	Coop	Salmon, cured, casserole with potatoes	baked	1848	85	T	-15
SE	KoV	Salmon, cut, frozen	poached				-14
SE	KoV	Salmon, cut, frozen	steamed in foil				-19
SE	MV	Salmon, drawn, with head	filleted				-35
SE	MV	Salmon, drawn, with head	filleted, cured, sliced				-60
NL	WMI	Salmon, trout	edible part trimmed		60		-40
SE	MV	Salmon, whole	filleted				-40
IT	INN	Sardines	deep fried	100			-41
IT	INN	Sardines	grilled	100			-31
PT	SF8	Sardines	grilled on charcoal	178	73	T	-27
ES	GV	Sardines, floured, fried in olive oil	fried	100	71	T	-29
ES	GV	Sardines, raw, in olive oil	canned	100	73	T	-27
PT	SF7	Scabbard	grilled	271	87	T	-13
PT	SF6	Sead, small	grilled	202	69	T	-31
PT	SF5	Sead, small	grilled on charcoal	207	74	T	-26
SE	MV	Scampi or Salt-water crayfish, whole	dressed to tails				-88
GB	RSC, MAFF	Scampi, breaded, frozen	fried				-23
SE	SLV, Coop	Shrimp soup	boiled	1538	95	C	-5
SE	SLV, Coop	Shrimps in thick, white sauce	boiled	610	96	C	-4
NL	WMI	Shrimps, fresh	edible part trimmed		40		-60

IT	INN	Sole	baked	100			-30
IT	INN	Sole	boiled	100			-17
NL	WMI	Sole	edible part trimmed	60			-40
PT	SF9	Sole	grilled	313		T	-19
IT	INN	Sole, frozen	baked	100			-31
NL	LUV	Sole, whole, drawn or fillets	microwaved	80		T, M	-20
NL	LUV	Sole, whole, drawn, without head, microwaved	edible part trimmed	55		TA	-45
PT	SFM3	Squids	grilled	251		T	-36
PT	SFM4	Squids, stewed with onions, tomatoes, olive oil, parsley, salt and water.	stewed	896		T	-61
IT	INN	Trout	baked in oven	100			-27
GB	RSC, MAFF	Trout	steamed				-18
IT	INN	Tuna	baked in oven	100			-26
IT	INN	Tuna	boiled	100			-20
IT	INN	Tuna	deep fried	100			-22
SE	KoV	Turbot	poached				-7
SE	KoV	Turbot, drawn with head	edible part trimmed				-54
SE	KoV	Turbot, drawn with head	poached	1194		T	-3
SE	KoV	Turbot, drawn with head	poached, skinned, boned, head removed	1156		T	-57
SE	MV	Turbot, whole	cut to portion sizes				-46
GB	RSC, MAFF	Whitebait	fried				-23
SE	SLV	Whitefish, breaded	fried	604		B	-15
SE	SLV	Whitefish, drawn	poached	755		T	-15
GB	RSC, MAFF	Whiting or Marling	steamed				-16
GB	RSC, MAFF	Whiting or Marling, breaded	fried				+13
SE	KoV	Whiting or Marling, drawn with head	to edible part				-36
SE	KoV	Whiting or Marling, drawn, with head	filleted				-35
SE	SLV, KoV	Whiting or Marling, fillets, breaded	fried	627		C	-6
SE	KoV	Whiting or Marling, fillets, breaded	fried				-7
PT	SF10	Whiting or Marling, floured, oil and salt	fried	387		T	-41
SE	KoV	Whiting or Marling, whole	poached				-19
NL	LUV	Whiting or Marling, whole, drawn	microwaved	80		T	-20
NL	LUV	Whiting or Marling, whole, drawn, microwaved	edible part trimmed	60		TA	-40
NL	LUV	Wolffish, Atlantic, slice	microwaved	85		T	-15
NL	LUV	Wolffish, Atlantic, slice, microwaved	edible part trimmed	70		TA	-30

PT	SF11	Wreckfish	grilled	260	69	T	-31
		<b>Eggs, products, dishes</b>					
GB	RSC, MAFF	Egg and potato curry	fried, boiled, simmered				-25
GB	RSC, MAFF	Egg curry	fried, boiled, simmered				-31
GB	RSC, MAFF	Egg fu yung	stir fried, fried				-17
GB	RSC, MAFF	Egg nog	whisked, heated				-2
SE	KoV	Egg white	part of whole egg	60		T	-40
SE	KoV	Egg yolk	part of whole egg	30		T	-70
SE	SLV	Egg, sauce, made up with fish bouillon, cream and parsley	boiled	515		B	-5
SE	SLV	Eggs	baked	602		TA	-17
PT	SE1	Eggs	boiled	289		T	0
IT	INN	Eggs	deep fried	100			-10
DE	AB	Eggs	fried			T	-13
SE	SLV, fy	Eggs	fried	195		B	-12
PT	SE2	Eggs	fried in butter	122		T	-10
PT	SE3	Eggs	fried in olive oil	120		T	-9
DE	AB	Eggs	poached			T	-12
DE	AB	Eggs	scrambled			T	-9
DW	AB	Eggs	scrambled			T	-7
SE	Coop	Eggs	scrambled				-8
PT	SE5	Eggs	scrambled	299		T	-6
SE	SLV, Coop	Eggs	scrambled, flour added	465		B	-13
GB	RSC, MAFF	Eggs	scrambled, milk added				-11
NL	FCT	Eggs	shelled				-10
SE	KoV	Eggs	shelled	90		T	-10
NL	FCT	Eggs, duck	shelled				-10
DE	AB	Eggs with shell	boiled	100		T	0
DE	AB	Eggs with shell, boiled	shelled	90		T	-10
GB	RSC, MAFF	Eggs, Scotch, breaded	deep fried				-2
GB	RSC, MAFF	Meringue	baked				-33
SE	Coop	Omelette	baked				-16
DE	AB	Omelette	fried				-11
ES	GV	Omelette	fried			T	-4

