NUTRITIONAL AND QUALITY MARKING OF MEAT PRODUCTS

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INTRODUCTION

Since in 1889 Atwater introduced the First National Food Guide in the U.S., based on an adequate supply of energy, many other suggestions to inform the people on nutrition have been made. Vitamins and minerals became supplementary to the energy values, and in 1940 the Recommended Dietary Allowances (RDA) were announced. The RDA have been adjusted several times taking into account the progress in nutrition science, including the need for moderation and variation in the Western food patterns. In the U.S. and in Europe a number of new proposals has been introduced these last years. Most of them were directed to the visualization on a label as to the contribution of major and minor constituents of each product to the daily intake.

From 1977 a small group of scientists and persons from trade and industry in the Netherlands has been developing such a nutrition marking system. The system will be introduced by a Foundation on a voluntary basis. It is expected that these activities will stimulate the discussions of legislators, who have been informed regularly.

During the past 5 years an interesting start has been made in the Netherlands with the differentiation of quality aspects of comminuted meat products. Both in the U.S. and in Europe much experience exists in the differentiation in grading systems for meat, however not for meat products. Since 1965 regulations have been established only for the quality aspects of export meat products in Denmark and the Netherlands, whereas a rather detailed system for quality criteria for the home market (Leitsätze für Fleisch und Fleischwaren) has been developed since 1972 in Germany.
Both developments of nutrition marking and quality differentiation are in line with the efforts of consumer organizations to increase the information on both aspects of all kind of goods, including foods such as meat products and the development of new food products (Krol, 1980). For that reason the representatives of the consumer organizations play an active role in the discussions between government, industries and research centres.
The most important details will be described in the following chapters.

NUTRITIONAL MARKING

Nutritional marking has to be applied in principle for all kind of foods. According to the contents and presentation on the marker it is a demand that the marker is uniform, simple and clear. The basic principles and ideas were discussed during an international seminar in 1977. One of the conclusions was that a choice had to be made of all major and minor constituents, because otherwise both the consumer and the producer would be confused by too much information.

For the nutritional information we have chosen:

- energy content and the quantity of protein, fat and carbohydrates (in g), all of them contributors to the energy value (in kJoules of kcal)
- linolic acid content (in g) as the most important physiological compound of all kinds of fats from the nutritional point of view,
- sugar content (in g) determined as mono- and di-saccharides,
- sodium (in g), as an important contributor to increased blood pressure,
- the group of vitamin B_1 and C and the minerals calcium and iron. These minor constituents are expected by the consumer and some happen to be marginal for some of them.

A number of alternatives of these choices was presented to 180 individual housewives. The aim was to select the best understandable combination of the items and to have an indication of the relative importance of each item. Besides, it was requested to give a preference for the quantification of the constituents based on portion size or on 100 grammes. The final result is given in the marker which has been published already (Ter Haar et al, 1980). The marker for which the name Nutrimark is suggested, is divided into 3 blocs.

Bloc I :
- name of the product
- quantity (100 g or portion of x g)
- energy (in kJoules or kcal)
- fat, linolic acid, protein, carbohydrates, sugar and sodium (g)

Bloc II : vitamin B_1 and C, minerals calcium and iron; the recommended daily quantity is given in open dots, the quantity in the product in units of 1/4 dots

Bloc III : bring variety in the meal pattern and eat moderately.

A strong preference exists to use all blocs, it is however permitted to omit blocs II and III. The size of the markers is not restricted.

The data in the marker are collected by analyses or by using the national and international food composition tables.

QUALITY MARKING

There is a growing general feeling that the products of a distinguished quality character have to be protected against other products including all those products fulfilling the requirements of Food Laws and other dominant Laws. Since 1973 the Agricultural Quality Act exists in the Netherlands, which is functioning as a frame act to which all kinds of quality regulations are subjected. The Commodity Board of Livestock and Meat together with the Ministry of Agriculture and Fisheries started the discussions for differentiation and implementation of objective quality criteria for meat products a few years ago. One of the first products for a distinguished quality regulation is the "Gelderse Rookworst", a ringtype smoked sausage.

As for all kinds of sausages, cooked and uncooked, with a high and low collagen and/or fat content, all participants in the discussions about quality aspects agreed upon a distinction between products of a standard quality and those of a vignette quality.
The main idea is that a product of vignette quality should have a higher general and sensoric appreciation than a product of standard quality. However, such a product is probably more expensive.
The main differences between both types of products can also be determined chemically, as is shown in the table.

composition	basic quality	vignette quality
starch	$\leqslant$ 2 %	not allowed
fat	$\leqslant$40 %	$\leqslant$ 35 %
collagen free meat protein		
average	$\geqslant$ 8 %	$\geqslant$ 10 %
cut off	$\geqslant$ 7 %	$\geqslant$ 9 %

In general, 10 % collagen free meat protein is comparable with 50 % lean meat. To prevent the use of mechanically deboned meat the calcium content of the sausages of vignette quality is limited to 0.030 %.

Besides these two categories it is still a matter of research and dispute whether there will be a third category of a product with a diminished fat content, also a lean sausage. If the fat content is lowered to 20 % or lower, a decision has to be made whether the moisture content has to be increased or the collagen content. A high lean meat content only delivers a product with a dry, tough consistency.

A Foundation will be established to control all aspects of the correct application of the vignette labels. The Foundation will also be charged with the control and the examination of the samples which have to be taken by industry or butcher. These producers are paying the costs of control based on production size, the Government is subsidizing these activities and the Commodity Board also contributes to the total costs.

The whole concept for "Gelderse Rookworst" will come into force in 1980 after finishing the juridicial aspects. Other regulations concerning cooked ham, dry sausages etc. are already in the process of preparation.

CONCLUSION

Systems for nutritional marking of foods and vignetting of meat products are being developed in the Netherlands. They are based on modern views of nutrition and measurable sensoric quality determining factors. The final decisions about content and form of the markers are developed after a lot of research and discussions among producers, consumer organizations and government. It may be expected that these results are applicable in 1980 and acceptable for all groups concerned.

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