The choice for packaged product over bulk fruits and vegetables continues in produce departments nationwide. This is due to packaging’s key benefits across the supply chain such as ease of shipping, reduced shrink, improved food safety, less labor at retail, cleaner displays and customer convenience.

“We have a ton of items packaged in one way or another,” says Marc Goldman, produce director at Morton Williams Supermarkets, a 15-store chain based in Bronx, NY.

Demand for produce packaging is forecast to increase 2.4 percent annually to $5.7 billion in 2019, according to U.S. Produce Packaging Market, an August 2015-released report from the Freedonia Group, an international market research firm headquartered in Cleveland.

Of the plastic container segment, which includes clamshells, cups and other rigid packages, clamshells represent 65 percent of this and are forecast to grow in demand by 21.7 percent between 2014 and 2019. In 2019, nearly three-fourths of clamshells (71.2 percent) will be packed with fruit, one-quarter vegetables (25.4 percent) and a small fragment (3.4 percent) with salads. The Top 5 fruit forecast to be packed in clamshells by 2019 are berries, apples, citrus, grapes and melons, with 87 percent of these fruits in bulk form and 13 percent ready-to-eat.

“My clamshell use has doubled, mainly to the growth and expansion of the berry category. All of our berries are now sold in clamshells,” says Jeff Fairchild, produce director at New Seasons Market, a 17-store chain based in Portland, OR.

CLAMSHELL PACKS DEFINED
Clamshell packaging is traditionally a hinged thermoformed container.

“The produce industry tends to broaden the definition by including 2-piece thermoformed containers (e.g. a base with lid like a lettuce tray) in the mix,” explains Roman Forowycz, group president and chief marketing officer for Clear Lam Packaging, Inc., in Elk Grove Village, IL.

Standardization in clamshells is being pushed by commoditization. “This standardization of SKUs is being driven by the retailers who dictate demand. Manufacturers might put their own twist on...
a design to create a unique look; however, clamshells usually fit into a list of standardized SKU volumes,” says Tom Byrne, vice president and general manager for Sambrailo Packaging, in Watsonville, CA.

As for sizes and shapes, Byrne continues, the most common clamshell volumes in traditional grocery outlets for berries, for example, are 1-pound for strawberries, 6-ounce for raspberries and blackberries, and pints for blueberries. Club stores are leading a movement toward larger clamshell sizes. However, pack sizes do go up and down seasonally to handle supply variances, to move volume and to maximize return. In shape, the standard 40 by 48 North American or GMA pallet footprint is the major constraint on the design of clamshells. Clamshells have historically been more rectangular in shape. Changes in shape are coming about due to cube optimization efforts. This is leading to clamshells that are more cubic rather than low profile.

“Some differentiating elements in clamshells are superior cooling efficiency, improved cube optimization and design features that don’t compromise produce quality through handling and transit,” says Sambrailo’s Byrne.

“The rigid plastic design of a clamshell is perfect to pack delicate, highly perishable items such as berries to assure they reach the market at highest quality.

“In addition to berries, we buy spring mix, grape tomatoes and kiwifruit in clamshells, because they’re well protected in this type of packaging. They also showcase the produce nicely,” says New Seasons Market’s Fairchild.

There are several other attributes that make clamshells preferable to other types of packaging for fresh produce and that make a good clamshell design great.

“Key features of top-performing clamshells include crystal-clear visibility of the contents; anti-fogging treatment; a durable and dependable lidding system that is easy for consumers to open and reclose; tamper evident devices (e.g. labels or pull tabs) that help consumers easily see if a package’s seal has been broken; and, respiration functionality for the contents to ensure they breathe properly,” says Clear Lam’s Forowycz.

Another plus is that clamshells are becoming cost competitive with other forms of packaging. The reasons are three-fold.

First, “clamshells are coming down in price due to recycling efforts. Recycled PET helps to bring the cost down,” says Kurt Zuhlke, Jr, owner and president of Kurt Zuhlke & Associates, Inc., in Bangor, PA.

