



In the Sweet Spot

Flowers Snack Group employs dedicated lines, advanced technology, collaborative product development and central distribution to earn its success ... as the company's Crossville, Tenn., plant proves well.

BY LAURIE GORTON

Flowers Foods knows what it takes to be successful with snack cakes. "New product opportunities are only limited by your imagination and available resources!" said Allen Shiver, president and c.o.o., Flowers Foods Snack Group, Thomasville, Ga. That the company's new Snack Group knows how to apply both is well evidenced at the Crossville, Tenn., plant, the largest of the division's four bakeries.

In 1999, the already-large facility added another 103,000 sq ft, nearly doubling its size, to accommodate cupcake and finger snack cake production with state-of-the-art processing technology. Crossville quickly filled up all three shifts on its new line.

"It seems like we just put in the new line," remarked Larry Ebert, plant president, Flowers Snack of Crossville LLC, "and yet we're just about maxed out! We designed the building so it could house another line in the future. We knew right away that additional capacity would be matter of 'when,' not 'if.'"

Total output volume for the 4-line Crossville plant exceeds 80 million lb annually. "One of the most exciting aspects about this bakery is its ability to produce large volumes of various products at high speeds," said Mr. Shiver. "The plant produces exceptional quality given the production efficiencies it has achieved. We have nearly

maxed out capacity here and are looking at options to correct this situation. This is a nice problem to have."

"And because of their quality, these snack cakes are fun to sell because they put smiles on our customers' faces," added Mark Courtney, vice-president, Flowers Foods Snack Group, Tucker, Ga.

SNACK ENGINE. "We are very excited about our growth opportunities in the snack and pastry category," Mr. Shiver told *Baking & Snack*.

Snack cakes spell growth for Flowers Foods. Last year, Flowers removed snack cakes from under the Mrs. Smith's Bakeries umbrella, forming Flowers Snack Group. Mr. Shiver said that another transformation will soon take place. When Flowers Foods completes its sale of Mrs. Smith's frozen dessert business, the frozen bread and roll business will be added to Flowers Snack, transforming it into Flowers Foods Specialty Group. Under Specialty,

▲ The new inline serpentine oven takes up only one-third the floor space of a conventional tunnel oven.

► Growth in snack cake volume fills all three shifts on the newest line at Flowers Snack of Crossville, managed by Larry Ebert [right], plant president. The bakery is a frequent stop for Flowers Snack Group executives Mark Courtney [left], vice-president, and Allen Shiver [center], president and c.o.o.

ROBERT KOLLAR

Flowers will continue to operate a distinct snack division to maintain its focus and momentum.

“Under the former structure, Mrs. Smith’s frozen desserts business dominated management’s time and attention,” Mr. Shiver noted. “There were so many opportunities in frozen desserts that snacks were overlooked. But bakery snacks are a \$4.5 billion market. The new structure allows our team to spend time growing our share of the snack market. After all, we’ve been making some form of snack cakes ever since the first Flowers bakery opened in Thomasville in 1919.

“Bakery snacks are in the sweet spot,” he continued. “By forming the Snack Group, we can emphasize the development of new products that generate excitement in this product category.”

Another difference is that bakery snacks travel through multiple channels. Mr. Courtney elaborated, “Our mission is to serve the bakery snack consumer wherever they are, and today these consumers are in a lot more places, and more venues, than ever before.”

With nationwide distribution, Flowers Snack covers a larger territory than Flowers Bakeries DSD system, according to Mr. Courtney. “We serve every major market in the U.S. twice a week,” Mr. Courtney said. “Geographically, our distribution is divided roughly 55% Southeast, 20% Northeast and 20% Central, plus 5% west of Texas.

Bakery foods made in the division’s four plants — Atlanta; London, Ky.; Crossville and Cleveland, Tenn. — move through the distribution center at Andersonville, Tenn. Shifting distribution operations away from the bakeries to a central location enabled improvement in customer service. “We bought the plants that make up Flowers Snack one at a time,” Mr. Courtney said. “About 12 or 15 years ago, we sought a better way to make and distribute our products. That’s when we implemented our hub-and-spoke concept.

