

SAUSAGE—the Real and the Imitation Kinds

In preparing the carcasses of meat animals for the market, there are produced large quantities of materials which are best utilized in the form of sausage and other prepared products. Conversion of such materials into a tasty and nutritious product such as sausage is not only an important source of profit to the establishment but is of economic importance and of substantial benefit to producer and consumer alike.

There are, however, certain practices connected with the manufacture of sausage and meat food products which are of doubtful benefit to the producers, the consumers, or even to the manufacturers themselves. These practices involve the manner of utilizing organs and parts possessing inferior palatability and food value, the use of flour and other binders, the addition of excessive water, and the dyeing of casings.

Since the ingredients of sausage and other products resembling sausage, such as "imitation," are ground fine, it is possible to utilize, without ready detection by consumers, a considerable proportion of organs and parts not commonly used for food as such. Organs and parts of this type are not recognized as meat in the true sense of the term but as "meat by-products." By chemical analysis such organs and parts are found to contain somewhat less protein and considerably less fat than is contained in meat. Their food value is inferior to that of meat for the reason that their protein is largely incomplete and can not, therefore, be used in its entirety for the repair of body waste or the building of new tissue.

Why Cereals and Water Are Added

On account of lack of flavor and lack of suitable binding qualities it is not possible to make from meat by-products an article simulating sausage which is acceptable to consumers without the use of a certain proportion of meat. By the addition of cereal or vegetable flour as a binder the proportion of meat by-products may be increased. When meat by-products are used in any large proportion it is also necessary to incorporate a considerable quantity of water in addition to that normal to the meat and products used in order to make a product of acceptable consistence. The addition of flour and water can not be detected by ordinary physical examination, although the appearance of smoked and cooked products differs from that of sausage made wholly from meat in that the imitation product does not develop that rich color in smoking which is characteristic of sausage consisting of meat. With the application of artificial color to the casings this difference is made to disappear.

Sausage of good grade made wholly from meat may be expected, therefore, to contain more protein, more fat, and less added water than the product made in part from meat by-products and containing cereal as a binder. The difference in food value is greater than that shown by analysis on account of the fact that the proteins of the high-grade product are complete proteins and can be utilized by the body for the repair of waste and the building of new tissue, while the proteins of the inferior product are in part incomplete and therefore are not utilized by the body to the best advantage.

Comparison of High-Grade and Imitation Sausage

It is contended by some manufacturers that the utilization of organs and parts not commonly used for food of and by themselves together with cereal and large quantities of added water is justifiable because it furnishes a supply of wholesome and nourishing product at a low price to consumers who can not afford to purchase meat. In



FIG. 198.—Portion of a Federal meat-inspection laboratory. Trained chemists readily determine the true value of many meat products and ingredients submitted for analysis

view of this contention the following comparison of five typical samples of Frankfurter-style sausage of the highest grade and nine typical samples of product made in imitation of Frankfurter-style sausage illustrates the doubtful degree to which the manufacture of imitation product is beneficial to the consumer:

TABLE 21.—Comparative cost and value of Frankfurter-style sausage and of "imitation"

Item	Genuine Frankfurter-style sausage; average of 5 samples	Product made in imitation of Frankfurter-style sausage; average of 9 samples
Cost of materials..... per pound	\$0.098	\$0.052
Selling price:		
Wholesale..... do	\$0.24	\$0.17
Retail..... do	\$0.32	\$0.25
Analysis:		
Moisture..... per cent..	56.4	65.4
Fat..... do	24.3	12.1
Protein..... do	14.5	13.3
Added water..... do	1.2	12.1
Calories..... per pound..	1,259	813
Cost of 1 ounce protein:		
At wholesale price.....	\$0.109	\$0.079
At retail price.....	\$0.136	\$0.113
Cost of 100 calories:		
At wholesale price.....	\$0.019	\$0.021
At retail price.....	\$0.025	\$0.031

Comparison of the results of chemical analysis shows that the difference in the percentage of protein contained in the two types of product is not great. The high-grade sausage has a slight advantage in the actual proportion of protein but this advantage is not enough to overcome the difference in the selling price. The cost of an ounce of protein in the form of imitation product is slightly less than in the form of genuine sausage. Comparison on the basis of protein alone is not fair to the high-grade product, since the imitation product contains a substantial proportion of incomplete protein which is of less food value than the complete protein in the high-grade product.

Superior Product Shows Its Worth

The percentage of fat in the genuine sausage is more than twice that in the imitation product. This difference is further shown by the comparison of calories per pound and cost of 100 calories. It may be noted that the sums of the percentages of water and fat in the two classes of product are nearly equal, as also are the sums of the percentages of fat and added water. This shows substitution of water for fat through the use of materials low in fat and muscle tissue and the addition of water to give the imitation product a consistence similar to that of genuine sausage.

All the products included in the comparison were produced and sold in the same localities and the prices quoted are those prevailing in the same market and at the same time. Three of the five samples of genuine sausage were collected from establishments also preparing imitation products included in the comparison. All the samples were typical of the product represented. The comparison shows clearly, therefore, that the manufacture of imitation product is not so much a means of supplying consumers with a wholesome and nourishing meat food product at a low price as a means of selling water and flour at the price of meat.

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S **SEED Import** Red clover is the most important soil builder
Control Law throughout the humid regions of the United
Strengthened States outside the Cotton Belt, and alfalfa,
 long important in the drier areas, both with
 and without irrigation, is now successfully grown in every State.
 The United States does not, on the average, produce enough seed of
 either of these basic crops to meet the seeding requirements and
 substantial importations of seed from surplus-producing countries
 are necessary. It is obviously important to safeguard the quality
 of these imports.

Table 22 shows the imports of seed of red clover and alfalfa by years and countries from which exported to the United States.