

# STUDY OF FOOD LOSSES IN THE DISTRIBUTION PHASES OF THE U.S. FOOD SYSTEM

by  
John W. Allen  
Thomas R. Pierson  
Michigan State University

## Introduction

In September, 1976, a group of researchers at Michigan State University initiated a study sponsored by the National Science Foundation - Research Applied to National Needs (NSF-RANN). The purpose of this one and one-half year long project is to analyze the nature and amount of losses and waste in the U.S. food system. The analysis will encompass those activities which begin at the farm gate and proceed through processing to, and including, the ultimate sale of products in supermarkets. It is expected that subsequently an additional phase of this study will be conducted, to determine how losses and wastes may be reduced where economically feasible.

The study involves an interdisciplinary research team, composed of faculty and students from the following Michigan State University academic departments: Agricultural Engineering, Food Science and Human Nutrition, Agricultural Economics, and Marketing and Transportation Administration. Industry, government and association advisors are playing an important role in guiding research activities.

The research to date has dealt mainly with collecting and evaluating published information; although some information has been obtained directly from companies in food distribution. A research symposium conducted in May, 1977, brought together advisors from government, trade associations, and other academic institutions

who provided information and suggestions for additional research activities.

## Losses in Distribution: Scope and Issues

The emphasis of this study is on the general quantification of food losses, accompanied by suggestions for the kind of analyses that will be necessary as a basis for determining how losses can be reduced.

Of greatest relevance to this audience is that part of the study which deals with the distribution phases of the U.S. food system--that aspect of the study with which Allen and Pierson are engaged.

The distribution activities of concern include: (1) Transportation of food products from food manufacturers, processors and packers to retailers' warehouses and distribution centers; (2) Warehousing activities and transportation to supermarkets; and (3) Retailing activities in supermarkets.

The study evaluates losses in each of seven major food product categories--dry groceries, fresh beef, produce, dairy, bakery, frozen foods and deli.

The following issues relating to food losses are central to the study, and apply to each of the three phases of distribution, as well as to each of the seven food product categories.

\*How large are the physical losses?

- \*How large are the dollar volume losses?
- \*What are the quality losses?
- \*What are the nutrient losses?
- \*What are the causes of these losses; and how important is each of these causes?
- \*What methods or technologies are currently available for loss reduction; and what is the future potential for gaining application of existing technology and developing new technology for loss reduction?
- \*What barriers or difficulties exist with respect to the implementation of new loss prevention technologies and techniques?
- \*What are some of the broader economic implications of food losses?

#### Research Approach and Results to Date

The study is being conducted under the following guidelines. First, it is preliminary in nature; and the perspective is broad. A more focused research approach is almost certain to be necessary in subsequent studies in order to deal with specific food loss subproblems. Second, the major task of the project is to gather and integrate existing information and knowledge to form as complete as possible a picture of the losses situation in food distribution, and one which utilized compatible and comparable data and information. Third, major food loss problem areas are being identified; and where appropriate, recommendations for problem solutions are offered. Where existing knowledge makes recommendations for direct solutions impossible, suggestions are made for further, more detailed research.

Research efforts thus far have dealt with information from university, government, industry and trade publications.

These findings are presented in "summary papers" for each of the seven major food product categories: dry groceries, fresh beef, produce, dairy, bakery, frozen foods and deli. The summary papers are being used to further the research objectives. They are useful devices to explain to knowledgeable persons where the many research gaps and unanswered questions exist. Selected persons in food distribution firms, universities and government shortly will be provided one or more of these papers and asked to provide information and guidance. This method currently is being accomplished with two large supermarket firms with successful results.

To date, the compilation of information lacks completeness. More information is needed to develop a comprehensive analysis. A serious problem is the difficulty in many instances to integrate data and information into a useful composite.

#### Members of FDRS are Invited to Suggest Information and Ideas

The assistance on the part of knowledgeable persons from organizations related to food distribution is needed in order to close the information gaps that exist in the study. Suggestions by members of the FDRS for developing a more complete assessment of food losses in U.S. food distribution channels are welcomed.

A questionnaire is attached which FDRS members are invited to use as a means for conveying their ideas and knowledge of this subject. The questionnaire provides a means for FDRS members to request one or more of the summary reports which may be used as a basis for evaluating the current state of research findings.

FDRS MEMBER QUESTIONNAIRE

You are invited to provide information and suggestions relative to the Study of Losses in the Distribution Phases of the U.S. Food System. Please make your notations on this sheet, if you wish, and fold, staple and mail.

With respect to one or more of the following product categories, please express your observations; or suggest sources of data and references.

(Check one or more of the listed product categories to obtain summary papers of the research findings to date.)

Dry Groceries;  Fresh Beef;  Produce;

Dairy;  Bakery;  Frozen Foods;  Deli

\*How large are the physical losses?

\*How large are the dollar volume losses?

\*What are the quality losses?

\*What are the nutrient losses?

\*What are the causes of these losses; and how important is each of these causes?

\*What methods or technologies are currently available for loss reduction; and what is the future potential for gaining application of existing technology and developing new technology for loss reduction?

\*What barriers or difficulties exist with respect to the implementation of new loss prevention technologies and techniques?

\*What are some of the broader economic implications of food losses?

\*\*\*\*\*