

condition of the package—that is conditions reflecting workmanship of the product; (3) uniformity of sticks; (4) color; and (5) adherence and continuity of the coating.

"Character" refers to (1) the ease of separation of the individual sticks; (2) oiliness of the product; (3) texture of the coating and (4) texture of the fish.

Defects are classified as (1) blemishes which include blood spots, bruises, pieces of skin, dark carbon specks and protein curd spots; (2) broken sticks; (3) damaged sticks; and (4) bones.

The scoring was set up with each sub-factor contributing a weighted amount to each factor score. The cumulative rating for each sub-factor then provides the total factor score.

Flavor and odor of the cooked fish sticks are evaluated but not scored. Objective methods of measurements are not as yet available which will indicate reliable gradations in score values. Grade A sticks must possess a good flavor and odor; Grade B, reasonably good flavor and odor. It is entirely feasible that a high score product reflecting excellent workmanship may be graded substandard because of poor flavor and odor. A product with good flavor and odor but with poor appearance or character, or showing a substantial amount of defects could not be given a high grade.

#### *Summary*

In summary, the net result of the efforts of the Service and the N.F.I. Fish Stick Technical Subcommittee has been the development of a proposed set of voluntary Federal standards for grades for frozen fried fish sticks. This draft dated September 8, 1955, has been distributed to all phases of the fish stick industry for review and comment.

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## **Development And Promulgation Of Voluntary Federal Standards And Inspection Of Frozen Breaded Shrimp**

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IN A COUNTRY RICHLY BLESSED with an abundance of foods, competition for the consumer's favor is keen. Two companies recently placed new frozen foods on the market. They are breaded chicken and turkey sticks. These products add to the wide variety of foods from which the homemaker can choose in competition with frozen sea foods, such as breaded shrimp. The homemaker of today is discriminating in her purchase of foods. She is attracted by the convenience of preparation, the quality, and the value of the foods offered by the manufacturer. Breaded meat, poultry and fishery products competition furnish plenty of incentive to bring the quality of breaded shrimp to its highest level.

Voluntary federal standards of quality and condition of breaded shrimp is a

method of assuring the purchaser that the product is good. It is an important tool to help the industry win the favor of the buyer.

What is the quality and dependability of breaded shrimp in general? The findings of the National Fisheries Institute of the past few years will provide an answer. The Institute examined many brands of breaded shrimp. Some were of good quality, but half were found to have serious faults.

In the course of this program to develop standards for breaded shrimp, packages of all of the brands of breaded shrimp on the market in the Washington, D. C. area were examined. Some attractive, high quality packages were found, but others had considerable faults. The principal factors believed to be significant in the modification of quality were evaluated. These factors were incorporated into a preliminary draft of voluntary federal standards for the breaded shrimp and copies of it have been circulated to members of the industry by the Fish and Wildlife Service. The purpose is to obtain helpful ideas from the producers. Constructive comment and criticism of the preliminary draft will be welcomed by the Service. They will be carefully considered as possible leads to desirable improvements.

The preliminary draft of the standards for breaded shrimp consists of a product description, styles, sizes, grades and factors of quality. The factors are "appearance," "characteristics" and "freedom from defects." The product description requires that the shrimp be good, clean and sound. They should be coated with batter and/or breading and stored in accordance with good commercial practices.

The styles are "light breading," "medium breading," and "heavy breading." "Light breading" means that the breading content is less than 25 per cent by weight of the product. "Medium breading" means that the breading content is 25 to 40 per cent by weight. "Heavy breading" means 40 to 52 per cent by weight of breading.\*

The figure 25 per cent of breading suggested for "light breading" is based on the breading content of comparable breaded meat products. According to Mr. R. M. Mehurin, of the Meat Inspection Branch of the Department of Agriculture, breaded meat products are permitted to have not more than 25 per cent of breading. This is a mandatory requirement.

