

Lactose intolerant? Drink more milk

Steve Tally

Many people who claim to be lactose intolerant really aren't, says Dennis Savaiano, dean of Purdue University's School of Consumer and Family Sciences.

The problem, Savaiano says, is that dairy foods can be difficult to digest, and people who don't eat these foods often enough haven't acclimated themselves to the foods.

According to the National Institutes of Health, as many as 50 million Americans are lactose intolerant. Although lactose intolerance itself isn't harmful—it may result in gas, bloating or nausea—it does affect a person's health in the long-term, because avoiding dairy foods reduces calcium intake.

According to Savaiano, three-fourths of all calcium in diets in the United States comes from dairy foods. Too little calcium in a diet can reduce bone growth, which can lead to osteoporosis later in life. Osteoporosis, which affects 35 million Americans, can result in weakened bones, causing fractures and injuries. Patients in the United States spend \$13 billion a year on osteoporosis treatments.

A big problem with both calcium intake and lactose tolerance, nutritionists say, is that most people, especially teenage girls, don't consume enough dairy products.



"If you only consume dairy products once in awhile, you are more likely to have symptoms from them," Savaiano says. "Also, if you consume them by themselves, as opposed to as part of a meal, they tend to be transported throughout the intestine more rapidly and are more likely to cause symptoms."

Savaiano has four tips to improve digestion of milk and dairy products:

- Don't overeat dairy foods, and eat them only in moderation.
- Eat dairy foods as part of a meal, such as a cup of milk over cereal with fruit.

However, Savaiano says it is possible to train your digestive system to break down the lactose.

"Our studies have shown a really amazing adaptation of the large intestine of humans," Savaiano says. "The large intestine contains bacteria that help digest lactose. By altering the diet over time, bacteria more effectively digest lactose, making milk better tolerated."

"The bacteria are very fastidious and very adaptable. Individuals who may produce excessive gas may feel uncomfortable after eating milk products. But if they adapt to small amounts of milk for a couple of weeks, at the end of that period, they are producing far less gas than they were two weeks ago from the same amount of milk, and they tolerate dairy products extremely well."

Although many people think that some babies are lactose intolerant, actually this isn't the case. "Milk allergy often is confused with lactose intolerance, but they are physiologically different," Savaiano says. "Babies do not develop lactose intolerance until they are 3 to 5 years old." Savaiano says milk allergies appear in 5 percent of newborns, but adds that almost all infants outgrow this allergy by their first birthday.



Taking care of caregivers

Andrea McCann

On a winter day in 1996, Martin Huelsenbeck of Kendallville was run over by a gravity-bed wagon full of corn. Suffering a multitude of serious injuries, he was on a ventilator for four weeks and kidney dialysis for three. He had nine surgeries and spent four months in the hospital.

In the blink of an eye, the Huelsenbeck family joined the more than 500,000 U.S. farmers, ranchers and their family members who have a physical disability. And like most of the others, the Huelsenbecks felt alone and unprepared when it happened to them.

Resources and assistive devices increasingly are available to farmers so they can keep farming after a disabling accident, but the spouse-caregiver historically has been overlooked. Yet it's the spouse—97 percent of the time the woman—who has to assume the farming responsibilities, as well as keep things running at home and care for the disabled partner.

It's no surprise that this creates a lot of stress on the caregiver, according to Barry Delks, director of Purdue University's Breaking New Ground Resource Center, a nationwide resource for farmers and ranchers with disabilities.

"When I visit these farms, I see symptoms of physical stress," Delks says. "We're doing a lot for the farmer who's been injured; we can get him a lift to get back

on the tractor. But the whole family is impacted. I began to wonder, 'What can we do?'"

Delks and the Breaking New Ground staff responded with *To Everything There Is a Season...*, a set of materials to encourage and support caregivers. The brochure, video and guidebook discuss a range of topics: asking for assistance, commitment to marriage, communication, children and changing roles.

"The publication features nine families and their stories," Delks says. "Each section talks about how to deal with a given situation and has activities for the family to do together."

The Huelsenbecks are among the families who tell their stories.

"I never thought of myself as a caregiver until I read the other stories, then I thought, 'Wow, that's me,'" says Carol Huelsenbeck, Martin's wife.

