

Current Status and Future Outlook for Refrigerated Display Cases

Eiji Yamada

1. Introduction

Supermarkets (SMs), having been introduced into Japan in the latter half of the 1950's as an efficient type of European and American style sales format, have grown rapidly in terms of the number of stores and sales, carry an abundant variety of commodities, are enlarging the scale of their stores, and are favored with a wave of high economic growth. Currently, in Japan, there are approximately 23,000 SMs and their annual sales are about 25,000 billion yen (208 billion dollars). The SMs function as a central pillar of Japanese daily life.

On the other hand, convenience stores (CVSs) are essentially agile, small-scaled stores and have also increased their number of stores and sales, targeting the young generation by stocking hot selling (highly marketable) commodities and carrying as many as 3,000 articles. The number of CVSs in Japan is approximately 32,000 and their sales have reached about 5,000 billion yen (41.7 billion dollars).

2. Trends of SM and CVS Equipment

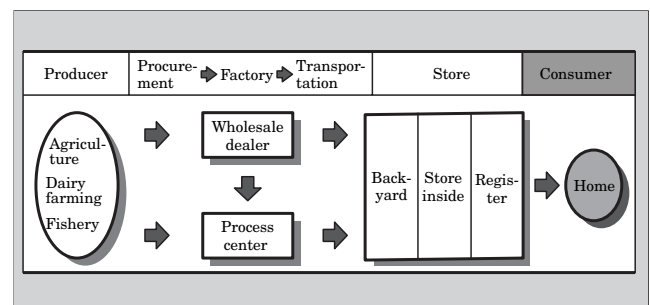
As for marketing in retail stores, merely exhibiting food in a freezer and refrigerated display case does not guarantee that it will sell. Customers demand that the food be of high quality, and in recent years, the retail stores have been offering food that also satisfies customer demand for safety and low price.

Along with changing consumer demands for food, store equipment has greatly advanced in such aspects as higher freshness, greater energy savings and reduced cost. However, over the past several years, the affect of economic stagnation has led to sluggish demand for store equipment.

Representative of SM store equipment, remote condensing type refrigerated display case had steadily increased in number of shipments until reaching a peak in about 1996. Since then, year-over-year shipments have tended to decrease. This severe market recession is expected to continue for the near future.

In such a severe slump, however, sales of refriger-

Fig.1 Mechanism of food distribution



ated single-shelf display case have tended to rise marginally. This fact suggests that people have begun to search for a new style and sales format for the stores. We expect demand for new store equipment to increase in accordance with this trend.

Moreover, it is assumed that the lifestyle changes will incite consumers to more strongly demand benefits and convenience from the retail store market. It is necessary to reexamine the overall mechanism for the distribution of food from producers to consumers. Figure 1 shows the mechanism of the distribution for food.

A review and restructuring of the food distribution mechanism will result in new proposals for foodstuffs, and new shop equipment will be required to support those foodstuffs.

3. Current Status of Fuji Electric Refrigerated Display Cases

3.1 Social needs

The market environment for refrigerated display cases changes at an extremely rapid pace. Particularly remarkable changes in regulations and social needs in recent years are described as follows:

- (1) "Large-scale retail stores location law" (Large stores location law)

This law prescribes the rules to observe when a large-scale retail store such as an SM or department

store is opened or branched out. This law was enacted on June 1, 2000. Before then, the "Large-scale retail stores law" (Large stores law) regulated the opening of a large-scale store or its branch store, and aimed to "securing business opportunities (commercial adjustment)" for local commercial entities. The large stores location law, however, focuses on "lifestyle preservation" around the stores in the local district. In principle, the size of the store's floor space and the setting of non-business days are deregulated. Instead, restrictively regulated are the number of parked cars, the removal of garbage put out by the store, and environmental measures such as those against traffic jams, noise, stink, etc, in the vicinity of the store.

(2) Compliance with HACCP

A recent problem concerning *Escherichia coli* O157 has demanded that the business such as SMs comply with HACCP (Hazard Analysis Critical Control Point) to secure safety in a wide range of processes from the raising or preparation of food to consumption thereof. The concept of HACCP was originally introduced by NASA (National Aeronautics and Space Administration) as part of the space exploration program. HACCP is a technique applied to the quality control of rocket parts in the space exploration program. This method is also applied to the management of "space food."

The HACCP is a hygienic management technique as described below. This technique analyzes hazards, decides the place (process) and the processing method to control the hazard, establishes the corresponding standards, and records documentary evidence concerning "Who did what work? When? Where? And according to which standard?" It is necessary to establish the HACCP technique as a system. Use of this technique for better freshness management has been demanded for the store equipment.