PT	SE4	Omelette		fried in butter	128	93	T	-7
SE	SLV, Coop	Omelette with cream		fried	309	88	B	-13
IT	ININ	Omelette with vegetables (courgettes, artichokes, beets, onions)		deep fried	100			-25
GB	RSC, MAFF	Omelette, curried or egg masala		fried				-19
SE	SLV	Omelette, farmer's		fried	695	88	C	-12
SE	SLV, Coop	Omelette, French		fried	309	88	T	-13
GB	RSC, MAFF	Omelette, Spanish		stir fried, fried				-19
GB	RSC, MAFF	Soufflé, cheese		boiled, baked				-15
GB	RSC, MAFF	Soufflé, plain		boiled, baked				-10
		<b>Cereals, bread and other products, dishes</b>						
GB	RSC, MAFF	Bannocks, beremeal		griddled				-16
GB	RSC, MAFF	Bannocks, flour		griddled				-16
SE	SLV	Barley bread		baked		90	B	-10
SE	Coop, SLV	Barley porridge, made with flour		boiled	925	96	T	-4
SE	SLV	Barley porridge, made with pearled barley		boiled	463	85	T	-16
GB	RSC, MAFF	Biscuits, creaming method, homemade		baked				-10
GB	RSC, MAFF	Biscuits, rubbing in method, homemade		baked				-10
GB	RSC, MAFF	Biscuits, wholemeal, homemade		baked				-37
GB	RSC, MAFF	Brandy snaps		baked				-10
PT	SS1	Bread dish (açorda) made with bread, olive oil, egg, salt and water		boiled and stired	560	90	T	-10
GB	RSC, MAFF	Bread sauce		boiled, simmered				-7
GB	RSC, MAFF	Bread, brown		toasted				-22
GB	RSC, MAFF	Bread, currant		toasted				-12
GB	RSC, MAFF	Bread, milk		baked				-11
GB	RSC, MAFF	Bread, Naan		baked				-17
SE	SLV	Bread, pita		baked	575	90	E	-10
GB	RSC, MAFF	Bread, soda		baked				-8
SE	Coop, SLV	Bread, sweet, saffron		baked	1787	90	B	-10
GB	RSC, MAFF	Bread, wheatgerm, Hovis		toasted				-22
GB	RSC, MAFF	Bread, white		fried				-29
GB	RSC, MAFF	Bread, white		toasted				-18
GB	RSC, MAFF	Bread, white, with added fibre		toasted				-16
GB	RSC, MAFF	Bread, wholemeal		toasted				-15



SE	KN	Bread, yeast	baked		90	T	-10	T
SE	SLV	Buckwheat porridge	boiled	935	96	E	-4	
GB	RSC, MAFF	Cake mix - made up	baked				-11	T
GB	RSC, MAFF	Cake, Battenburg	baked				-10	T
GB	RSC, MAFF	Cake, cherry	baked				-13	T
GB	RSC, MAFF	Cake, chocolate, with butter icing: for cake	baked				-14	T
GB	RSC, MAFF	Cake, coconut	baked				-13	T
GB	RSC, MAFF	Cake, Eccles	baked				-19	T
GB	RSC, MAFF	Cake, fruit	baked				-5	T
GB	RSC, MAFF	Cake, lardy	baked				-15	T
NO	NNC	Cake, sponge	baked		90	E	-10	
SE	SLV, fy	Cake, sponge	baked	641	84	B	-16	
SE	VdBF	Cake, sponge	baked				-9	T
GB	RSC, MAFF	Cake, sponge, fatless	baked				-14	T
NO	NNC	Cake, sponge, with apples	baked		90	E	-10	
SE	SLV	Cake, sponge, with apples	baked	1169	84	E	-16	
GB	RSC, MAFF	Cake, sponge, with fat	baked				-13	T
SE	VdBF	Cake, sponge, with high fat content (sandkaka)	baked				-9	T
GB	RSC, MAFF	Chelsea buns	baked				-15	T
GB	RSC, MAFF	Chevda/chevra/chewra	fried				-20	T
SE	SLV, Coop	Chocolate oatmeal balls	prepared	459	100	C	0	
NO	NNC	Chocolate torte	baked, prepared		95	E	-5	
SE	SLV	Chocolate torte	baked, prepared	939	87	C	-13	
GB	RSC, MAFF	Crackers, wholemeal/farmhouse	baked				-11	T
SE	SLV	Cream puffs with whipped cream and jam	boiled, baked, prepared	835	73	C	-27	
SE	Wasa	Crispbread, rye	baked, dried	191	52	T	-48	
SE	Wasa	Crispbread, wheat	baked, dried	176	57	T	-43	
SE	Wasa	Crisprolls	baked, dried	194	52	T	-48	
GB	RSC, MAFF	Croissants	baked				-15	T
GB	RSC, MAFF	Crumble with pie filling	baked				-4	T
GB	RSC, MAFF	Crumble, apple	baked				-7	T
GB	RSC, MAFF	Crumpets	toasted				-11	T
GB	RSC, MAFF	Dumplings	boiled				+53	T
SE	Friggs	Durra	boiled		360	T	+260	
GB	RSC, MAFF	Flan case, pastry	baked				-14	T
GB	RSC, MAFF	Flan case, sponge	baked				-14	T