The National Fisheries Institute reported that the average content of breading of the packages of breaded shrimp examined by them in 1955, was 51 per cent. Our investigation of brands purchased in the Washington, D. C. area recently, showed a range of 40 to 54 per cent of breading.

Size and uniformity of the shrimp are important. A large grocery chain specifies 26 to 35 count shrimp for their purchases. Some of the homemakers, according to a survey made by the Service, expressed the desire that the size should be printed on the package.

The shrimp in some of the packages examined were non-uniform in size and shape. The shrimp count range was 35 to 65 per pound, after the breading had been removed.

The sizes of the breaded shrimp might be shown on the package according to the terms Jumbo, Large, Medium and Small. Jumbo shrimp are 15 or less per pound; Large, 15 to 20; Medium, 20 to 30; and Small, 30 to 60 per pound, according to the preliminary draft.

Flavor and odor are the most important quality factors. They are evaluated, but not numerically scored. The grade cannot be higher than that determined

by the two factors, regardless of the rating received from the scored factors alone. Regardless how excellent the breaded shrimp is otherwise, the consumer demands that it tastes good.

The factors "appearance," "characteristics" and "freedom from defects," are scored numerically, on a scale of 100. The maximum number of points given for appearance is 35, for characteristics 25 and for freedom from defects 40.

"Appearance" relates to uniformity of size and shape, amount of loose breading, presence or absence of "dough balls," properly adhering coating, presence or absence of excess moisture, heat damage or dehydration.

"Characteristics" refers to ease of separation of individual pieces, presence or absence of broken pieces and separated breading, and to the texture of the flesh.

"Freedom from defects" refers to the degree of freedom from heads, "veins," walking legs, antenna, damaged shrimp, and blemishes such as black spots.

The proposed grades of the breaded shrimp are based on the statements mentioned. They would be U. S. Grade A or U. S. Fancy, which scores 85 points, U. S. Grade B or U. S. Extra Standard, not less than 70 points. Grade C scores less than 70 points.

One packer explained that he could pack a higher quality product, but that would raise his costs, and then he could not compete with lower priced brands. It is generally axiomatic that premium quality goods command a premium price, when the purchaser has confidence and assurance in the high quality. Grade standards give such assurance. Thus U. S. Choice meats sell at a premium price over U. S. Good or over ungraded meats. Grade AA eggs sell at higher prices than Grade B or than ungraded eggs. If it is assumed the same situation will apply to breaded shrimp, consumers will be prepared to pay higher prices for Grade A quality than for inferior quality.

If a voluntary standard for breaded shrimp is promulgated, a grading service will need to be inaugurated. The grading service will certify the breaded shrimp for class, quality, quantity or condition. The several grading operations will be according to U. S. grades, and contract specifications. Applicants who may request breaded shrimp grade certificates are food processors, bankers, brokers, wholesale distributors, retail grocers, warehousing concerns, railroad agencies and federal, state and city procurement agencies. The certificate may be attached to the invoice or shipping documents to serve as evidence that the product complies with the quality requirements of the sales contract. 1) It may be used by financially interested parties in negotiating sales. 2) It may serve as an aid in arriving at the loan value of the product. 3) It may help the manufacturers to determine if his quality control methods are efficient and satisfactory. 4) It may aid in making equitable settlements of disputes arising over the claims by the owner for damage incurred in transit or in public storage. 5) It may furnish data for the development of buying specifications for interested private, state or federal procurement agencies. 6) It may be used as evidence in law suits or for the settlement of disputes without resorting to court action.

The U. S. Fish and Wildlife Service will continue its interest in the standards field and strive to satisfy and earn the support of all who may find this program useful.

\*As the result of public hearings on the subject, the industry has agreed that light breading means breading of less than 35 percent by weight of the product. Medium breading means that the breading content is 35 to 45 percent by weight. Heavy breading means 45 to 50 percent by weight of breading.