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Packaging as a Tool for Product Development: Communicating Value to Consumers

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Rapid changes in the food-distribution system have increased pressure on production sectors to push forward in development of new and innovative products. One strategy being pursued by many industries is to develop value-added products that will fill sales gaps created by declining commodity sales. Between 1994 and 2000, almost 12,500 new food products were introduced each year, on average (Harris et al. 2002). Not all of these products are new items in terms of distinctly different core product. Many are resized, remixed, or repositioned versions of existing items. For example, PepsiCo purchased Sobe and Life Water and they signed a joint venture with Starbuck's for developing of shelf-stable coffee drinks like Ice Coffee that has been on the market since early 2006. Coca Cola has developed new versions of Coke such as Coke Zero or Coke Fusion (Coke with coffee). Both companies have been experimenting in the market with a range of different sizes to accommodate research about consumer preferences. Lipton Ice Tea-Nutra-ceuticals and Revolution Teas are examples of new products, new flavors, and new labeling or image to support sales. Nourriche by DANONE is a practical version of a fruit smoothie for the on-the-go customers. Other companies have been introducing beverages from exotic fruits in exotic containers like Zico (coconut water), Xango (mangosteen juice) and Nuni (nuni fruit juice). One category that has seen an expanding number of products on retail shelves is fruit juices and fruit drinks. New juice products continue to be introduced, although at a slower rate after the relative explosion during the 1990s when high-end products such as smoothies became popular.

Simply developing a new product is no guarantee of success, and the rate of new product failure is often high. At times, "value-added" is used as a general term to substitute for any additional process-

ing that occurs at a given stage of the supply chain. The risk of product failure increases dramatically in cases where a firm forgets that it is value to the consumer that must be added. A simple equation depicts this fundamental principle:

$$(1) \text{ value added} = \text{perceived benefit/price.}$$

Consumers are concerned with the trade-offs between the benefits they receive from a product, according to their own perceptions, and the price they must pay to obtain the product (Getachew and Peterson 2005).

To highlight the critical role of packaging and its interaction of product development this paper presents two different cases of new product development in the beverage category: POM Wonderful and tart cherry juice.

Fruit Juice and Functional Beverages

Even with an increased number of products available at retail, juice as a category retains a noticeable amount of shelf space throughout the store. In 2000, sales of fruit juice accounted for three percent of store sales among supermarkets and super centers with annual sales greater than \$2 million (Table 1). Over 90 percent of sales value in this category comes from either shelf-stable (approximately 51 percent) or refrigerated single-strength (approximately 38 percent) juice products. Consumers usually report perceiving beverages requiring refrigeration as more natural or fresh.

Current products tend to focus on health trends, new fruit and/or vegetable drink combinations, organic, natural, or functional foods. The 2002 World Juice innovation award went to a company introducing new combinations such as a blueberry and maple yogurt smoothie. Drinks fortified with vitamins and minerals are increasingly popular among consumers looking to boost their nutrient intake. Some new products are also fortified with herbal ingredients. These fortified products were initially offered in

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Table 1. Share of Supermarket Sales*, 2000.

Category	Volume Million dollars	Share of store sales Percent
Shelf stable juice	6,124	1.6
Refrigerated, single strength juice	4,099	1.1
Frozen juice	982	0.3
Fruit, canned	1,611	0.4
Fruit, dried and snacks	934	0.2
Fresh produce	37,325	9.7

Source: Harris et al. (2002).

* Supermarkets and super centers with annual sales of \$2 million or more.