She thinks the materials will help reality set in for families of farm-accident victims. "The hospital is a protected environment," she says. "You're hesitant about how to handle yourself in your community and your neighborhood. I think it will help families realize they're not alone."

Debbie and Ed Bell of Hagerstown also have a story to tell.

At age 21, Ed suffered a permanent spinal cord injury as a crime victim in a shooting while the couple was engaged.

"The set of materials is a resource they can grab onto." Debbie says. "When I was in that situation, there wasn't anything. It's like a support system—real people and real stories."

"Support is key to all caregivers and their families," Delks says.

Through their participation in the project, these families are helping others to learn from their experiences.

"Many don't realize that there are others out there in the same boat; they don't know where to go for resources," Delks says. "The families in the video say they wished they would have had access to such a resource after rehabilitation."

The Huelsenbecks (below) and the Bells are two of the Indiana farm families who tell how they coped with disabling accidents in To Everything There Is a Season..., a set of materials that encourages and supports family caregivers.



Mike Kerper

It's a good time to be a Purdue Agriculture grad

Chris Sigurdson

If 1997 was any indication, Purdue Agriculture's May graduates should fare well in the job market.

Placement was strong and salaries up for May '97 graduates, according to an annual placement survey.

Purdue Agriculture assistant dean Allan Goecker surveyed 334 out of 336 graduates, asking for information on employment and salaries. As of last fall, 75 percent were employed; 16 percent were headed for graduate schools, medical schools and other forms of continuing education; 2 percent were not seeking employment and 7 percent still were looking.

"For the most part, many Purdue Agriculture departments have 'sold out' signs posted," Goecker says.

Average salary for all programs of study in the Agriculture school went from \$24,803 in 1996 to \$27,621 in 1997, with agricultural and food process engineering increasing to \$38,378, food science to \$31,947 and natural resources to \$24,274. Agribusiness salaries dropped from a four-year high of \$27,015 to \$26,065.

Increased competition for graduates and a positive outlook for the agribusiness sector reflect the number of companies recruiting

graduates. Purdue Agriculture annually attracts recruiters from firms such as Monsanto, Archer Daniels Midland, Kimball International, Swift and Co., and Pioneer Hi-Bred International, as well as the U.S. Department of Agriculture. While many companies are looking for traditional agricultural graduates, food processors, marketers, wood-product makers and financial service companies are among the others who look for potential hires.

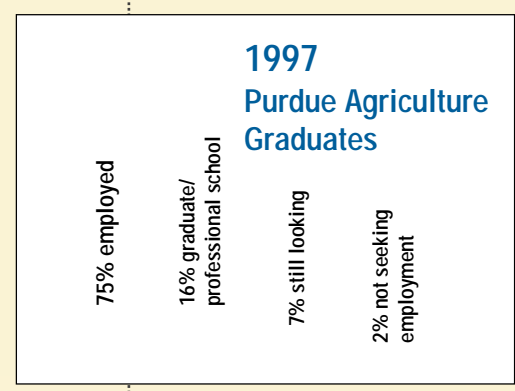
"Competition for the right graduate is intense," says Greg Manjak, regional sales manager for Crow's Hybrid Corn Co., who dropped placement services in favor of doing his own scouting for new hires.

"I just wasn't getting the people I need," says Manjak, who interviews at one other college. He says he's considering starting an internship program to identify and test potential employees.

Spectrum Technologies Inc. president Mike Thurow, whose company manufactures and markets analytical equipment, welcomes the chance to evaluate students for personality and poise—characteristics you can't detect from a résumé.

Identifying the right people has become critical for businesses as profit margins are

going down, expenses are going up and the cost of hiring the wrong candidate has become too high, says Cenex Land O Lakes staffing coordinator Daniel Jensema, who



looks to fill positions that require a mix of technical, business and personal skills.

"We can provide the additional technical training," he says. "They need the business sense, because everything has to tie back to 'Will it save money?' We're also looking for the person who can work with others, who knows how to communicate," Jensema says.

Goecker says several programs at Purdue added business components to their scientific fields of study about 10 years ago. Those majors include animal agribusiness, horticultural production, and marketing and agronomic business.

"We also stress international experiences, communications and humanities," Goecker says. "We want to make sure our students have the best shot possible when they start that career for which they've been working so hard."



Unlike adults, infants and toddlers need fat in diets

Steve Tally

Butter can be more nutritious than low-fat yogurt. An egg is more nutritious than broccoli.