“Each plant operates dedicated lines making prod-

ucts unique to that bakery,” he continued. “By centralizing distribution, we offer our customers ‘one-stop shopping’ and better service. They submit one order and receive one invoice.”

“We also maximize our trailer use, which helps lower our cost,” Mr. Shiver noted.

Mr. Ebert added, “And the plants are allowed to focus on what we do best. We can achieve long efficient production runs and give close attention to quality and conformity.”

THE 64-PRODUCT BAKERY. Crossville lives that focus every day. Its four processing lines make 64 distinct variations of the following products: Banana Flips, Bar Cakes, Brownies, Creme Fingers, Cupcakes, Danish, Dessert Cups, Flip-It-Cakes, Pecan Spins, Snowballs and Sweet Rolls. “And there are some days when we feel like we’re making all 64,” said Manufacturing Manager Terry Bartlett.

Today the Crossville plant covers 268,000 sq ft on a 14-acre site. Processing activities take up more than half of the facility, 140,000 sq ft, with another 48,000 sq ft given to packaging, 20,000 sq ft to ingredient storage and 25,000 sq ft to shipping.

Since 1984, Flowers has spent more than \$42 million to improve the facility. “At one time, this plant produced only Pecan Spins and sweet rolls,” Mr. Ebert said. “The first cake line went in during 1984, and cake has really taken over





▲ Line operators perform most quality assurance tasks, including regularly taking weights at the depositor.

this business. It's our primary growth area, and we are always adding more varieties and more items."

The five aerial photos along one wall of the bakery's conference room tell a story of continual expansion. There isn't a picture, yet, of the most recent change — the big addition to house a state-of-the-art snack cake line and its packaging equipment, along with an 18,000-sq-ft freezer. But Mr. Ebert's staff agrees the photo better be taken soon ... before the plant's dimensions change again!

"We could expand easily to the south, where we have additional property," Mr. Ebert said. That's where the bakery put its new freezer, and the builder erected its exterior panels to be readily moved out to allow the next addition.

Just looking at the photos, it is hard to identify the original 60,000-sq-ft bakery built by Howard Mercer in 1963 to house production of Pecan Spins made by his family-owned business.

"Flowers bought the company in 1980," said Mr. Ebert, "and we've had six expansions since the purchase. There's been constant growth, thanks to the quality of the products made here and the quality of the people who make them."

Executives at Crossville and Flowers Snack take pride in the long-tenured staff that runs the bakery. "Nearly all of our key managers have 30-plus years of experience," Mr. Ebert said. In fact, he just celebrated his 30th year with Flowers, the past 18 at Crossville.

The non-union bakery employs 550 people, including 400 permanent Flowers employees and 150 out-sourced workers. In 1980, the head count numbered 160. Mr. Ebert explained that the bakery benefits tremendously from this pool of experience. He added that the gains made by the plant came about not only through automation but also because of employee efforts.

"Every piece of equipment here was installed with the participation of the engineering staff and overseen by our chief engineer, Merrell Carnes," Mr. Ebert said. "Our success growing new products can be attributed directly to the manufacturing staff headed by Terry Bartlett. We

have a good team, and the individuals working here have a pride of ownership in the product and plant."

One measure of this pride is the extreme cleanliness of the Crossville plant. Cake bakeries can be difficult to keep tidy and sanitary, yet Crossville succeeds. When Sanitarian Charlie Bowling received the results of a Quality Bakers of America sanitation audit done in early March, he posted the figures for all to read. "We scored 870 points," Mr. Ebert reported. "That puts us in the Top 4 plants within Flowers Foods. The only plants with better scores are all far newer facilities than ours."

"Crossville has a 'get-it-done' attitude," Mr. Shiver said. "They are a talented team, always pursuing new product ideas and process improvements."