European markets, but can increasingly be found on U.S. shelves. Still other new products are marketed to consumers looking for a particular functionality, like increased stamina, immune system function, or other health benefits. Many single-serve beverage products are used by consumers as daily "doses" of a particular vitamin, mineral, antioxidant, or all three. From 2003 to 2004, functional drinks category in the US grew 15.1 percent in units sold, compared to the fruit juice category, which saw a 2.8-percent decrease in the same period of time (Euromonitor 2006)

Still, the demand-side outlook for fruit juice and juice drink products remains positive, although total volume of sales has grown slowly. U.S. per-capita consumption of fruit juice averaged 7.55 gallons (single-strength equivalent) between 1980 and 1985, 7.85 gallons between 1986 and 1991, 8.73 gallons between 1992 and 1997, and 8.89 gallons between 1998 and 2001 (Table 2). While orange juice remains the leading juice flavor bought by domestic consumers, other juices show similar trends. Both apple and cranberry juice have seen slow growth since 1998. Grape juice indicates a slight downward trend in per-capita consumption, although it is too soon to say if this will continue or reverse itself. Similar data is not available in other sectors but a comparison of fruit beverage sales revenue between 1998 and 1999 by international consulting group Mintel (www.mintel.com) shows a 21.4-percent increase for apricot, an 8.1-percent increase for cider, and a 6.2-percent increase for cherry juice.

Like other beverages, fruit juice and fruit drinks continue to capitalize on the increased health-consciousness of U.S. consumers. They are normally viewed as a fresh and more natural alternative to colas (thus enjoying increased purchases among households with children). The 2000 Mintel survey of U.S. households found that almost 25 percent of households with children consumed apple juice, compared with only 12 percent of households without children. More juice drink products on the store shelves have captured some market share from 100-percent-juice products among children.

The trend among U.S. consumers to seek out more convenience in their food purchasing and dining habits is well served by the fruit juice market. In addition to the health benefits already noted, more juice products are being packaged in single-serving containers and made available through convenience outlets and/or vending machines. Juice consumption at the point of sale is increasing. Although total consumption of fruit juice has grown slowly, consumers have tended to shift their purchases toward higher-priced products: premium or enriched flavors, alternative health prevention/cure, new products, and alternative packaging.

The Role of Packaging

Although packaging is most commonly regarded as a way to protect the product, an often overlooked component of increasing perceived benefits to consumers—thus increasing value added—is to develop new and innovative packages to better

Table 2. Average U.S. Per-Capita Consumption of Selected Fruit Juices.

	Gallons (single strength equivalent)			
	Apple	Grape	Cranberry	Total fruit juice
1980–1985	1.27	0.26	n/a	7.55
1986–1991	1.57	0.29	n/a	7.85
1992–1997	1.65	0.38	0.17	8.73
1998–2001	1.79	0.35	0.21	8.89

Source: Pollack and Perez (2002).

convey a sense of product attributes that consumers find valuable. Value is added when packages are designed for aesthetics and ability to convey positive information to consumers and at the same time preserve the product qualities through time and from the environment. This goes beyond the issue of labeling, which has been well studied, and includes different interactions between package materials and the product, product and consumer reactions to shape and design, and packaging logistics.

We identified five vital linkages that the package must fulfill to be successful. First, the package must be compatible with the physical facilities and equipment of the processing plant (e.g., matching different technologies like aseptic packaging, UHT, Tetrapack®, hot fill, retort, and materials like bottles, stand up packages, cappers). Second, the package must be compatible with the physical properties of the product itself (e.g., choosing the correct materials for each different application including gas and moisture barriers, integrity and stability, and recyclable capacity). A primary role is to contain and protect the product from the external and internal environment, maintaining physical product quality and attributes (Lockamy 1995). Third, the package must be compatible with consumer preferences for physical properties (e.g., weight, materials, size or portion control, recyclability, reclosability, convenience, and transportability). Fourth, the package must be compatible with consumer preferences for cognitive properties (e.g., perceptions of quality like the value for the price, identification of alternative sources of preventive health, general well-being, environmental conscience, status). The primary package is considered part of the product and brand for marketing purposes. It becomes a product

property or characteristic and thus must be correlated to the expectations the consumer has for that brand and product (Nacarrow, Wright, and Brace 1998; Silayoi and Speece 2004; Ampuero and Vila 2005). Packaging materials can influence quality perception (HDPE jug = milk = commodity; Glass bottle = quality = alcohol, spirits, wine) (Ampuero and Vila 2006). Consumers generally associate big packages and concentrate with bulk foods, good deals, and no price premium (Silayoi and Speece 2004). Finally, the package must be compatible with the educational preferences of the firm and the buyer (i.e., the methods to convey the general and specific information about the product through labeling and brochures that support the sales and to comply with legal requirements). This is critical, as 73 percent of purchasing decisions are made at the point of sale (Nacarrow, Wright, and Brace 1998).

