Amy Chase started feeding Similac Organic infant formula to her second son, Amos, as soon as he was born in November 2006.

“When I saw the organic at Publix, I bought it, no questions asked,” said Ms. Chase, a self-described “yoga mom” in Atlanta.

Like Ms. Chase, many American parents have rushed to embrace Similac Organic formula, even though it sells for as much as 30 percent more than regular Similac. In 2007, its first full year on sale, it captured 36 percent of the organic formula market, with sales of more than $10 million, according to Kalorama Information, a pharmaceutical-industry research firm. (Similac’s parent company, Abbott Laboratories, does not release sales figures for individual products.)

Parents may be buying it because they believe that organic is healthier, but babies may have a reason of their own for preferring Similac Organic: it is significantly sweeter than other formulas. It is the only major brand of organic formula that is sweetened with cane sugar, or sucrose, which is much sweeter than sugars used in other formulas.

No health problems in babies have been associated with Similac Organic. But to pediatricians, there are risks in giving babies cane sugar: Sucrose can harm tooth enamel faster than other sugars; once babies get used to its sweeter taste, they might resist less sweet formulas or solid foods; and some studies suggest that they might overeat, leading to rapid weight gain in the first year, which is often a statistical predictor of childhood obesity.

Asked about these concerns, Carolyn Valek, a spokeswoman for Abbott Nutrition, the division of Abbott Laboratories that makes Similac Organic, said that sucrose had been approved by the Food and Drug Administration and was considered “safe and well established.” Ms. Valek said that Similac Organic had no more sweetener than other formulas and that prolonged contact with any kind of sugar could cause tooth decay.

In Europe, where sudden increases in childhood obesity are a pressing public health issue, sucrose-sweetened formulas will be banned by the end of 2009, except when ordered by a doctor for babies with severe allergies. The 27 countries of the European Union adopted the new rules according to the recommendations of the group’s Scientific Committee on Food, which found that sucrose provided no particular nutritional advantages, could, in rare cases, bring about a fatal metabolic disorder, and might lead to overfeeding.

The F.D.A., however, which regulates infant formula, does not specify which sugars can be used, as long as
they are already classified as safe. Nor does it set the amount of sugar per serving, as it does for fats and proteins.

Still, a number of pediatricians said they were surprised by the choice of sucrose.

“I would be very concerned about this as a pediatrician,” said Dr. Benjamin Caballero, director of the Center for Human Nutrition at the Johns Hopkins Bloomberg School of Public Health and an expert in risk factors for childhood obesity. “The issue is that sweet tastes tend to encourage consumption of excessive amounts,” Dr. Caballero said. Evidence shows that babies and children will always show a preference for the sweetest food available, he said, and they will eat more of it than they would of less-sweet food.

“This is how breakfast cereal manufacturers compete,” he said.

Ms. Valek of Abbot Nutrition said the company did not “optimize for taste” when developing infant formula. “Our primary focus is to support normal growth through optimal nutrition and quality ingredients,” she said.

Organic formula, with sales of about $20 million annually, makes up only a sliver of the $2.5 billion formula market, according to A.C. Nielsen, the market research company. Similac Organic, analysts say, is largely responsible for the nearly tenfold growth in sales of organic formula from 2005 to 2007. According to the federal Department of Agriculture, which regulates organic labeling, a product can be labeled organic when 95 percent of its ingredients are grown without the use of certain pesticides and herbicides.

All infant formulas contain added sugars, which babies need to digest the proteins in cow’s milk or soy. Other organic formulas, like Earth’s Best and Parent’s Choice, use organic lactose as the added sugar. Organic lactose must be extracted from organic milk, the global supplies of which have been severely stretched in the last three years, driving up the price of the lactose.

“The parents in my practice who would use organic formula are the same parents who would be worried about giving sweets to their babies,” said Dr. Jatinder Bhatia, a member of the nutrition committee of the American Academy of Pediatrics. “That organic formula would be sweeter might not be a health risk, but it certainly isn’t what the parents have in mind.”

Kim Kupferman, a technology consultant in San Leandro, Calif., said she tended to trust the organic label. Her 7-month-old daughter, Saige, eats Similac Organic and a few organic solid foods. “But sugar is a concern for us — that’s why we started her on vegetables rather than fruits, so she wouldn’t get used to the sweet taste first.” Ms. Kupferman said, adding that she might re-evaluate her choice of formula.

Many doctors have long believed that all sugars, from raw cane to highly processed high-fructose corn syrup, are nutritionally identical. But others disagree. Ivan de Araujo, a fellow at the John B. Pierce Laboratory at Yale University School of Medicine, a center for sensory research, said scientists were beginning to tease out the differences.

“Recent studies show that animals have a clear preference for sucrose over other sugars,” Dr. Araujo said. And eating sucrose, he said, generates future cravings for sucrose; other sugars tested, like fructose and glucose, do not have the same long-term effect.
However, Gary K. Beauchamp, director of the Monell Chemical Senses Center in Philadelphia, a nonprofit research institute, said there was no solid proof that early exposure to sweetness gave babies a greater taste for sugar later in life. “The taste for sweet may be pegged so high that it can’t go any higher,” Dr. Beauchamp said.

The overall question of whether sweeter foods are more appealing to babies has long since been resolved. “Babies love sweetness, and anyone selling a sweeter formula is going to have an advantage, because it would be harder to switch a baby to another formula once they get used to the taste,” said Dr. William J. Klish, director of the pediatric gastroenterology department at Baylor College of Medicine and a former chairman of the American Academy of Pediatrics’ nutrition committee.

The sweeter taste of Similac Organic was observed by a professional sensory-tasting panel, commissioned by The New York Times to do a blind tasting of eight nationally available formulas, soy and dairy, organic and not. Seven of the formulas were as sweet as unsweetened apple juice, said Gail Civille, the director of Sensory Spectrum, which performed the tests. Ms. Civille said Similac Organic was the sweetest, with “the sweetness of grape juice or Country Time lemonade.”

Doctors say that parents need not worry about the precise composition of formula, because the product overall has been proved safe and effective. But many questioned Similac’s choice of cane sugar, which has been gradually disappearing from infant formula since the 1950s.

“The entire enterprise of formula is the attempt is to make it as close as possible to human milk,” Dr. Beauchamp said. “Making sweeter formula so that babies like it more seems to me contrary to the ethos of organic food, as a doctor and as a grandfather.”