GB	RSC, MAFF	Flapjacks	baked							-5	T
GB	RSC, MAFF	Fusilli	boiled							+118	T
GB	RSC, MAFF	Gingerbread	baked							-12	T
GB	RSC, MAFF	Gingermuts, biscuits	baked							-10	T
GB	RSC, MAFF	Gulab jamen/jambu: for dough	deep fried							-15	T
GB	RSC, MAFF	Hot cross buns	baked							-15	T
GB	RSC, MAFF	Hovis	toasted							-22	T
GB	RSC, MAFF	Jellabi: for dough	deep fried							-35	T
DE	AB	Kaiserschmarren (German pancake)	fried	100	103	T				+3	
SE	SLV, fy	Lasagna, vegetable	baked	1695	93	B				-7	
GB	RSC, MAFF	Lemon meringue pie	baked							-19	T
GB	RSC, MAFF	Loaf, All-Bran	baked							-5	T
GB	RSC, MAFF	Macaroni	boiled							+130	T
NO	NNC	Macaroni	boiled	57	175	E				+75	
SE	KoV	Macaroni	boiled			265				+165	T
SE	Coop, SLV	Macaroni and milk	boiled	986	74	T				-26	
SE	SLV	Macaroni and vegetables in eggs	baked	1445	90	B				-10	
GB	RSC, MAFF	Macaroni cheese	boiled, baked/grilled							-9	T
SE	Coop, SLV	Macaroni pudding with smoked ham and Falu sausage	baked	1646	90	T				-10	
SE	KoV	Macaroni, instant	boiled							+133	T
IT	INN	Macaroni, long	boiled	100						+144	
IT	INN	Macaroni, short	boiled	100	202					+102	
GB	RSC, MAFF	Macaroons	baked							-16	T
SE	SLV	Macaroons, almond	baked	562	86	E				-14	
GB	RSC, MAFF	Melting moments	baked							-10	T
GB	RSC, MAFF	Muffins, bran	baked							-16	T
GB	RSC, MAFF	Muffins, plain	baked							-12	T
DE	AB	Noodles, egg	boiled	100	270	T				+170	
GB	RSC, MAFF	Noodles, egg	boiled							+121	T
IT	INN	Noodles, egg	boiled	100						+199	
DE	AB	Noodles, egg, wholemeal	boiled	100	280	T				+180	
GB	RSC, MAFF	Noodles, fried	stir fried							-2	T
GB	RSC, MAFF	Oatcakes	griddled/baked							-27	T
DE	AB	Oatmeal	boiled	100	405	T				+305	
SE	Coop, SLV	Oatmeal gruel	boiled	1106	91	T				-10	
GB	RSC, MAFF	Oatmeal porridge	boiled							-14	T