Packaging creates an association of ideas that will remain with consumers regarding quality and value (Nacarrow, Wright, and Brace 1998; Silayoi and Speece 2004). Therefore, packaging flaws will adversely impact supply-chain efficiency, logistics, and product marketing. The package may be the only communication between a product and the final consumer in the store. It must be attractive enough to generate consumer attention, communicate product identity clearly, highlight positive attributes, and demonstrate that the value is worth the price. At the same time, the package needs to be efficient in the supply chain, energy consumption, and disposal. Managing the firm-product-package-consumer interactions becomes even more critical in development of a new product, as both the independent components and the linkage between components must be considered (Figure 1).

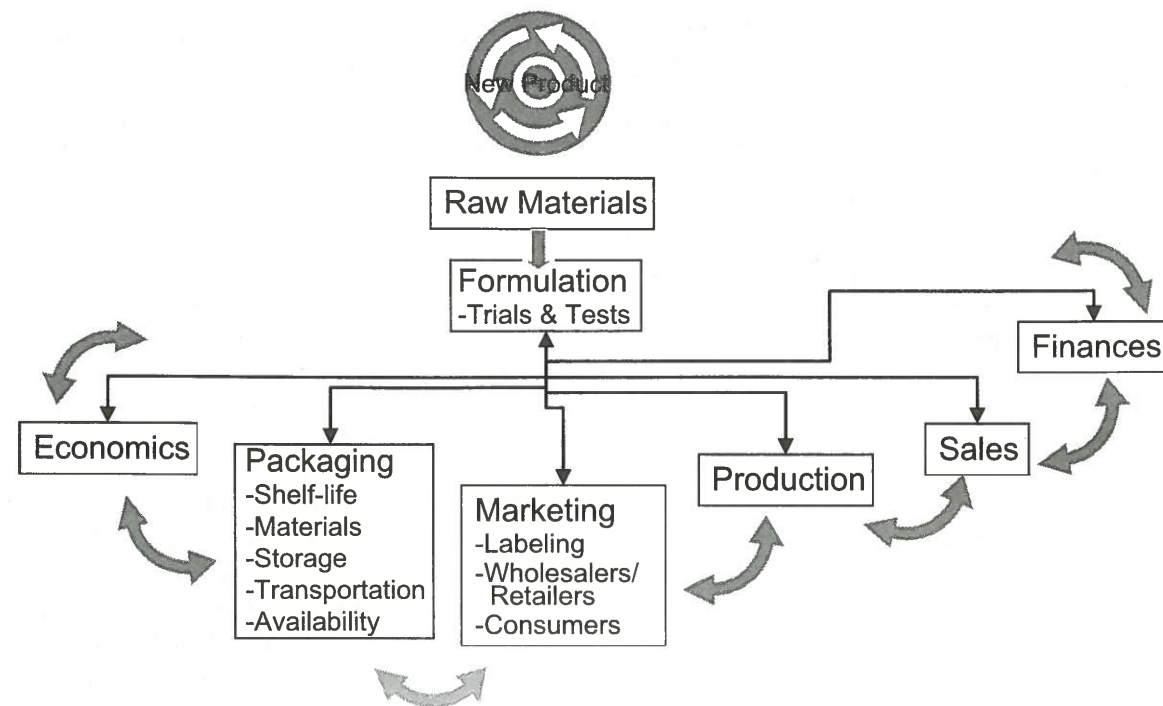


Figure 1. Packaging Synergy When Developing a New Product.

Source: Adapted from Adelaja 2004.

Communicating Value: Two Examples

We use two specific examples to illustrate how a firm or an industry can use packaging as a “value-added” tool in the juice category to better communicate product attributes to consumers and to minimize risks of product failure. In addition to identifying firm-level strategies, results highlight important trade-offs that must occur between functionality, ease-of-use, aesthetics, and supply-chain efficiency.