Second, “the cost of different types of films and graphics printed on those films may, over time, even out the price between clamshells and bags, of which clamshells have historically been more expensive,” says Jazmin Lotfi, marketing and sales executive for the Lacerta Group, Inc., in Mansfield, MA, which produces thermoforming packaging solutions.

Third, “advancements in tool manufacturing technologies for rigid packaging significantly reduced the product development timeline for new packaging concepts,” explains Sambrailo’s Byrne.

**PREVIEW OF WHAT’S NEW**

The main reasons for the recent wave of clamshell design changes are sustainability efforts, food safety, marketing/messaging, packaging waste and ease of use by the consumer.

“Every person a package touches is affected, and it is imperative that the experience is positive,” says Janis McIntosh, marketing manager for Naturipe Farms, headquartered in Salinas, CA. “Therefore, there are several steps and departments to take into account when we begin to introduce a new package. Purchasing wants a good price. Product development wants packaging that protects and preserves. Production wants a trouble-free operation. Warehouse staff wants a strong stacking strength. Shipping wants a package that will withstand every shipping hazard. Marketing wants a unique packaging. Sales wants packaging retailers will embrace. Naturipe wants the pack sustainable. The retailer wants great sell through. Consumers want a great experience.”

**Sustainability**. “The future of traditional clamshells in the produce department is moving toward the use of 100 percent post-consumer recycled (PCR) materials. This is becoming a standard in sustainable packaging,” says Sambrailo’s Byrne.

Byrne recommends produce buyers specify PCR plastic materials that meet federally regulated food-contact standards. These include the following entities: U.S. Food and Drug Regulations 21 CFR 170.1630; European Food Safety Authority Commission Regulation (EC) No 282/2008; Organic Production

**THE FUTURE OF TRADITIONAL CLAMSHELLS IN THE PRODUCE DEPARTMENT IS MOVING TOWARD THE USE OF 100 PERCENT POST-CONSUMER RECYCLED (PCR) MATERIALS. THIS IS BECOMING A STANDARD IN SUSTAINABLE PACKAGING.”**

— Tom Byrne, Sambrailo Packaging
and Handling Requirements (Subpart C) of the National Organic Program, Part 205 of Title 7 CFR 205.272(b); Association of Post-consumer Plastic Recyclers; and Environment and Plastics Industry Council (EPIC) of the Canadian Plastics Industry Association.

Food Safety. “Tamper-evident containers have been, and will continue to be, a valued feature in light of the continuing stories consumers are hearing in regard to food safety,” says Jack Tilley, market research analyst for the Inline Plastics Corp., in Shelton, CT. “In addition to clamshells, containers in non-traditional shapes and sizes for the growing grab-and-go market are trending. We responded to both of these trends by developing our new Safe-T-Fresh Grab & Go collection, which is a line of tamper-evident Snack Cup, Sandwich Wedge, and Hangable containers for on-the-go eating and snacking options.”

Marketing/Messaging: “Multi-compartment clamshells are something we’re seeing more of,” says Larry Walton, vice president of sales, marketing and technical service for American Packaging Corporation (APC), headquartered in Rochester, NY. “This gives the consumer value by being able to purchase multiple items at once.”

Manufacturers are taking this compartment concept to a new level with “bubble” or “blister” packs.

“We borrowed the concept of a plastic clamshell pack that conforms to the shape of a food from the bakery industry and its barrel-pack for cookies. As a result, we are working on a clamshell that will offer indents or bubbles that can hold nine fresh figs. It’s a nice pack to show off the product — since you can see each individual fig top and bottom,” says Lacerta’s Lotfi.

Similarly, Zuhlke & Associates introduced a two-pack clamshell with a dual-bubble bottom and flat top for easy stackability. This pack can hold two 20-count hot house or 5/5-size field-grown tomatoes or two Asian pears. The size is a nod to smaller U.S. family sizes and more single- and two-person homes.