NEWTECH. Getting it done also requires good tools. Flowers Foods manages its capital expenditures by assigning a separate capital budget to each plant. These budgets are adjusted as plant and marketplace requirements change. However, Flowers' philosophy of being the 'low-cost producer' for all major product lines remains constant.

When the company decided to transfer cupcake and finger production to Crossville, it also opted for a technology new to U.S. bakeries: the Auto-Bake inline system. Flowers has a long-standing interest in new technology. The company became America's first major wholesaler to choose this equipment and production method. At the time, the new line was also the largest "level-tray" system built by the equipment manufacturer. Dunbar Systems, Lemont, Ill., coordinated the oven and depositor line.

Things happened fast. Flowers Crossville broke ground on the building extension in April 1999. "We were up and running by October," said Mr. Carnes.

"As is typical in the baking industry, many times when products are added or moved to a plant, the baker inherits the equipment or makes do with what he has," Mr. Ebert noted. "In this situation, however, we started up on a completely new line. The new technology allowed us to get better throughput immediately. Quality is better, so pricing can be better, thus sales are increased."

"Going to the new technology made a big difference in line efficiency and quality, as seen by the improved moisture content and consistency of our cupcakes," Mr. Shiver said.

CAKE LINE. Walking through the Crossville bakery takes visitors from the oldest section of the building right into the newest part. At one end, the bakery established a bulk ingredient tank farm, part of the plant's Pfening ingredient storage and handling system. Here, two cream yeast tanks manage leavening supplies for the plants Danish pastry and cinnamon roll operations. Other bulk systems manage flour, shortening and sugar. Pallets of bagged and boxed ingredients are stored along the long wall inside the addition. (These will be moved to another location when it comes time to put in the second line.)

Speed to Market

Taking advantage of opportunities requires nimble, quick turn-around on new ideas. Flowers Snack is constantly infusing new products into its market basket, developing new products to fit emerging opportunities. Achieving speed to market, however, is no easy task.

The company's new product development process has been significantly improved, emphasized Allen Shiver, president and c.o.o. of Flowers Snack. Its approach to product development steps on the new product accelerator through marketing workshops with its key people. At least once a month, it holds new product sessions, putting ideas and staff together in the same room for an all-day exchange of ideas.

"We include sales, plant operations, marketing, manufacturing, engineering, research and development, and purchasing — all the key people in the same room, all on

the same task," Mr. Shiver said.

"This certainly provides a sense of ownership in the new product," said Mr. Ebert, whose plant hosted the March meeting.

"One of our objectives is to eliminate unnecessary bureaucracy in the new product process. Our marketing workshops, combined with weekly status reports really streamlines the process and improves our results," Mr. Shiver observed. There's no downtime for e-mails, forms or call-backs.

New products are the result of constant examination of dozens of consumer and customer ideas. Not every one is market-ready, but the results of the collaboration are worth the effort.

"In the past six months, four of the new snack ideas that made it through this process are the recently introduced Red Velvet Fingers cakes; a white cupcake with white icing and red and blue sprinkles; snack

pound cake; and a Swiss roll. Earlier this year, we used the same process to develop a premium sweet roll with string icing, something more upscale than the usual product from a commercial baker," said Mark Courtney, vice-president, Flowers Foods Snack Group.

While consumer insight is the most common source of inspiration, the company focuses new product development on customer needs, too.

"During a conversation with one of our club store accounts, we learned that it sells to many vending operators," Mr. Courtney recalled. "The buyer suggested we consider a larger package for Pecan Spins, with three pieces instead of the usual two. In vend, surface area is important. The 3-pack spin is a simple idea, but it communicates the value positioning we want to achieve. It will be introduced in the very near future."

Production of cupcakes and creme fingers starts at the Oakes mixing system. Ingredients fed into the mixing tanks are slurred and sent to a holding tank. The Oakes continuous mixer takes advantage of a state-of-the-art, automatic specific-gravity control system.