POM Wonderful

POM Wonderful is a California company owned by Stewart and Lynda Resnick. They began pomegranate production in 1987 when they purchased additional land to expand their existing business. The purchased land included 100 acres of the Wonderful pomegranate variety, which originally sold as a fresh product. In November 2003, the Resnick’s launched POM Wonderful, a 100 percent pomegranate juice in a curvy and trendy

glass bottle. The single-serve bottle looks like two pomegranates stacked together. They started the line with three flavors (100 percent pomegranate juice and 2 pomegranate blends: cherry and blueberry) and have grown into five flavors in 2005 (two new blends: mango and tangerine). The newest addition to the line is iced teas with fruit juices, which also come in a recloseable glass tumbler. The small business grew from US\$12 million in 2003 to US\$91 million in 2006 (Murr 2006). POM Wonderful is backed up with history and research on the health properties of the product. In 2003 only 12 percent of the public knew what a pomegranate was; by 2006, Tropicana was developing a pomegranate-blueberry blend and other companies were trying to capture a share in the pomegranate market.

Tart Cherry Juice

Tart cherry juice is not a new product—it has traditionally been marketed as a commodity (concentrate in large-volume drums) to industrial users. Lack of consumer focus in the existing mix of tart cherry

products (including juice concentrate) has hindered industry growth and could possibly limit long-run sustainability if adjustments are not made. In an industry that has been primarily oriented toward bulk-commodity sales, the packaging, supply-chain, and logistical requirements will likely change substantially with a focus on end-use purchasers (Hobbs 2001). In an industry composed of many small firms (in contrast to the one large firm controlling PomWonderful) the challenge to tie the general message to a specific consumer-ready product has been undertaken by a few individual firms with very limited results to-date.

There have been several attempts to provide new single-strength products. Currently, tart cherry juice can be found on the retail shelf in packages as diverse as the HDPE jug to the recently launched aluminum bottles. Thus there is a discrepancy in the positioning of the product, often creating confusion among consumers. Positioning of the product refers to shape, size, and price compared to the direct and indirect competition. It focuses on “product decision,” converting the package into the “silent-salesman,” which can lead to a reduction in advertisement budgets and branding expenses, and the creation of differentiation and identification.

Recent research into the nutraceutical value of fruits, including tart cherries, has identified a number of health-promoting properties. Industry-wide grower organizations put much of their resources into accumulating evidence of and promoting a general health-benefits message tied to all tart cherry products, including juice concentrate. Without a consumer-focused product, including the necessary packaging and marketing mix, the nutraceutical value that has been identified will not be transformed into sales and value-added for the industry. The industry is in the process of repositioning cherry concentrate from the beverage commodity market to the consumer market for nutraceuticals. This is a strategy that the tart cherry industry has begun to explore based on findings that cherries can provide health benefits (Wang et al. 1999). Several studies at Michigan State University and other institutes have found that tart cherries have a high concentration of antioxidants and other components that can benefit those suffering from arthritis, chronic pain and cancer (Chaovanalikit and Wrolstad 2004).

There is a need to develop a consistently packaged tart cherry juice product that is shelf-stable.

To preserve the health benefits, the juice needs to be protected from oxidation, which is exacerbated by UV light and from sorption of the pigments and anthocyanins by the packaging material. The packaging material should not interact with the juice, and should preserve its health benefits, flavor, and perceived quality.

Conclusions

It is imperative to conduct many different kinds of research while developing a new product, not only regarding the stability and flavor of the product per-se, but in the product environment too—more specifically into packaging and the five main linkages. In this way the product will reach the final consumers with less risk of failure

The beverage industry has been changing as consumer lifestyles have changed in a more healthy direction. Education levels of consumers are higher and they are more involved in food purchases, putting more importance on health value (and how it is communicated), the environmental consequences of the product, and style or status. Firm and industry survival and success will depend on correct product positioning correlated with image for the consumers.

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