

Benefits of Open Dating

As soon as harvested or slaughtered, most foods begin to deteriorate in quality. Some exceptions are fruits picked prior to ripening, such as bananas, and red meats and seasoned prepared foods, which first improve in sensory quality before they deteriorate. Subsequent processing is done to slow down the rate of deterioration and thus increase shelf life, thereby preventing waste.

The type of process used to preserve food largely determines the shelf life of a product (e.g., canning gives a longer shelf life than refrigeration). In addition, environmental conditions can also directly affect food quality and speed up deterioration. Conditions such as high temperature, high humidity, light, and contact with air (oxygen) all speed up this quality loss.

However, open dating in itself only sets the time of shelf life of foods—by necessity ignoring the changing environmental factors by assuming the food is held under certain average conditions. If the date is based on these average storage conditions, the closer to the date (except for a pack date), the lower is the quality.

Ideally, dating information should take into account the environmental factors as a function of time. Although current technology is unable to do this, technology is being developed that will measure the influence of both time/temperature fluctuations on quality deterioration. Currently, a device can be attached to a food package that can measure the reaction to a specified time/temperature relationship or exposure to some temperature above a set limit. The device must be designed to respond to temperature change in the same way as the food product.

Studies on the reliability of these devices indicate two major problems: 1) they become unreliable if exposed to high temperature prior to activation, and 2) in many cases, their responses do not match manufacturers' specifications. Although these devices have been modified since the aforementioned studies were published, the major problem is still to develop an indicator that exactly matches the sensitivity of a particular food to a change in temperature and/or other environmental factors. (For more information, see appendix C).

Therefore, with the gap in technology, the focus of this analysis is by necessity one-dimensional (open shelf-life dating) for a multidimensional problem of food-quality preservation.

Despite the limitations just outlined for open dating, many benefits are attributed to it. This chapter identifies and analyzes these potential areas, including food quality, nutrition, food safety, inventory control, and education.

FOOD QUALITY

Whether open dating benefits product quality is of primary importance, given the fact that most food deteriorates with age. There are no published studies that show that open dating leads to the availability of higher quality foods.

An open date may not provide an assurance of high quality, since storage conditions are critical to the quality of all foods and can be highly variable. For example, if semiperishable and long shelf-life foods are temperature-abused and are stored long enough, a decline in quality may be detected. A food with a more recent date that has been mishandled will be of substantially lower quality than an older dated food that has been stored under ideal conditions.

In order to achieve high quality at point of purchase, then, the food must be of high quality initially and must be handled under proper storage and distribution conditions. If both of these criteria are not met, the date on the package (unless it is a pack date) could be meaningless as well as misleading. Also, storage conditions after purchase could greatly affect the shelf life of the product.

Nevertheless, today's consumers believe an open date assures "acceptable" quality; such assurance is their primary reason for wanting an open date. However, in actual fact, a situation may evolve in which consumers believe that a date will be helpful to them in terms of "better" quality when the state of the technological capabilities may be such that the benefits will be considerably less than what is expected.

Even foods produced under the same conditions at a single location may undergo many different time/temperature/humidity changes when they are distributed around the country. Thus, an open date based on average climatic conditions may be an adequate quality measure for some northern parts of the country where temperatures are lower, but inadequate if the product were held under high temperature/humidity changes when distributed around the country. It is possible that requiring an open date could improve the control over foods during distribution to the point that the date would be an assurance of high quality.

In an in-store U.S. Department of Agriculture (USDA) experiment where open dating was introduced, the incidence of consumer complaints on food items most often cited previously as spoiled or stale was reduced by 50 percent. Store losses in dollar values and package rehandling also were reduced.

Attributing these results to open dating was questioned by those reporting the study findings. The reason was that the study showed a reduction in complaints about spoilage for both open-dated and non-open-dated food in the same store. Thus, some of the improvement may have been because of increased confidence in the freshness of all food sold in the store (to which open dating could have contributed), rather than changes in the food itself—i.e., less spoilage.¹

¹Food Dating: Shoppers Reactions and The Impact on Retail Foodstores, Market Research Report No. 984 (Washington, D, C.; U.S. Department of Agriculture, 1973).

NUTRITION

Open dating could be of some value if used with nutrition labeling. The nutrition label already has a time factor built into it because the values on the label are required to be within established statistical limits at the

time of the sale of the food. In order to set the nutritional levels, the manufacturer may have made a judgment about the length of time and environmental conditions involved in the distribution of the food and how these

conditions would affect nutrient loss of the most unstable nutrients, such as vitamin C. However, as with quality, improper storage conditions could result in greater nutritional losses than predicted under average conditions.

Thus, as previously discussed for quality, an open date could be used to ensure improved handling conditions that could result in less nutrient loss. But whether this would improve the nutritional status of Americans is questionable.

FOOD SAFETY

Open dating has little or no benefit in terms of improved microbiological safety of foods. For foods in general, microbiological safety hazards are a result of processing failures, contamination after processing, and abuse in storage and handling. These factors are all independent of the age of the product and have little relationship to an open date. In fact, an open sell-by or use-by date could have an adverse effect on food safety if con-

sumers took it to be an assurance of food safety. For example, "Well, it looks, smells, and feels bad, but the date says it's good for another month, so I'll use it." Poor manufacturing processes can still exist with an open-dating system, and consumers could be given a false sense of security. A date with specific storage information (e.g., "keep cool after opening") could, however, reduce hazards.

INVENTORY CONTROL

At the processor level, adequate inventory control is currently provided by the coded dates now being used on food packages. Distribution centers of manufacturers and central warehouses of supermarket chains can also use the code for proper stock rotation, although they do not always do so.

Consumers, however, feel that inventory control via coded dates really breaks down at the end of the distribution chain. The local store managers and supermarket stock clerks may or may not use the coded dates. Because they are in code, consumers cannot use them

to decode each product. Open dating could obviously tighten inventory control by both the retailer and the consumer.

USDA found that in their in-store experiment, open dates encouraged better food-handling practices by making store personnel aware of the need for rotation. Confusion among clerks about when to rotate or remove products was reduced, and closer attention was given to expediting sale of products near the end of their shelf life so they did not have to be discarded.²

²Ibid.

EDUCATION

An important benefit of open dating could be the education of the food manufacturer and the consumer. Much of the consumer's education about a particular product usually comes from the food industry in the form of advertising and package information. Thus, the research forced on the manufacturer in order to establish an open date is a form of self-education in terms of analyzing distribu-

tion conditions and studying how specific foods deteriorate. Open dating in the long run would increase the body of knowledge about the quality and chemistry of food products. The food industry as a whole should be certain that the information given in an open date is not misunderstood in terms of quality, safety, and nutritional assurance.