"Having automatic specific-gravity control really helps us on consistency," Mr. Bartlett said. "We don't have to rely on constant adjustments as earlier systems did."

The oven's PLC synchronizes the action of the de-

positor with the flow of pans. It maintains a constant fill level for the multi-port batter hopper. Crossville uses two Apple depositing systems, one set for 16-across, 3-deep finger pans and the other for 10-across, 5-deep cupcake pans. Operators switch between product styles by wheeling the appropriate depositor into place and connecting it to the control system.

Once the 1-m-wide pans are seated into the carrying lugs, they become part of the inline system, moving sequentially through filling, baking, in-pan cooling, injection, depanning, washing, drying and refilling. No separate pan return conveyors are needed — a big labor savings.

Pans receive a light coat of release oil from a Mallet pan greaser before being filled with batter. Because pans are washed on each cycle, the bakery tracks their run time. Crossville sends its pans out for reglazing every 500 cycles, alternating cupcake and finger pan sets, and it gets 48-hour turnaround.

Pans travel a serpentine, back-and-forth path as they move through the multi-stage oven. In just 40 ft of floor space, this oven outputs the equivalent of a 120-ft-long, 12-ft-wide tunnel oven. Thermal oil, circulating through a closed system, provides the oven chamber with radiant and conducted heat. This indirect method not only eliminates flames and combustion products in the oven chamber but also keeps the working area around the oven comfortable because it is fully insulated to conserve energy.

▼ Careful staging of products ensures even coverage of coatings and toppings, as well as proper air movement during tempering.





Because snack cakes require time to set up after baking, they stay in their pans through a carefully timed cooling cycle. The cooler section of the line is enclosed and its environment maintained at a pre-set temperature and relative humidity. “We need to bring the product’s internal temperature to between 98°F and 104°F for proper filling injection,” Mr. Bartlett said.

A puff of compressed air loosens the filled cakes from their pans, and an inverter releases the cakes upside down in soldier-like, precisely spaced rows onto a separate conveyor. The empty pans drop down, reversing their direction to pass below the injector and into the automatic pan washer. Clean pans travel under the cooler and oven