(3) The global environment

At the "Third conference of parties to the U.N. for climate change framework treaty" (Kyoto convention on climate change: COP3) in December 1997, it was resolved to aim to prevent global warming, and to promptly execute measures for that purpose. In Japan, "energy" is the source of about 90 percent of the carbon dioxide emissions that constitute the majority of greenhouse gases. Therefore, Japan has decided to drastically bolster comprehensive measures to control both energy demand and supply, and in addition, to strengthen the emissions control of greenhouse gases other than carbon dioxide. In addition, regulation of fluorocarbon emissions has also been demanded for ozonosphere protection. Thus, measures for environmental conservation such as energy saving, are urgent and unavoidable challenges.

(4) Revision of the "Pharmaceutical affairs law" (Drugs, cosmetics and medical instruments act)

The pharmaceutical affairs law enacted in 1960 prescribed the standards, certification, and handling,

etc., of prescription medicine, over-the-counter medicine (unregulated drugs), cosmetics and medical instruments. A revised version of this law was enacted on March 12, 1999 to reclassify medicine and over-the-counter medicine. This reclassification eased restrictions on the handling and sales of health drinks (ampuled liquid medicine) and similar soft drinks, and the SM and the CVS have been authorized to carry and sell them. As a result, store fixtures to sell the health drinks have been much in demand.

3.2 Current status for development of refrigerated display cases

To boost sales of open refrigerated display cases mainly destined for SMs and CVSs, we have promoted, on the one hand, development as a cooling facility system including the display case unit and the associated refrigerator, and on the other hand, improvement of display performance and handling efficiency, HACCP-based high freshness management, environmental measures to reduce fluorocarbon emissions, energy savings, etc.

As system products, we have developed "ECOMAX V", which provides total control of the operation of the display case and the refrigerator, and was awarded the "Grand Prize for Energy Savings", and an ice thermal-storage system for display cases intended for use in SMs in which cheaper nighttime electric power can be utilized for saving energy.

As store equipment intended for use in an SM, we have developed our top of the line "ECOMAX series" of open refrigerated display cases. The "ECOMAX series" achieves enhanced cooling performance through optimization of a cold air circulation system that uses an air curtain, and is the industry's first series to use microcomputer control.

In addition, we have developed a showcase suitable for HMR (Home meal replacement), which has been attracting attention recently. This showcase provides a system in which customers place orders over a counter for prepared foods exhibited in the display case, and then take those foods home.

As a manufacturer of store equipment for CVSs, we provide custom display cases for specific commodities such as ice cream and health drinks in accordance with the revised pharmaceutical affairs law. These display cases have been well received in the marketplace.

In response to environmental problems such as global warming, it is increasingly important to bolster measures for the conservation, recycling and renewal of resources as well as measures for reducing waste and saving energy. The discontinuance of fluorocarbon use is also strongly required.

Under such circumstances, we have begun to switch from regulated fluorocarbons to CFC substitutes as well to new fluorocarbons having an ozone-layer depletion coefficient 0.

4. Future Outlook for Refrigerated Display Cases

The present day society is pursuing the key elements of the environment, energy and the establishment of an information network. The standalone display case unit is no longer adequate. Society tends to demand a systematized product that considers both the environment and information. At SMs and CVSs, customers will not be satisfied if the focus is only on the display case unit. It is becoming necessary to also consider trend management and loss management of the commodities, as well as methods to secure a steady clientele base.

Equipment such as systemized products that integrate environment-friendly refrigerated equipment with HACCP must be proposed for SMs.

A proposal is needed for a total system to cover the entire store. Such “store solutions” are expected to become a new business field in the future.

On the other hand, IT (information technology) solutions are advancing at an ever increasing pace, and non-contact type IC cards are expected to be in widespread use.

From now on, all payment at railways, SMs, CVSs, vending machines, amusement facilities, etc. will be card-based transactions, and IT application to financial settlement is continuing to advance.

In the future, the development of proposals that respond flexibly to the changing social environment will be demanded more and more.

5. Conclusion

People depend upon various commodities for food, clothing and housing. These commodities are provided to consumers through the distributive trade industry. In particular, food deeply affects our lifestyle, and is indispensable for our daily life. Fuji Electric has been involved in the distributive trade industry through the refrigerated display cases used at SMs and CVSs. To support our modern lifestyle, the advancement of cold chain stores is especially vital. By developing and supplying showcases for the cold chain stores, Fuji Electric will also play a guiding role in the distributive trade equipment market in the future.

Continued guidance and support from readers and all related people will be highly appreciated.





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