SE	Coop, SLV	Oatmeal porridge	boiled	987	81	T	-19	
SE	SLV	Paella	braised	2269	93	C	-7	
SE	Coop, SLV	Pancake with fried salt pork added to batter	baked or fried	1097	72	T	-28	
SE	Coop, SLV	Pancake, thick	baked	913	67	T	-33	
DE	AB	Pancakes	fried	100	93	T	-7	
GB	RSC, MAFF	Pancakes, savoury	fried				-20	T
GB	RSC, MAFF	Pancakes, Scotch	fried				-9	T
GB	RSC, MAFF	Pancakes, sweet	fried				-20	T
SE	SLV	Pancakes, thin	fried	918	80	TA	-21	
NO	NNC	Pancakes, thin	fried		75	E	-25	
GB	RSC, MAFF	Paratha	fried				-18	T
GB	RSC, MAFF	Pastry, cheese	baked				-12	T
GB	RSC, MAFF	Pastry, choux	baked				-35	T
SE	VdBF	Pastry, Danish	baked				-20	T
GB	RSC, MAFF	Pastry, flaky or puff	baked				-24	T
SE	VdBF	Pastry, flaky or puff	baked				-24	T
SE	SLV, Coop	Pastry, flaky or puff	baked	519	75	B	-25	
GB	RSC, MAFF	Pastry, shortcrust	baked				-14	T
NO	NNC	Pastry, shortcrust	baked		75	E	-25	
SE	Coop, SLV	Pastry, shortcrust	baked	528	75	T	-25	
GB	RSC, MAFF	Pastry, shortcrust, cheese	baked				-12	T
GB	RSC, MAFF	Pastry, shortcrust, wholemeal	baked				-14	T
SE	Coop, SLV	Pie crust	baked	378	72	T	-28	
GB	RSC, MAFF	Pie with pie filling, one or two crust, plain or	baked				-4	T
GB	RSC, MAFF	Pie, lemon meringue	baked				-19	T
GB	RSC, MAFF	Pie, mince, individual	baked				-13	T
NO	NNC	Pies, dessert	baked		95	E	-5	
GB	RSC, MAFF	Pilaf, rice with spinach	fried, simmered				-33	T
GB	RSC, MAFF	Pilaf, rice with tomato	fried, simmered				-19	T
GB	RSC, MAFF	Pilau, plain	soaked, fried, boiled, simmered				-17	T
GB	RSC, MAFF	Pinni	fried, slowly				0	T
SE	Coop, SLV	Pirozhki dough	baked	874	75	T	-25	
SE	SLV	Pirozhki filling, salty	stir fried, boiled, baked	349	80	C	-20	
SE	SLV	Pirozhki, retail: dough baked	part of whole		65	T	-35	
SE	SLV	Pirozhki, retail: filling	part of whole		35	T	-65	

DE	AL	Pizza	baked		82	T	-18
GB	RSC, MAFF	Pizza, cheese and tomato	baked				-14
GB	RSC, MAFF	Pizza, tomato	baked				-15
SE	SLV	Pizza, vegetable	baked	1482	89	B	-11
SE	SLV	Polenta, corn	boiled	268	95	E	-5
GB	RSC, MAFF	Pudding, bread	baked				-24
GB	RSC, MAFF	Pudding, bread and butter	baked				-24
GB	RSC, MAFF	Pudding, Christmas	boiled				0
GB	RSC, MAFF	Pudding, sponge	steamed				+4
GB	RSC, MAFF	Pudding, sponge, with dried fruit	steamed				0
GB	RSC, MAFF	Pudding, sponge, with syrup or jam	steamed				0
GB	RSC, MAFF	Pudding, Spotted dick	steamed				0
GB	RSC, MAFF	Pudding, suet	steamed				0
GB	RSC, MAFF	Puddings, Yorkshire	baked				-16
GB	RSC, MAFF	Puddings, milk made on rice, sago, semolina or	simmered/baked				-19
GB	RSC, MAFF	Puddings, Queen of	baked				-9
GB	RSC, MAFF	Rice and black-eye beans	soaked, boiled, simmered, steamed				-12
GB	RSC, MAFF	Rice and black-eye beans, brown rice	soaked, boiled, simmered, steamed				-12
GB	RSC, MAFF	Rice and pigeon peas	soaked, boiled, simmered, steamed				-14
GB	RSC, MAFF	Rice and pigeon peas, brown rice	soaked, boiled, simmered, steamed				-14
GB	RSC, MAFF	Rice and red kidney beans	soaked, boiled, simmered				-11
GB	RSC, MAFF	Rice and red kidney beans, brown rice	soaked, boiled, simmered				-11
GB	RSC, MAFF	Rice and split peas	soaked, boiled, simmered, steamed				-15
GB	RSC, MAFF	Rice and split peas, brown rice	soaked, boiled, simmered, steamed				-15
SE	Coop, SLV	Rice gruel	boiled	1272	92	T	-8
GB	RSC, MAFF	Rice pilau	fried, simmered				-36
NO	NNC	Rice porridge	boiled, simmered		86	E	-14
SE	Coop, SLV	Rice porridge (water and milk)	boiled, simmered	1152	88	T	-12
SE	Coop, SLV	Rice pudding	baked	1292	90	T	-10
PT	SS2	Rice with carrots, onions, olive oil, salt and water	simmered	753	82	T	-19

