

COLLABORATING TO INNOVATE

While investing in the next generation of food scientists, Danisco gathers fresh ideas for current customers and builds long-term relationships

 **DANISCO**

First you add knowledge...

Historically food product development occurred within the firm boundaries of a company's research and development department.

Many manufacturers and suppliers continue to operate with such a business model. However, there's increasing attention to the concept of "open innovation," a term coined in 2003 by Henry Chesbrough, a professor at the University of California-Berkeley.

In his book *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Chesbrough defines open innovation as the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation. This paradigm assumes that companies can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology.

He further explains that a growing number of today's companies no longer naively believe that "the smart people in the field work for us." Rather, companies are beginning to recognize that they need to work with smart people inside and outside the company. It was such thinking that motivated management at Danisco USA, New Century, Kan., to develop the Danisco Knowledge Award.

"We were thinking outside the box about how to generate new concepts for customers, and we realized that the ideas did not need to be conceived internally," says Ariella Gastel, Senior Business Manager, Technology and Business Development. "And who better to tap than college students for fresh thinking?"

Mike Parsons, Sales Director, Key Accounts/Health & Nutrition, adds, "After the idea of a university-level product development contest was approved by our global management in Denmark, the Knowledge Award became a reality in 2003, with our first 'class' of participants competing in 2004."

The annual competition is open to junior, senior and graduate students attending a four-year accredited college with a declared major in food science or related major. "Students compete as a team or as individuals and are responsible for physically creating a new food or beverage. They must also prepare a comprehensive report showing that the product could feasibly be produced commercially and has a fair chance of succeeding in the marketplace," explains Cathy Miller, Technical Applications Director. "The report must include an explanation of the market need for such a product and the market environment, including a description of the competition, patentabil-

ity and regulatory hurdles; an industrial formulation, which includes two or more Danisco ingredients and an explanation of their function in the product; nutritional information; results from sensory, shelf life and microbiological testing; and a pricing strategy."

The competition encourages innovation in academic institutions. "All players gain knowledge through this experience," says Gastel. "For example, students walk away with a better understanding of the role external sources, such as suppliers, have in the product development cycle. Danisco gets some fresh ideas about how to better accommodate consumer demand for healthy, safe and tasty food."

This complements what Chesbrough states in his book: "With knowledge now widely distributed, companies cannot rely entirely on their own research, but should acquire inventions or intellectual property from other companies when it advances the business model."

And for Danisco, that business model focuses on innovation, with an emphasis on sustainability. "The Knowledge Award is one of many examples of Danisco's commitment to sustainability, as the company is giving back to the future," says Andy Muller, President, Danisco, North America. "We are planting the seeds for future food scientists."

Indeed, the contest is a sustainable approach to acquiring external knowledge and combining it with internal knowledge. "Eventually, this knowledge will spawn new products or new ideas for our customers," says Gastel.

BUT WHAT IS KNOWLEDGE?

Scholars dating back to Plato and Socrates (circa 400 B.C.) have debated the meaning of the term knowledge. Danisco has its own interpretation, which starts with the *Oxford English Dictionary's* definition – expertise and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject – and includes a few extras related to food and beverage product development for the 21st century, such as being marketing savvy and possessing regulatory insight. The company implies its broad viewpoint of knowledge in its tagline: *First you add knowledge.*

"Knowledge does not come from books or the classroom alone; nor does it come from a single project team – at school or in the office," says

Gastel. "Knowledge comes from taking text book learning and applying all the other real world factors, such as market insights and trends, regulatory, etc., needed for successful product launches. It includes assistance from beyond in-house resources.

"Working with others is a key lesson in successful product development, especially in regards to breakthrough innovation," says Gastel. "This contest allows students to collaborate not only with fellow team members, but also with us as suppliers.

Parsons adds, "The contest truly is a collaboration between students – with their advisors – and Danisco. It is designed to stimulate interest in food science...or in the case of students already enrolled in a food science program, provide them as close as possible to a real-life product development experience to encourage their commitment to the field. We expose them to the many facets of product development, including the importance of establishing an open and honest chain of communication among team members and outsiders."

For Breanna Wingate, currently a senior at Clemson University, Clemson, S.C., and captain of the second place team in the 2009 competition, involvement in the contest solidified her future in food science. "As a food science student, I had been considering a future in product development and this contest helped me make up my mind," she says. "It's a lot of work and takes a lot of time. In the end I really felt like I accomplished something.

"I never would have believed how much goes into getting a new product to market if I had not had this experience," Wingate says. "The classroom does not fully prepare you to think in so many directions at once... from factoring in the time it takes to receive samples to preparing prototypes and evaluating them with consumers to ensuring shelf life and safety...and that's not even half of it."

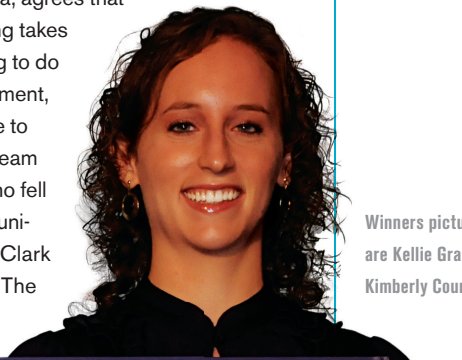
Wingate's advisor, Dr. Marge Condrasky, an associate professor of food science and human nutrition, says, "The contest is an opportunity for students to apply the skills and knowledge they have acquired in the classroom to a real-world situation. It's also a chance to show the entire food industry their talent. It's a great resume builder."