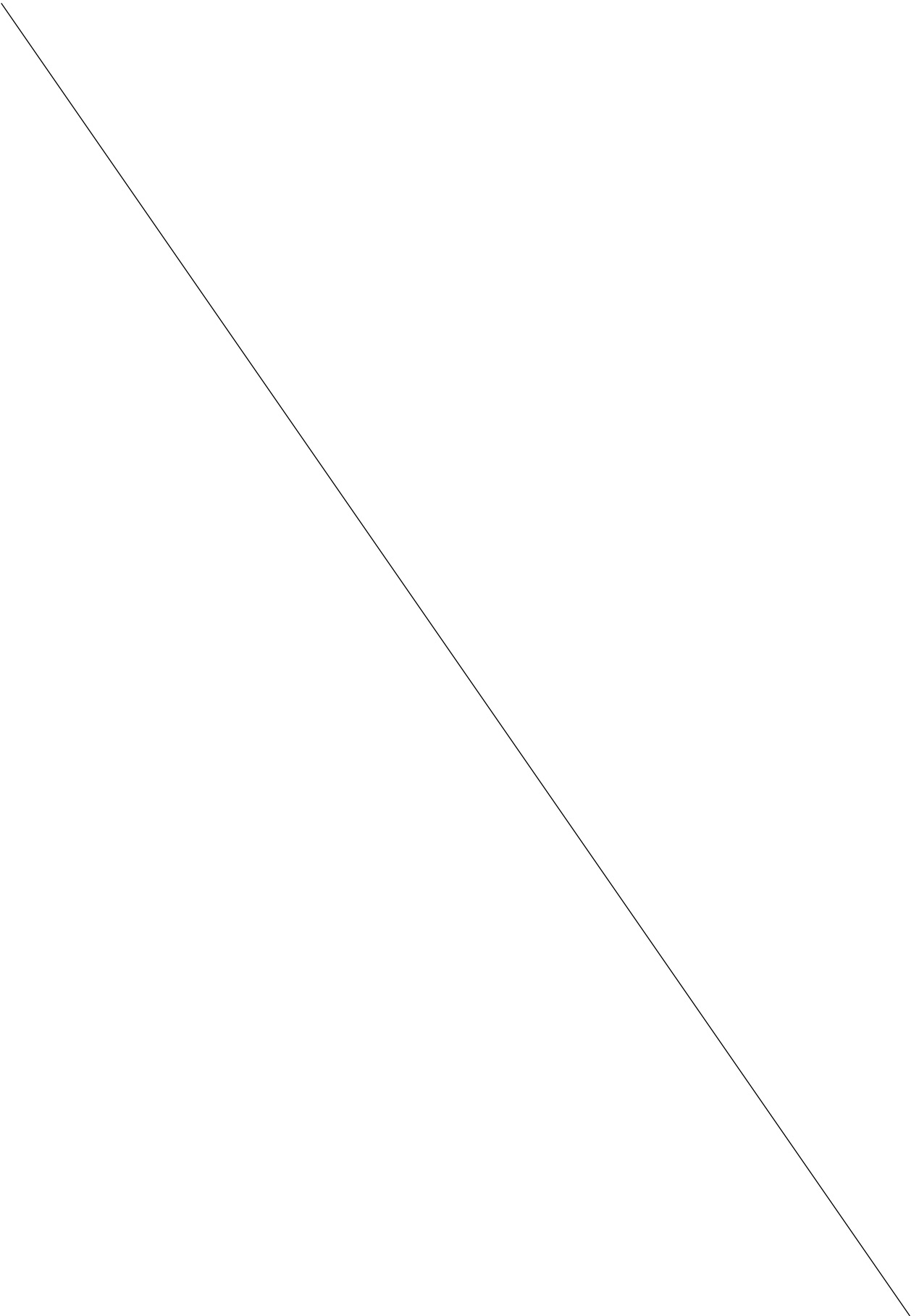
◀ Packaging operations, as pointed out by Merrell Carnes [left], chief engineer, and Terry Bartlett [right], manufacturing manager, uses successively narrower conveyors to limit the distance wrapper operators must reach.

to return to the depositing station.

A bank of mixers, plus Chester Jensen cooking kettles and American Ingredients Breddo Likwifier icing systems, are installed adjacent to the injection station. These make the creme fillings, marshmallow toppings, chocolate and white icings, and jam glazes that finish the cakes. Various Fedco machines supply the aerated fillings and deposit the liquid coatings over the cakes. One rains flaked coconut over the cakes.

The process’ final step takes the filled and topped snack cakes, still maintaining their perfect ranks, through two Fedco tempering tunnels, approximately 200 ft in total length. Now cool and properly set, the cakes are ready for packaging.

STEPPED IN. Engineers laid out the snack cake packaging line, which uses eight Dobby horizontal *f/t/s* wrappers, setting four on one side of the conveyor carrying the snack cakes and four on the other side. Operators pull products off the conveyor to load the wrappers. The supply conveyor is actually a series of successively narrower con-



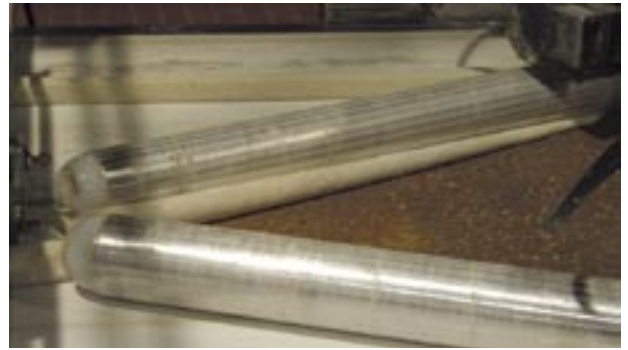
veyors, reducing the distance that operators must reach. Each wrapper is equipped with a sheet inserter.