PT	SS3	Rice with fish, onions, tomatoes, olive oil, oil, salt and water	simmered	974	82	T	-19	
PT	SS4	Rice with tomatoes, onions, garlic, oil, parsley, salt and water	simmered	881	73	T	-27	
SE	Friggs	Rice, avorio	boiled		330	T	+230	
GB	RSC, MAFF	Rice, brown	boiled				+153	T
SE	Friggs	Rice, brown	boiled		210	T	+110	
DE	AB	Rice, brown, long grain	boiled	100	260 + - 32	T	+160	
DE	AB	Rice, brown, long grain	stewed	100	260 + - 32	T	+160	
GB	RSC, MAFF	Rice, egg, fried	fried				-17	T
GB	RSC, MAFF	Rice, fried	fried				-6	T
SE	SLV	Rice, glorified with whipped cream and oranges with refuse	peeled, prepared	1081	84	C	-16	
SE	KoV	Rice, instant	boiled				+194	T
SE	KoV	Rice, long grain	boiled				+156	T
DE	AB	Rice, long grain	boiled	100	298 + - 5	T	+198	
DE	AB	Rice, long grain	stewed	100	294 + - 9	T	+194	
IT	INN	Rice, parboiled	boiled	100			+136	
SE	KoV	Rice, parboiled	boiled				+217	T
DE	AB	Rice, parboiled	boiled	100	290 + - 5	T	+190	
DE	AB	Rice, parboiled	stewed	100	304 + - 10	T	+204	
DE	AB	Rice, parboiled, long grain	steamed		280	T	+180	
IT	INN	Rice, polished	boiled	100			+160	
NO	NNC	Rice, polished	boiled		310	E	+210	
SE	SLV, KoV	Rice, polished	boiled	578	76	C	-24	
GB	RSC, MAFF	Rice, savoury	cooked				+197	T
SE	KoV	Rice, short grain	boiled				+145	T
DE	AB	Rice, short grain, made up to porridge	boiled, simmered	100	470	T	+370	
SE	KoV	Rice, short grain, made up to porridge (water and	boiled, simmered				+530	T
GB	RSC, MAFF	Rice, white, easy cook	boiled				+177	T
GB	RSC, MAFF	Risotto	fried, simmered				-37	T
GB	RSC, MAFF	Rock cakes	baked				-10	T
GB	RSC, MAFF	Rum baba: for cake	baked				-15	T
SE	Coop, SLV	Rye flour porridge	boiled	955	91	T	-9	
GB	RSC, MAFF	Scones, cheese	baked				-15	T
GB	RSC, MAFF	Scones, plain	baked				-19	T

SE	SLV, fy	Scones, plain or wholemeal	baked	876	88	B	-12	
GB	RSC, MAFF	Scones, potato	baked				-10	T
GB	RSC, MAFF	Scones, wholemeal	baked				-14	T
GB	RSC, MAFF	Scones, wholemeal, fruit	baked				-14	T
SE	SLV	Semla, sweet, wheat bun, filled with almond paste and whipped cream	bun 58%, whipped cream 24 %, almond paste 15 %, icing sugar 3 %	103				T
SE	Coop	Semolina gruel	boiled	1100	91	T	-10	
GB	RSC, MAFF	Semolina halva	boiled, cooled, cooked				-21	T
SE	Coop	Semolina porridge	boiled	892	98	T	-2	
SE	Coop	Semolina pudding	baked	1058	90	T	-10	
DE	AB	Semolina, made up to porridge	boiled	100	920	T	+820	
GB	RSC, MAFF	Sev/ganthia	deep fried				-30	T
GB	RSC, MAFF	Sevyiaan	fried, simmered				-25	T
GB	RSC, MAFF	Shortbread	baked				-10	T
SE	KoV	Spaghetti	boiled		290		+190	T
PT	SS5	Spaghetti with carrots, onions, tomatoes, olive oil, salt and water	simmered	1146	75	T	-25	
DE	AB	Spaghetti, tortiglioni	boiled	100	225	T	+125	
GB	RSC, MAFF	Spaghetti, white	boiled				+173	T
GB	RSC, MAFF	Spaghetti, wholemeal	boiled				+190	T
GB	RSC, MAFF	Stuffing, sage and onion	parboiled, mixed				-19	T
GB	RSC, MAFF	Swiss roll	baked, trimmed				-14	T
SE	VdBF	Swiss roll, batter	baked				-15	
GB	RSC, MAFF	Tagliatelle	boiled				+121	T
GB	RSC, MAFF	Tagliatelle with vegetables, retail	reheated				-9	T
GB	RSC, MAFF	Tart, Bakewell	baked				-6	T
GB	RSC, MAFF	Tart, custard, large	baked				-12	T
GB	RSC, MAFF	Tart, mincemeat	baked				-8	T
GB	RSC, MAFF	Tart, treacle	baked				0	T
GB	RSC, MAFF	Tartlets, strawberry	baked				+14	T
GB	RSC, MAFF	Tarts, jam	baked				-7	T
GB	RSC, MAFF	Teacakes	toasted				-10	T
IT	INN	Tortellini (egg pasta, filled), fresh	boiled	100			+92	
GB	RSC, MAFF	Tortillas	griddled				-17	T
NO	NNC	Waffles	baked		80	E	-20	