At least that's true for many infants and toddlers, and even children as old as 5 years, all of whom may need more fat in their diets than adults do, two nutritionists say.

Bruce Watkins, professor of lipid chemistry and metabolism at Purdue University, and Bernhard Hennig, professor of cell nutrition at the University of Kentucky, say that children under age 5—especially infants—are getting too little fat in their diets. They are suggesting new dietary recommendations for children as old as age 5 and changes in the makeup of infant formulas.

“The scientific community is focused in one direction, and that is reducing dietary fat in all individuals,” Watkins says. “But trying to adapt fat recommendations from adults to infants and toddlers is not the best way.”

Health organizations, including the American Academy of Pediatrics, the American Heart Association, and the National Heart, Lung and Blood Institute, have made recommendations to limit dietary fat intake for individuals more than 2 years old. The federal government's 1995 Dietary Guidelines,

produced by the U.S. Department of Agriculture and the U.S. Department of Health and Human Services, recommend that fat intake be restricted in children beginning at age 2.

Watkins and Hennig, however, suggest that we should not restrict fat until 5 years of age, and then reduce it gradually throughout childhood and teen years.

According to the researchers, restricted fat intake in children reduces growth and visual acuity and limits mental development.

“For example, omega-3 fatty acids—which come from fish and certain plant oils—are crucial for

brain development and for development of the retina,” Watkins says.

The researchers conducted a scientific review of available information and concluded that dietary fat recommendations for adults have been inappropriately applied to children, who have a different physiology and different growth needs than adults. Their paper is published as a chapter in a new book, *Lipids in Infant Nutrition*, released by the American Oil Chemists' Society.

The relative low-fat nature of infant formula is a special concern for these researchers. “Certain fatty acids are found only in human milk. They are not

found in sufficient amounts in infant formulas,” Hennig says.

“The companies that make the formula should mimic human milk as closely as possible. These companies are aware, at least, that this is important, and they are working on this.”

The researchers recognize that childhood obesity is an increasing and persistent problem in the United States, but they say that restricting fat intake isn't doing these children any favors. “It seems that children are very good at knowing how many calories they need in a day,” Watkins says. “They are much better than adults at this. So let them decide how much to eat.”



Children under 5 may not be getting enough fat in their diets. Researchers are suggesting new dietary recommendations for children as old as age 5 and changes in the makeup of infant formulas.

Jessica Finkle

Out with the old; in with the new

Andrea McCann

Seventy years after they were first erected, the old Purdue University horticulture greenhouses were razed, and new, improved ones constructed in their place. The new facilities will allow the horticulture department to be more competitive in research, more effective in teaching and will provide more avenues for outreach.

“We tried to design flexibility into them with a vision toward the future,” says Allen Hammer, horticulture professor and Extension specialist in greenhouse crops. “We looked at function and flow. They’re as good as any in the world.”

“High-tech” and “sophisticated” are two adjectives that horticulture department head Randy Woodson uses to describe the new greenhouses.

The new structures feature two large growth rooms that are completely enclosed and artificially lit, allowing researchers to mimic any environmental condition in the world and keep it constant.

“There are no others like them. It’s a unique design,” Woodson says about the growth rooms.

The greenhouse design, as a whole, is unique as well,



Mike Kerper

A part of the Purdue campus since the 1920s, the old greenhouses have been razed to make way for their new, high-tech counterparts.

Hammer says, in that there are 24 separate 1,000-square-foot greenhouses interconnected, with a fan at the end. Each greenhouse has a glass air shaft that permits it to be ventilated without having to ventilate the others.

A hot-water heating system can be modulated for better temperature control than could the old steam-heat system, which could only be turned off or on. In addition, the new houses are 14 feet tall—twice the height of their predecessors—which creates more buffer against temperature swings.

“In the old greenhouses, we had limited precision of environmental control,” Woodson explains. “You need more accuracy in research.”

And accuracy is what Purdue’s horticultural scientists now have. A computer system built

specifically for greenhouse environmental control is used to monitor each of the greenhouses, as well as a weather station on top of the head house and conditions such as natural light levels. A microprocessor in each greenhouse monitors its environment and makes adjustments as necessary. For example, a computer-controlled shade can be set to cover or uncover the house at certain light levels.