The top of a plastic clamshell is an ideal spot for an eye-catching label that sells the product inside. “It’s important to tell consumers the product’s story,” says New Seasons Markets’ Fairchild.

Additionally, the rigidity of the plastic enables grower/shippers to affix tear-off IRC coupons. “You can’t do this with a breathable film lid, or you’ll cover the ventilation perforations,” says Zuhlke of Kurt Zuhlke & Associates.

Packaging Waste. Future clamshells will be designed to use less plastic by swapping a
heat-sealed film for a rigid snap lock lid on a traditional clamshell tray bottom.

“The North American market is trending toward rigid trays with lidding films. You are seeing it today with tomatoes, blueberries, cut fruits and other produce. These packs will be lighter but still strong enough to protect the product inside,” says Clear Lam’s Forowycz.

This type of hybrid clamshell offers other benefits too.

“The new clamshells provide a unique way to implement new marketing tools onto the consumer package,” says Sam Monte, director of operations for Monte Package Company, in Riverside, MI.

Heat-seal-film-lid clamshells are a more sustainable package in several ways. “It reduces the amount of plastic per unit overall. It’s more recyclable due to the absence of a paper label. It has much more of a secure top, which results in less spills and tampering. It is a much nicer presentation with more principal display area for messaging. It is more versatile for inline printing,” explains Naturipe’s McIntosh.

The main advantage of using a film-seal lid is a reduction of material and potential shelf-life extension through the use of breathable films and MAP (modified-atmosphere packaging) technologies, according to Sambrailo’s Byrne. “The main disadvantage is related to the unique dynamics of field-packed produce: wind, weather, dirt, distribution of packaging materials, logistics, and harvesting practices.”

“Peel and reseal is an interesting pack. But on our end, you can’t rework or recondition the product once you tear off the film like you can do with a regular clamshell,” says New Seasons Market’s Fairchild.

In the future, “I expect to see more peel and reseal lidding in use,” says Brian Zomorodi, vice president of food safety and quality at Apio, Inc., in Guadalupe, CA.

**THE FUTURE**

Demographic factors, such as the aging Baby Boomer population and growth in Hispanic and Asian-American nationalities, will boost demand for fresh produce overall while the large Millennial population will drive demand for packaged produce, according to the 2015 findings from Cleveland-based international industrial research company, Freedonia Group.

“It will be interesting to see where packaging is headed. Produce sales in the next five years will be all about convenience and presentation. In other words, all about packaging,” says New Seasons Market’s Fairchild.

“Convenience. The next wave in lidding development is peel and reseal films over a rigid clamshell tray — especially for fruits and vegetables sold in quantities that won’t be consumed at one time.

“The peel and reseal lidding option offers more benefits than a traditional rigid lid with a band or even a true clamshell. The peel and reseal lidding comes in rolls (versus bulky pallets) and takes fewer trucks to deliver the raw materials. The peel and reseal lid enables the package to be easily merchandised horizontally or vertically. Plus, the lidding system is intuitive, providing consumers with an easy to open/close multi-serve convenience,” says Clear Lam’s Forowycz.

That said, interest in pouch bags is drawing some sales away from rigid packaging applications. “Pouch bags won’t replace the need for clamshell packaging in the foreseeable future. That’s because they are limited in how much they can protect products, and they don’t merchandise very well. They just aren’t stackable,” says Sambrailo’s Byrne.

Clear Lam’s Forowycz has his finger on the crystal ball. “Over the next five to seven years, the market will move toward hybrid packaging that incorporates some of the benefits of traditional clamshell packaging with the manufacturing efficiencies of bags. PrimaPak is one such hybrid product. PrimaPak is a semi-rigid package made from a roll of film on a custom vertical form fill seal machine. PrimaPak packages can be stackable and resealable. It’s really a technology well suited for certain fruits and vegetables.”