SE	Coop, SLV	Waffles		baked		945	78	T	-22	T
GB	RSC, MAFF	Waffles		baked					-32	T
GB	RSC, MAFF	Welsh cakes		griddled					-12	T
GB	RSC, MAFF	Welsh cheese cake		baked					-6	T
SE	SLV	Wheat and rye bread		baked			90	B	-10	
SE	Coop, SLV	Wheat flour gruel		boiled		1047	93	T	-7	
SE	Coop, SLV	Wheat flour porridge or dumplings		boiled		837	97	T	-3	
SE	Coop, SLV	Wheat flour porridge, wholemeal		boiled		985	94	T	-6	
		<b>Fats, oils, dressing</b>								
SE	SLV	Béarnaise sauce		prepared in double-boiler top		242	91	T	-9	
GB	RSC, MAFF	Hollandaise sauce		boiled, prepared over a gentle heat					-14	T
		<b>Miscellaneous</b>								
GB	RSC, MAFF	Barbecue sauce, homemade		fried, simmered					-31	T
SE	Coop, SLV	Bouillon sauce		boiled		433	95	T	-5	
PT	INSP3	Bouillon sauce made up with margarine, flour, oxo cubes and water		prepared		570	65	T	-35	
SE	Coop, SLV	Brown sauce		boiled		439	87	T	-13	
SE	SLV	Caramel sauce		boiled		513	80	E	-20	
SE	SLV, Coop	Cocoa made up with water		boiled		194	96	B	-4	
SE	SLV	Cocoa sauce		boiled		226	84	T	-16	
SE	SLV	Currant sauce		browned, boiled		501	96	B	-4	
SE	SLV, Coop	Curry sauce		boiled		504	96	B	-4	
GB	RSC, MAFF	Curry sauce, onion		fried, simmered					-25	T
GB	RSC, MAFF	Curry sauce, sweet		fried, simmered					-50	T
GB	RSC, MAFF	Curry sauce, tomato and onion		fried, simmered					-39	T
GB	RSC, MAFF	Fudge		boiled, beaten					-28	T
SE	Coop	Gelatin leafs (2)		soaked		3	200	T	+100	
GB	RSC, MAFF	Glaze for candied popcorn		heated					-15	T
GB	RSC, MAFF	Glaze for fruit flan and tartlets		boiled					-13	T
GB	RSC, MAFF	Glaze for jallabi		boiled					-30	T





## Preparation and processing terms

The following definitions of preparation and processing terms are general. Several organizations, such as COST, FDA and the Swedish Test Kitchens, have defined these kind of terms in a systematic way, pages 19 and 202.

<b>BAKE</b>	cook food in oven - water vapour may be added - or on hot surface, e.g. waffle-iron
<b>BARBECUE</b>	cook pieces of meat or whole, dressed, splitted animals on a barbecue (a metal frame) usually over charcoal
<b>BATTER</b>	cover food with batter before deep frying
<b>BLANCH</b>	(make something white), immerse food, especially vegetables or fruits, in hot water, steam or hot fat/oil for a very short time in order to, e. g. destruct enzymes, remove air or undesirable flavours in foods
<b>BOIL</b>	cook food in water at about 100° C
<b>BRAISE</b>	brown food in fat or oil, add some water, cook slowly in a covered container
<b>BREAD</b>	coat food with bread crumbs or similar. Food may first be floured, then dipped in beaten egg or other liquid to help crumbs to adhere
<b>BROWN</b>	heat fat until light brown or heat food in fat to brown colour

## Langual. Factor G. Cooking method

The following cooking methods are drawn from Langual User's Manual (665) with the permission of the Center for Food Safety and Applied Nutrition of the U.S. Food and Drug Administration. The method code is put in brackets, e.g. G005 for baked or roasted, and so on. See also Future NLG activities, page 218.

<b>Baked or roasted (G005)</b>	Cooked without moisture, covered or uncovered, in an oven. *Roasting* usually applies to meat or nuts.
<b>Boiled (G014)</b>	Cooked in boiling water at 212 degrees Fahrenheit or 100 degrees Celsius.
<b>Boiled and drained (G015)</b>	Cooked in boiling water at 212 degrees Fahrenheit or 100 degrees Celsius. Water that is not absorbed into the food product is discarded after cooking.
<b>Boiled and undrained (G018)</b>	Cooked in boiling water at 212 degrees Fahrenheit or 100 degrees Celsius. The water incorporates itself into the product being cooked or is not discarded when cooking is completed.
<b>Boiled in large amount of liquid (G016)</b>	Cooked in boiling water at 212 degrees Fahrenheit or 100 degrees Celsius. Liquid to solid ratio is greater than 2:1.
<b>Boiled in small amount of liquid (G017)</b>	
<b>Braised (G019)</b>	Browned initially in fat and then tightly covered and cooked over low heat in a small amount of water.
<b>Broiled or grilled (G006)</b>	Cooked without moisture under or over intense direct heat.