Wrapped snack cakes travel down supply conveyors to the cartoning table. Operators count and load the cakes into cartons prepared by two Kliklok Genesis carton forming and sealing systems. According to product type, the filled cartons may also pass through one of two Shanklin heat-sealing systems. The bakery uses numerous Safeline metal detectors, located in process and packaging areas, to safeguard quality.

Also part of the expansion is a freezer. Fully racked, it holds products that must be shipped frozen for optimum quality. These include several Mrs. Smith frozen dessert items currently produced here. The racking is sloped for first-in, first-out staging.

All products baked at Crossville move through the staging area, where they are loaded into bakery delivery trays or corrugated cartons, according to variety. Packaging supplies are kept here for convenient access.

While the new Auto-Bake line is the plant's "star" operation, its other three lines are busy, too. While line No. 1 is currently being redone, line No. 2 produces Pecan Spins, the bakery's original product, on a high-volume Moline makeup line. Line No. 3 is configured to handle cakes and Danish. A Rheon makeup line prepares the Danish items.



▲ Pecan Spins, the Crossville bakery's original product, get a tight twist from converging roll bars.

Three Baker Perkins (APV Baker) tunnel ovens provide baking capacity.

AROUND THE CLOCK. Just as the bakery runs 24/7, so too does its quality assurance activities. Tests of finished products run the gamut from hourly weight, package integrity, code accuracy and clarity to moisture, ERH and pH. Product samples are pulled every hour for ongoing shelf life and taste tests. Every metal detector is also monitored regularly to assure proper functioning.

The bakery keeps records on in-process aspects of its products, too. These include quantity by lot number, scaling weights and ingredient lot numbers, temperature and specific gravity. Also documented are bake time, oven

temperature, internal baked temperature and cooling time. Icing temperatures and deposit weights are noted, and all package codes are captured by time and lot.

Quality and food safety are the responsibility of every employee at the bakery, according to Flowers managers. Both the line operators and the quality assurance staff perform critical tests. The quality assurance staff verifies the results.

“Quality is a regular duty of our production staff. It is a team effort between production and quality assurance employees,” Mr. Bartlett said.

“It’s our mission to produce the best quality day in and day out,” Mr. Ebert confirmed.

Managing change is something this bakery also does on a 24/7 basis. “We haven’t seen anything but change here since day No. 1!” Mr. Ebert said. “In fact, our people are not only used to change, but they expect it.”

“What the plant is now today is not what it will be tomorrow,” said Mr. Bartlett, “just like the weather in Crossville!”

A RISING ROAD. The Crossville plant runs a 3-shift schedule because demand for Flowers Snack’s products continues to grow. There’s no doom and gloom in the outlook of its managers.

Queried about market expansion, Mr. Shiver replied

with an enthusiastic “Absolutely yes! We have the most extensive product line in the industry,” he continued. “We are positioned to take advantage of the consumer and customer changes taking place within the market. Our recent acquisition of Bishop Baking, for example, makes us a bigger player in the value market. Those items were new to our lines. We pursue a balanced attack through all channels, and we are seeing growth in each of them.”

“Flowers’ approach is to be the low-cost producer yet maintain the highest quality,” Mr. Courtney said. “Our quality and value perception is very good among consumers. When you can deliver a high-quality product at a good price, consumers will buy. With the investment made here at Crossville over the years, you can see how that combination of quality and value is possible.”

Looking ahead, these managers see retail consolidation and shifting American demographics as potential issues as well as opportunities.

“The opportunities are clearly in front of us,” Mr. Courtney said. Mr. Shiver added, “The companies that will be successful in the future are those that streamline their organizations so they can quickly take advantage of opportunities as they arise. At Flowers Snack, I believe we have this structure in place today.” ■