STUDENTS HAVE THE MOST TO GAIN

Every student participating in the contest gains knowledge. "They walk away with a better understanding of what it is like to be a product developer in the food industry," says Condrasky. "As students, they have no idea what questions to ask and where to go for help. This competition introduces them to trade publications, supplier websites and regulatory agency databases. They visit grocery stores and walk up and down the aisles to get ideas. That's what folks in the industry do.

"Students must accomplish a great deal in a limited amount of time. It is important that when they commit to the contest, they jump in and go at it. It is a fast journey for a few months, but the experience is priceless," she says. "Of course, faculty provide guidance at the beginning and is available for assistance throughout the process, but I find it really important to empower them as a team. The team needs to be able to fix its own problems. In fact I encourage the students to set team rules...sort of a reality job. This includes work week expectations, as well as a maximum allowed number of sick days and personal time off."

Dr. Stephanie Clark, associate professor of food science and human nutrition at Iowa State University, Ames, Iowa, agrees that a great deal of learning takes place that has nothing to do with product development, but is just as valuable to students. "Once a team had a member who fell out of communication," Clark says. "The



Winners pictured here are Kellie Grant (left) and Kimberly Court (right).



other members recognized how unfair the situation was and had to 'get tough.' They communicated their frustrations and basically told the member to step up and pull her own weight, or she would be 'fired.'

Prior to joining the faculty of Iowa State, Clark taught at Washington State University, Pullman, Wash., which is where she was first introduced to the Knowledge Award. "Students have so many ideas. They are so creative, yet the day-to-day classroom and laboratory requirements seldom provide an opportunity to take their innovations to the next level. This contest does just that.

"As their advisor, it is very satisfying to watch them grow as a team. It starts during brainstorming sessions when team members support each other's ideas," Clark says. "They learn to build off of every-



The 2009 Washington State University/University of Idaho team took first place for the development of Pro-Yo Delectables, a fruit-filled chocolate- and granola-covered frozen yogurt novelty.

one's ideas in the creative process and not shoot any down. They develop a trust. They really mature when they participate in the contest."

Washington State and the University of Idaho, Moscow, Idaho, which are located just seven miles apart in their respective states, run a joint food science program, adding a unique dimension to the logistics of entering the Knowledge Award. "Our 2009 team was actually comprised of three students from each school," says Dr. Kerry Huber, an associate professor of food science at the University of Idaho. "It was interesting to observe the students coordinating their efforts between individuals located on two different campuses. It was a good experience for them, as this same distance scenario often exists in the industry."

Unlike the real world, students are not assigned a product to develop based on management's priorities. They are allowed to develop their own concept, which is some of the knowledge Danisco gains from the contest.

"The contest facilitates team work. It is a legitimate opportunity to work in a group and agree upon a leader, who can delegate and keep the team focused," adds Huber.

Condrasky says, "Students typically form teams by common interests. It is critical that they answer two questions before they start: 'Can we make it?' and 'Will consumers buy it?' The contest forces a sci-

ence-focused student to think like a business person. This is an invaluable experience and one that provides students with an advantage once they graduate."

The top-three winning teams receive a monetary award, along with an all-expense paid trip to the *Prepared Foods* New Products Conference for the three team leaders and their faculty sponsor. Here they receive their award and recognition from the food science community, as well as another unique knowledge-gaining experience.

"Attending the New Products Conference was an incredible event, something I never imagined I would be exposed to as a student," says Kellie Grant, captain of the 2009 Washington State University/University of Idaho team that took first place for the development of Pro-Yo Delectables, a fruit-filled chocolate- and granola-covered frozen yogurt novelty. "We had a great deal of interaction with the industry at the conference, and were treated as professionals. To me, it felt like being royalty. It was a taste of corporate America and it made me want more."

Winning encouraged Grant to further pursue her food science studies. She is currently enrolled in the Master's program at the University of Wisconsin-Madison. "It was very rewarding to complete the full circle of bringing a concept to reality," Grant says. "I learned a great deal by having to communicate with ingredient suppliers, Danisco and others, in regards to needs and wants. I never realized how many components there are to product development."

Huber, an advisor to Grant during the competition, explains that faculty gains knowledge with this contest, too. "It is very rewarding to see students exercise their creativity in an uninhibited manner and to be treated professionally by others," Huber says. "When students call Danisco to order samples or for some assistance, they are treated like paying customers.

Clark adds, "For many students, the contest is the beginning of a long-term commitment to food science and the start of a long-term relationship with those they have encountered on the journey. They learn that there are sacrifices, such as limited sleep or social activities in order to meet deadlines, and transferring the intellectual property completely to Danisco. But there are great rewards in terms of money, notoriety and priceless practical skills gained."

But mostly, they gain knowledge. "We want students to walk away from this experience with a better understanding of what it means to be a food or beverage product developer," says Parsons. "We also hope they think of Danisco as a partner for innovation in their food science career.

"Of all the events that I have been involved with during my career, I am most proud of bringing the Knowledge Award to the food science community," Parsons concludes. ■