<b>Charcoal broiled (G007)</b>	Cooked without moisture over direct heat from a charcoal fire.
<b>Cooked by dry heat (G004)</b>	Cooked at moderate to high levels of heat in which no liquid is added and only small amounts of fat may be added to prevent sticking.
<b>Cooked by microwave (G011)</b>	Cooked in a microwave oven.
<b>Cooked by moist heat (G012)</b>	Cooked in varying amounts of water, water-based liquid or steam.
<b>Cooked in container immersed in water or steam (G031)</b>	Used when the food is cooked in a closed container such as a pouch immersed in hot water or steam.
<b>Cooked in double boiler (G033)</b>	Cooked in a container that is placed in another container filled with boiling water. See also *Cooked in water bath*.
<b>Cooked in small amount of or oil (G026)</b>	Cooked with sufficient fat or oil to coat <b>fat</b> and moisten the food being prepared, but not cooked in enough fat or oil to immerse the food. Use *griddled* when only enough fat or oil is used to prevent sticking.
<b>Cooked in steam (G021)</b>	
<b>Cooked in water bath (G034)</b>	Cooked in a container that is placed in another container filled with water kept near boiling point. See also double boiler*.
*Cooked in	
<b>Cooked in water or water-based liquid (G013)</b>	
<b>Cooked with added fat or oil (G025)</b>	Cooked by adding fat or oil to those foods which do not contain fat or oil that would render during the cooking process.

**Cooked with fat or oil (G024)**

**Cooked with inherent fat or oil (G030)**

Cooked in fat or oil rendered from the food being prepared.

**Cooking method not applicable (G003)**

**Cooking method not known (G001)**

**Deep-fried (G029)**

Cooked in hot fat or oil deep enough to immerse the food entirely.

**Cooking method (G002)**

The method by which a food is precooked, cooked, reheated or held warm. Cooking means raising the temperature of a food by heat or microwaves for a time sufficient to convert it from a raw or partially cooked state to a partially or fully cooked state. The physical and biochemical changes in the food and its components which affect the safety, palatability or nutritional characteristics of the food depend not only on the degree of cooking as indexed in the factor for *Extent of Heat Treatment* but also on the specific cooking method used. Multiple values may be applied. A cooking method is indexed no matter where it is applied: in the home, in a store, by a vendor, in a restaurant, or in a food manufacturing plant. If cooking involves two or more steps, such as pre-grilling and then baking, index all; the steps may be applied in the same location or at different locations (for example, a pre-grilled frozen chicken breast that is fully cooked through baking in the home). For simple reheating use a descriptor under *\*Reheated\**. As a rule, only cooking methods applied to the food product as a whole are indexed. Cooking methods applied to a component or ingredient of the food may be indexed if

they are of significance for the safety, palatability, or nutritional characteristics of the food, providing the information is easily available.

Cooking method is not indexed for products where heating serves mainly for preservation, such as in canning or blanching vegetables before freezing. It is also not indexed for products wherein heating is inherent in the food as it is indexed in the factor for *Product Type*.

Examples would be the heating of cheese for manufacture, the pasteurization of milk, the boiling of sugar syrup in the making of confectionery or the drum-drying under heat of breakfast cereals. These products and products not subject to heat treatment are indexed by \*Cooking method not applicable\*.

**Griddled (G008)**

Cooked on a flat surface at medium heat with only a sufficient amount of fat used to prevent sticking.

**Method of heating container (G032)**

The method by which heat is transferred to the outside of the cooking container. The most frequently used method of placing the container on an open flame, a hot metal surface or into an oven are not indexed here.

**Popped (G009)**

Cooked by agitating the food over a dry, high heat source, resulting in exploding.

**Reheated (G037)**

Reheating is a simple process to bring the already fully cooked product to serving temperature. Do not use for a process that completes the cooking of a partially cooked food.

**Reheated by boil-in-bag (G040)**

**Reheated by dry heat (G039)**

**Reheated by microwave (G038)**

**Reheated in pan or cooking utensil (G041)**

**Sautéed (G027)** Cooked in a very small amount of very hot fat, turning and browning the food on all sides.

**Scalded or blanched (G042)** A method of precooking food where a liquid is heated to just below the boiling point (180 degrees Fahrenheit or 82 degrees Celsius). Often used to retard the spoiling of milk. Also to plunge food such as fruit or vegetables into boiling water (or to pour boiling water over them) in order to loosen the skin and facilitate peeling.

**Shallow fried (G035)** A Chinese cooking technique similar to sautéing in which thick slices or chunks of floured or battered ingredients are slowly seared over moderate to low heat. (Kuo, CHY. The key to Chinese cooking, Knopf, 1977, p. 87)

**Simmered, poached or stewed (G020)** Cooked in a moderate amount of liquid at just below the boiling point.

**Steamed with pressure (G022)** Cooked in a pressure cooker.

**Steamed without pressure (G023)** Cooked suspended above boiling water.

**Steeped (G036)** Extracting flavour and other components from food sources by immersion in water, usually at near-boiling temperature.

**Stir-fried (G028)** Cooked by frying foods quickly over high heat, stirring constantly. Only enough cooking oil is used to coat the bottom of the pan.

**Toasted (G010)** Cooked with direct heat until the surface of the food is browned, usually associated with bread or sandwiches.