“You can set up any environmental condition you want in each greenhouse separately,” Hammer says. “Sensors sample the air and record the data.

“What you see is a jump in technology.”

It’s a jump that will benefit students as well as scientists.

Greenhouse manager Rob Eddy explains: “Students are

exposed to state-of-the-art greenhouses in classes and research. When they graduate, they’ll be familiar with current technology. Some students will be able to work here on our greenhouse team, and they’ll get to do more than hold a hose.”

Students and scientists won’t be the only ones learning in the new greenhouses, according to Woodson.

“There will be opportunities to train greenhouse owners,” he says, imagining greenhouse-management, pesticide-application and other workshops for industry professionals.

With their forward-thinking design and sturdy construction, the Purdue horticulture greenhouses should provide educational opportunities for students, researchers, industry and the community for at least another 70 years.



Food for thought

Chris Sigurdson

Faculty in Purdue University's School of Agriculture have a better-than-educated guess of what the future holds for American food and fiber industries. And they're willing to share it.

It's all in a book and video set entitled *Food System 21: Gearing Up for the New Millennium*.

Purdue agricultural economist Mike Boehlje calls it "a frank and brutal look" at where farms, input suppliers, processors and consumers are heading.

"Everyone in agriculture will be able to find themselves in this book," Boehlje says. "No punches are pulled."

The premise, he says, is for each reader to evaluate the scenarios laid out by the book, anticipate what it could mean for his or her business or operation, and then try to shape the industry or the operation to "survive and thrive."

"Our hope is that people will take the material and use it to plan improvements if they choose to compete in the future," Boehlje says.

The key lesson from the 452-page book is "Don't be myopic," Boehlje says. "A grain farmer needs to know what the hog producer is going through, and they both better know what is going on with the consumer, who is going to buy from here and abroad."

Agricultural economics department head Wally Tyner calls *Food System 21: Gearing Up for the New Millennium* the most broad-based study of the future of agriculture to date, more comprehensive than the Ag 2000 study the department completed five years ago. "One major difference is more emphasis on interpreting consumer trends and applying them all the way back to the farm gate," he says.

The book costs \$29.95, from the Purdue Media Distribution Center, 1-888-EXT-INFO. The videos will be offered separately through Purdue's Center for Agricultural Business.



Comfortable seats, uncomfortable predictions

Rebecca Goetz

The seats in Purdue University's Loeb Playhouse were comfortable, but the predictions weren't for those who dislike change and idealize the small, self-sufficient farm.

At Purdue Agriculture's annual Ag Forum in January, a panel of industry leaders predicted the trend will continue toward larger farms and more vertical integration of this increasingly consumer-driven industry.

It's what farmers must do to stay competitive, meet government regulations and remain sustainable, they say.

"My dad planted what he wanted to grow," says Harry Cleberg,

president and CEO of Farmland Industries. "Agricultural producers now must grow what consumers want. They have to take one of the United States' greatest assets—our individuality and drive to succeed—and blend that into a new system of collaboration with seed producers, technology suppliers and customers."

William Kirk, senior vice president for DuPont Agricultural Products, dubs it a "dinner-plate-to-farm-gate" system, with consumers controlling the shots. He predicts that in the next decade 25 percent of crops will be grown for specific purposes.

Researchers will use biotechnology to tailor-make some of these crops, adds John Hagaman, president and CEO of Dow AgroSciences. Biotechnology also could reduce pollution threats by creating plants that produce such things as industrial lubricants, pharmaceuticals and nutritional products.

Dean Kleckner, president of the American Farm Bureau Federation, says that the customers we listen to are increasingly foreign. "Already, we export one-third of our agricultural production. And, as the world population increases, the percentage only will get bigger."

By the year 2005, the world will have 1.5 billion more mouths to feed, according Cleberg.

As the largest producer of pork, beef and poultry, the United States will help meet the need. But we'll need to increase productivity to do it, says Charles Johnson, chairman, president and CEO of Pioneer Hi-Bred International.

The panel emphasized that agricultural businesses—just like farmers—have to keep changing. That statement caused heads to nod in the audience, even as it evoked a few sighs.

"It's not the traditional way farming and marketing have been done, but it's where we are now," Kleckner says. "I'm not totally comfortable with it either, but we need to do new things. If you always do what you've always done, you'll always get what you always got."

