

May 12, 1998

## Apples by the Slice

by Linda McCandless

**Wolcott, NY** - The apple trees on the hillsides of the 1500-acre Cahoon Farms in Wolcott, NY, are in full bloom. Hundreds of 17-bushel crates lie empty in the long warehouses, waiting for fall harvest. But, thousands of slices of fresh apples are moving along conveyor belts in Natures Pleasures, Cahoon's new 7,000 sq. ft. processing plant. There, fresh apples are cut into wedges, dipped in a solution of ascorbic acid to prevent contamination and browning, blow dried, and packed in modified atmosphere packaging for consumer use using minimal process technology developed at the New York State Agricultural Experiment Station in Geneva, NY, in the laboratory of Cornell University food scientist C.Y. Lee. From dump room to packout takes 15 minutes. In today's run, fresh Granny Smith, Empire and Gala apples are being cut into wedges with the skins on, dipped, dried, and packaged with either caramel or peanut butter dip under colorful labels that feature Bugs Bunny and his Looney Tune friends. The 2.4 oz. fresh-fruit packs are bound for school lunchrooms in Dayton, Philadelphia, Grand Rapids, Chicago, Long Island and New York City.

"We co-pack these apple packs for Tanimura & Antle, Inc.," said third-generation owner Jeff Cahoon. "The food service company introduced them last fall to satisfy the federal minimum daily requirement of one-half cup serving of fresh fruit or vegetables in school lunch programs." Perhaps more importantly, kids really eat them. "The reorder rate from school districts is 100 percent," said Cahoon. "They are one of the most popular items on the school menu."

When he isn't co-packing for other companies, Cahoon packages his own Natures Pleasure product of fresh-cut apples in 2 oz, 8 oz, and 32 oz packages. Consumers and food service companies use the larger sizes to make apple pies. He recently negotiated a contract with U.S. Airway to offer the 2 oz. snack-pak-with or without cinnamon-on flights from New York to Boston and Washington, and expects to negotiate a contract with U.S. Air Express out of Dulles in the next



month.

Cahoon believes the time is ripe for marketing apples by the slice. "People have been educated about the health benefits of consuming five portions of fruits or vegetables a day. With the fast-paced lifestyle, this is an even easier, more convenient way to eat apples," he said.

"We developed the technology for minimal processing using ascorbic acid dip and modified atmosphere packaging in the early '90s," said C. Y. Lee, "but it took several years for commercial adoption by the food industry."

"Cahoon Farms uses a dip of 80,000 ppm of Vitamin C to prevent browning and contamination by microorganisms, followed by a unique method of blow drying and quick cooling that increases the efficacy of Vitamin C on the surface of the apple slices," said Lee. The process improves the appearance, maintains apple texture, extends shelf life to about three weeks, and maintains the nutritional benefits. Because ascorbic acid is so expensive, food scientists also had to develop a way to pasteurize the Vitamin C dip solution so it could be re-used in processing.

Lee and his group are now conducting research on the antioxidant activity of fresh apples. Lee is a strong believer in the health benefits of fresh fruit consumption-particularly apples-and says there is even stronger evidence that consumers should follow the old adage "an apple a day keeps the doctor away." Americans consume about 20 pounds of fresh apples and 28 pounds of processed apples per person per year.



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1-3) C.Y. Lee evaluates the new production line for minimal processing of apple slices at Cahoon Farms in Wolcott, NY.

4) C.Y. Lee confers with owner Jeff Cahoon (left) and production manager Kent Sparnon (center) on the packaging of Natures Pleasure Apple Slices.  
CREDIT: R. Way/NY SAES/Cornell

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