# Yield studies step by step

The ratios shown in the form (x:y) refer to the numbered squares.										LB.-94
1	2	3	4	5	6	7	8	9	10	
Name of food	Description of purchased food	Weight of purchased food, g	Description of preparation of the food, such as peeling, thawing, soaking, etc.	Description and material of utensil(s) used in preparation	Weight of food after preparation, g	Yield after preparation related to purchased food (6:3), %	Description of refuse or discarded liquid after preparation	Refuse or discarded liquid after preparation, g	Refuse and/or discarded liquid after preparation related to purchased food (9:3), %	
11	12	13	14	15	16	17	18	19	20	
Preparation ingredient(s) added, such as flour, dried bread crumbs, eggs, etc., g	Loss of ingredient(s) in preparation, g	Loss of ingredient in preparation related to added ingredients (12:11), %	Description of the food to be prepared* or cooked, measures of different kinds	Weight of food to be prepared or cooked, g	Preparation or cooking method	Description of utensil(s) (material, volume, etc.) used in preparation of foods	Food left in or on preparation utensils related to food to be prepared or cooked (18:15), %	Food left in or on preparation utensils related to food to be prepared or cooked (18:15), %	Description of cooking vessel(s) (material, volume, diameter etc.)	
21	22	23	24	25	26	27	28	29	30	
Food or ingredient(s) added, such as water, fat, bouillon, etc	Description of ingredient(s) added, e.g. temperature of water, fat melted	Amount of ingredient(s) added, g	Total weight of food to be cooked, g	Food cooked with lid on or covered with e.g. foil	Cooking temperature, °C	Temperature profile (temperature to time)	Cooking time, min	Final internal temperature, °C	Food left in or on cooking utensils, g	
31	32	33	34	35	36	37	38	39	40	
Food left in or on utensils related to food to be cooked (30:24), %	Discarded cooking liquid etc., g	Discarded cooking liquid etc. related to food to be prepared or cooked (32:24), %	Weight of cooked food 5 min after cooking completed, g	Yield of cooked food after 5 min related to food to be prepared or cooked (34:24), %	Weight of cooked food 30 min after cooking completed, g	Yield of cooked food after 30 min related to food to be prepared or cooked (36:24), %	Weight of food to be served, g	Loss of food in serving related to food served (39:38), %	Loss of food in serving related to food served (39:38), %	
41	42	43	44	45	46	47	48	49	50	
Weight of food on plate, g	Refuse of inedible parts in food, as bones, on plate, g	Inedible parts in food, as bones, related to served food on plate (42:41), %	Edible food discarded, as trimmed off fat etc. on plate, g	Edible food discarded on plate, as trimmed off fat etc. related to total food on plate (44:41), %						
51	52	53	54	55	56	57	58	59	60	
Weight of food to be held warm, g	Ingredient(s) such as water, bouillon, fat etc. added, g	Total weight of food to be held warm, g	Method of holding food warm. Covered or uncovered, etc.	Description of utensil(s) (material, volume, etc.) used in holding food warm	Time for holding food warm, min	Temperature for holding food warm, °C	Refuse and/or discarded food, description included, after holding food warm, g	Weight of food after holding it warm, minus refuse in 58, g	Yield of food, minus refuse, related to total food to be held warm (59:53), %	
61	62	63	64	65	66	67	68	69	70	
Weight of food to be reheated, g	Ingredient(s) such as water, bouillon, fat etc. added, g	Total weight of food to be reheated, g	Method of reheating food. Covered or uncovered, etc.	Description of utensil(s) (material, volume, etc.) used in reheating food	Reheating time, min	Reheating temperature, °C	Refuse and/or discarded food, description included, after reheating food, g	Weight of food after reheating, minus refuse in 68, g	Yield of food, minus refuse, related to total food to be reheated (69:63), %	

\* also referring to combination of food items to dishes, e.g. cold salads, cold sauces, desserts etc

## **Future NLG Activities**

The FLAIR Eurofoods-Enfant Project officially ended in March 1994 but the wish to continue cooperation and work on nutrient losses and gains factors in Europe remained. The members of the NLG project met several times during the third annual FLAIR Eurofoods-Enfant Project meeting in Portugal, November 1993, and it was proposed to include the reference and yield collections in the EuroNIMS, as an extra service to the users of the system. In EuroNIMS Newsletter a regular NLG feature could also be started. If EuroNIMS consortium accepts this NLG coordinating role, yield and retention factors, and their associated references, would be added to the collection regularly.

At the 1993 NLG workshop it was concluded that the Languag descriptors or factors are not specific enough to cover all terms of processing, especially cooking. Clear definitions of processing terms are required and should be considered as an important step towards enhanced compatibility of food composition databases. Therefore, it was proposed to set up a Languag Special Interest Group for cooking methods and to develop codes and descriptions for more cooking methods. This work should then be extended to include all processing methods.

Work on the NLG factors may also continue under the COST Eurofoods-Enfant Project, a project funded by the Commission of the European Union, and which will start at the end of 1994. Another opportunity to meet and discuss nutrient losses and gains will be at the Second International Food Data Base Conference, to be held in Lahti, Finland, August 28-30, 1995.



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*Calculating the nutrient composition of recipes with computers.*  
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