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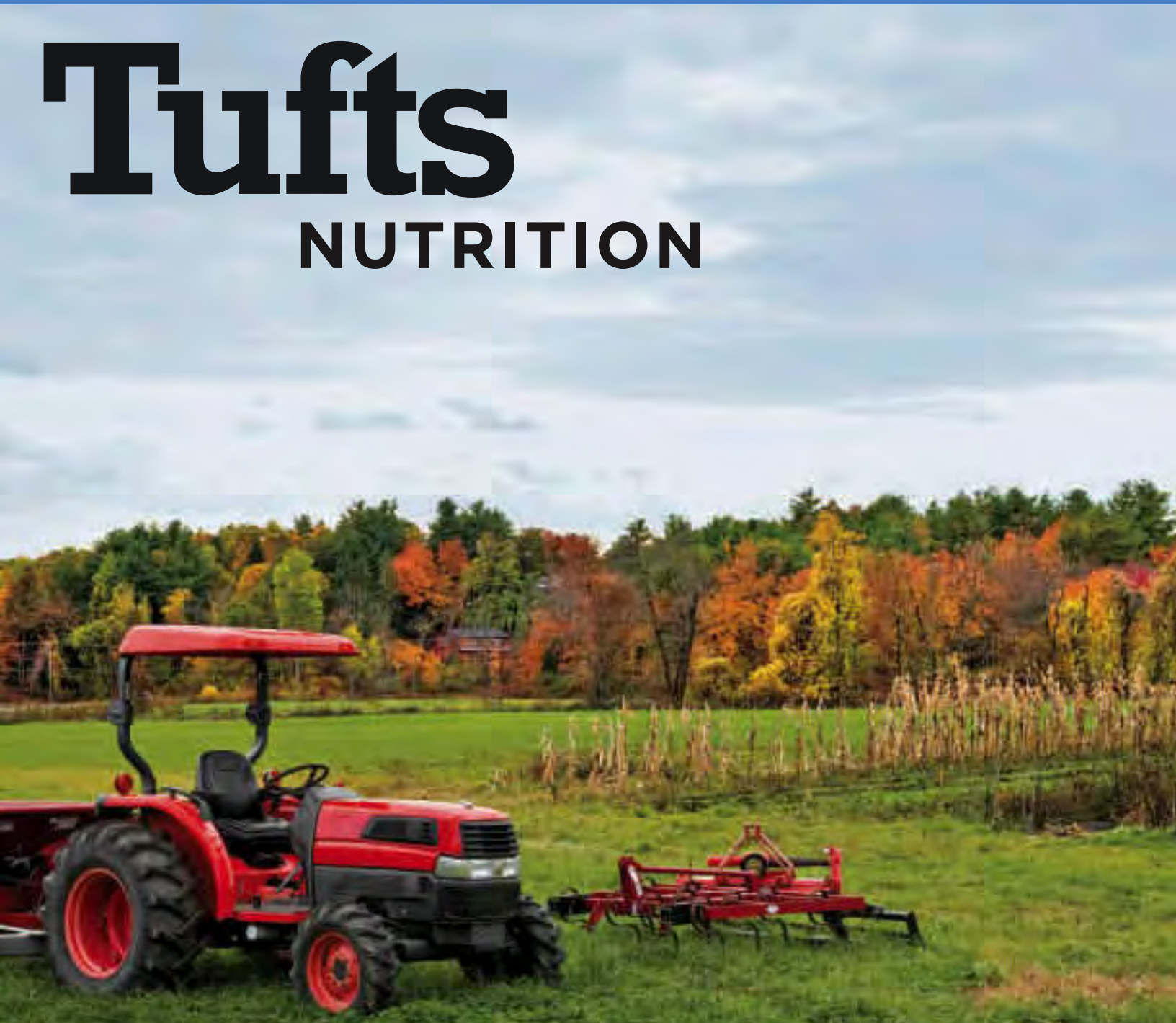
Tufts NUTRITION



The Big Issue of Small Farms

PLUS: THE OUTLIERS ