Potential for Seafood Product Development:

An Overview

by

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Since the early 1980s, government, academic and industry trade organizations have generally de-emphasized their involvement in classical product development. Previous studies traditionally produced items from a new or underutilized raw material, sensory attributes were then refined, and acceptability assessed through market trials. Too often these efforts proved unsuccessful due to failure to accurately identify the customer or to fully coordinate the projects with industry partners directly involved in all the production, distribution and marketing channels. As the marketplace and processing technologies become more complex, however, seafood companies are again requesting assistance with the product development process. A comprehensive approach is warranted since most seafood processing firms are small, currently produce unprocessed products or products receiving only primary processing (e.g. shucked oysters, dressed fish), and have no formal product development program.

During April 15-17, 1989 a New Product Development Conference was held in Newport News, Virginia for seafood processors and food industry suppliers. Thirty participants discussed the many issues related to developing and successfully marketing a new product. Food industry leaders shared their experiences with seafood processors, often with graphic accounts of product successes and failures. Major topics included trends and market evaluation, cost analysis, concepts of product formulation, regulatory considerations, and public and private support services. Significant conclusions from this meeting and more recent market and regulatory developments are discussed in this article.

Trends

The fish business has undergone many changes during the past decade. Buyer specifications, consumer preferences, raw product availability, international market competition and regulatory intervention (food safety and waste management) are issues placing a unique set of pressures on seafood processors. Companies are becoming fewer, larger and more sophisticated. To succeed in the 1990s, these firms will increasingly need to recognize opportunities and adjust their operations accordingly.

Table 1

Sample Selection of Product Attributes for New Product

species	primary form	second. form	prep. mthd.	pkg/purpose	market
cod	whole	plain/raw	std. oven	tray-pack	gen. retail
pollock	pan-dressed	breaded	microwave	IQF bulk	govt. feeding
salmon	skin'd filet	baked snack	dual oven	canned	health retail
mahi	boned loin	soup	stir fry	shatr-pk.	fast food
flounder	mince	portion	deep-fry	peal. tub	mail order
shrimp	flakes/pcs.	extruded	r.t.e.	block	wht. table
scallops	peeled	refrig. meal	range top	pasteur.	specity. ret.
oysters	steaked	smoked	convection	pouch	further proc.

Commercial buyers have traditionally purchased seafood from the supplier quoting the lowest price. More experienced buyers usually develop a preferred list of suppliers. In the future the current trend toward pre-approval of suppliers based on a set of minimum product or processing standards is likely to become a widespread industry practice.

Product attributes

Major accounts are now often available only to processors who are U.S. Department of Commerce inspected, consistently meet microbiological targets or use certain processing or packaging systems. Examples include, crabmeat specifically processed to eliminate Listeria monocytogenes, fresh fish fillets possessing a guaranteed minimum shelf life, and scallops frozen IQF rather than in blocks. Any new product introductions will be far better positioned if they possess the necessary attributes.

Similarly, food service institutions are likely to only consider products that fit their existing facilities, serving schedules and store concept. Fast food items must prepare quickly with currently installed equipment, retain desirable eating qualities under heat lamps and fit trays and drive-up windows.

Conference participants gained an appreciation for product development as more than combining food ingredients. It encompasses market research and the many possible factors that add value; including package type, size or convenience feature, consistency of grading, minimum defects (e.g. bone or parasite specifications), portion control, a variety of edibility characteristics, and marketing efforts highlighting quality and value.

The list of product possibilities is usually limited by operating constraints. Product options may be dictated by equipment limitations, labor availability or skill requirements, a buyer's volume needs, waste discharge constraints, and raw product or ingredient availability. Other considerations include, whether margins at targeted markets will support the costs of production and distribution, whether the product is adaptable to markets and distribution systems currently used or will require an innovative marketing effort, and whether the product possesses adequate storage stability.

Product brainstorming:

At the conference, Jim Daniels, Senior Director of Purchasing for Mrs. Paul's Kitchens, described a technique sometimes used to identify potential products worthy of development. Characteristics are categorized and tabulated by team members to permit assemblage of various attribute combinations. A simple example is shown in Table 1.

The tabulated product characteristics are not prioritized. Features can be combined by select-

ing any feasible descriptor from each appropriate column. For example, an item may be a cod sandwich portion that is breaded for reheating in a convection oven and individually quick frozen for bulk sale to government feeding programs. A less conventional consideration could be a baked snack made from extruded pollock mince for sale in foil pouches to health food stores and specialty departments.

Finding a niche

Jim and other industry leaders emphasized the opportunities that exist for small to medium-sized companies. Frequently they are faster than large firms to introduce new product concepts and may be better suited to serving certain markets such as small chains, specialty stores, mail order and some export markets. Hot marketing concepts will continue to be ethnic and gourmet, convenience and flavor, microwave and prepared foods, health and food safety. Often new products are merely extensions or new versions of existing products, such as finger food forms of dinner entrees. A product can be "re-invented" about every five years.

Jim pointed out that a large sales growth potential is represented by the many Americans who are currently eating little or no seafood. As the population ages and eating habits increasingly become associated with health issues, a significant proportion of these consumers are likely to purchase seafood on the advice of health care professionals. Sales improve when labels contain health and food exchange information.

Raw product availability has become a determining factor for many product development efforts, especially for national companies. Most of the increased production capacity is now coming from aquaculture. The explosion in cultured shrimp and salmon supplies during the 1980s has generated optimism that a wide variety of competitively priced products will be formulated from these sources through the '90s. Items composed of high profile, widely accepted species should require less promotional effort than those made from underutilized stocks; and product performance is generally more predictable.

Pitfalls

Along with opportunities, many snares are set, even for seasoned entrepreneurs. Perhaps 80 percent of new products fail and usually within a year of introduction. Success brings risks also since product life spans are typically short (2-4 years), requiring rapid scale-up of processing and distribution capacity. Firms may become heavily capitalized only to see demand for their products decline as competition or market requirements change.

Jim Daniels, Gil Wheeler (Golden West Foods) and Ron Grulich (East Coast Fish and Scallop Company) described in detail some of the difficulties. Retail markets are very crowded and present significant challenges. Slotting allowances and subsequent reslotting fees for new or modified products contribute significantly to the costs of placing a product on grocery shelves: perhaps $70 million for a national roll-out.

Careful market research is the hinge pin for any product development effort and, in large firms, properly precedes product conception. Smaller seafood companies seldom have separate marketing and product development departments and are more likely to neglect the critical market assessment steps. Other risks include, 1) failure to fully meet product specifications, 2) failure to innovate, 3) risk of moving too fast, 4) risk of moving too slow, 5) unforeseen technical difficulties, 6) missing best time windows to introduce a product (often autumn leading to Lent), and 7) failure to thoroughly research brand name and labelling issues.

Regulatory Considerations

The regulatory climate for seafood processors has become complex and has contributed to the closing of many plants. The Environmental Protection Agency in cooperation with state enforcement programs has issued strict waste discharge guidelines for coastal companies that formerly had little difficulty in attaining the necessary permits. In some cases, construction of treatment facilities required for compliance may conflict with wetland management legislation. Processing wastes may exceed 90 percent of live

animal weight in some seafood operations. Landfills and other traditional means of solid waste disposal are becoming more expensive and less available. And companies connected to municipal waste treatment facilities frequently pay hefty surcharges for high organics loading of those systems. These issues are major concerns of managers responsible for new product development since most food processing procedures alter waste discharge quality or volume and increase associated costs.

Conference participants heard industry accounts of how corporate policy is often shaped by environmental concerns. To minimize waste problems, some companies that formerly performed all processing steps now purchase pre-cut raw materials or otherwise limit the scope of their operations. Even normal cooking odors were shown to influence plant site selection for a further processing operation. As the coastal U.S. population expands, conflicts with traditional seafood processing centers will heighten.

Similarly, food safety and quality issues frequently determine the feasibility of producing a new product. U.S. FDA and National Marine Fisheries Service (NMFS) programs have recently expanded to address an increased interest in seafood safety assurance. The seafood industry through its trade organization, the National Fisheries Institute, has requested legislation mandating a national seafood inspection plan, and passage of a bill is expected this year. They endorse the recommendations of several academic and government studies calling for a program based on the principles of HACCP (Hazard Analysis Critical Control Point). Among other features, such a program requires identification of critical operations and appropriate monitoring to mitigate risks.

The number and types of critical control points and the complexity of related monitoring schemes should now be integrated into all product development planning. Producing a relatively hazardous product, such as a minimally processed, vacuum packaged, refrigerated entree is likely to require more strict controls and more detailed reporting than will a conventional fish block operation. Attempts to innovate may, at times, be frustrated by a new regulatory approval process for HACCP plans. Time and cost constraints may be especially discouraging to small firms.

On a positive note, HACCP will create a significant opportunity for companies that can supply new, safety assured products. Convenience-minded institutional buyers will select from a limited number of competitors for their ready-to-eat processed seafoods. Another niche will open for companies that can supply further processors with HACCP produced intermediate products that, in turn, comply with standards written into their HACCP plans.

Also at the conference, regulatory and industry representatives discussed product labelling considerations. Mary Snyder, FDA, described her agency's requirements for ingredient and nutrition labelling, species identification and print formats. She illustrated examples of proper and improper labels and offered assistance to managers wishing to have their packaging reviewed before products are introduced.

Several participants requested more flexibility in the species name requirement to permit use of approved generic terms. They felt that certain value-added products could best utilize a variety of species blends and substitutions that are currently unfamiliar to most consumers, and therefore of limited marketability. Another industry participant cautioned the group to thoroughly research brand names since even remote similarities to major brands may be challenged.

As pending legislative issues are addressed by national and state governments, product labelling, safety, economic fraud and environmental issues will become more regulated. Those firms who get a head start and successfully meet these challenges as they arise will be presented with many marketing advantages through the 1990s.