Poultry Patter

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EGGS IN THE FOOD INDUSTRY

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Although the natural function of the egg is propagation, man has used the eggs of various avian species as food for centuries. Their use is justified because eggs are readily available. They have many uses in cookery and have excellent nutritional qualities.

Types of Egg Products

Since egg production and consumption have not generally been in balance, a surplus of eggs has usually been normal. This surplus has been placed in cold storage in the form of shell eggs or has been diverted to the egg breaking plant for production of egg products. The north-central region has traditionally shipped a large share of its production to the egg breaker.

Egg products include whole eggs, whole egg blends, albumen, and yolks (plain, sugared, salted) in liquid, frozen, or dried form. The term egg solids is used in preference to dried eggs.

Uses of Egg Products

Whole eggs, yolk products, and albumen can be used as liquid eggs for immediate consumption, and for frozen eggs and dried eggs.

Several blends and specialized formulae in frozen and dried form are utilized in the food industry. The baking and candy industries are large users of egg products. Manufacturers of noodles, mayonnaise, baby foods, and various specialty food products also utilize considerable quantities. The increasing popularity of premixes for pancakes, cakes, and desserts has opened an important avenue for the use of egg solids. Institutional users such as schools, hospitals, restaurants, and the military prepare much of their food service needs from egg products.

The functional properties of egg products make their use in these many food items possible. Eggs exert a binding action when used in cake baking. They are capable of leavening five to six times their weight in other ingredients, thus retaining the air which has been beaten into the mixture.

Because of their fat content, eggs have considerable emulsifying and shortening action. They improve the flavor of the product and provide a pleasing color. The demand for a highly colored product in foods such as noodles has placed a premium on dark colored yolks.

What Kind of Eggs Should Go Into Egg Products?

Undergrades as well as surplus production have largely gone into egg products. Eggs from older hens, with poorer exterior and interior quality, have increased value for egg product use because eggs from these flocks are larger and yield more solids.

While emphasis is being placed on the development of quality shell egg programs, there should also be more action directed toward developing quality egg product outlets.

A grade-A egg products program should be developed in Minnesota to make quality

eggs available to institutional users in a more convenient timesaving form.

Quality whole eggs, homogenized and packaged in 10-pound polyethylene containers, can yield a cooked preparation similar in taste and appearance to that prepared from grade A shell eggs. Such a program is being developed in at least one other state. Provision has been made in the state regulations for Minnesota Certified Grade A Egg Products, but at the time of this writing the program is not being utilized.

Our Egg Product Image

On rare occasions egg products have been implicated as possible causes of food infections due to the presence of Salmonella organisms. Recent regulations requiring pasteurization or heat treatment of egg products will reduce the likelihood of any implication of these products as a hazard to health. Pasteurization of liquid whole egg at 140-142° F. for $3\frac{1}{2}$ minutes and yolk at 144-146° F. for $3\frac{1}{2}$ minutes usually gives sufficient heat treatment. Egg whites can also be pasteurized without damage to the proteins or significantly lowering whipping quality or cake volume. Heat-susceptible proteins can be stabilized by the addition of acid and a metallic salt prior to pasteurization at 140-142° F. for $3\frac{1}{2}$ minutes.

Increased usage of egg products in our everchanging food industry depends on the availability of a quality product that meets **the functional requirements of the industry.** As consumer incomes rise and the demand for convenience-type food products increases, more processing and preparation are purchased with items of food.

About the Author

This issue of Poultry Patter was written by Melvin L. Hamre, who recently joined the Agricultural Extension Service and Department of Poultry Science as assistant professor and extension poultry specialist. He is a native of the State of Washington and received his B.S. degree with honors from Washington State University. After 3 years of public school teaching and 2 years of military service he did graduate work at Purdue University leading to his M.S. and Ph.D degrees. His major research emphasis has been on poultry products.

Minnesota Poultry and Hatchery Association, Minnesota Poultry, Butter, and Egg Association, Wisconsin Hatchery Association—Annual Convention January 21-22, 1966, Pick-Nicollet Hotel, Minneapolis.

Let's Have Eggs, Extension Bulletin 314, has been published by the Agricultural Extension Service as an informative guide for the housewife and other users of eggs. It contains information on egg structure, nutritive value, and quality standards, as well as many egg preparation techniques. Ask your County Extension Agent for a copy or send your request to: Bulletin Room, University of Minnesota, St. Paul, Minnesota 55101

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IN THIS ISSUE...Eggs in the Food Industry

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Acts of May 8 and June 30, 1914

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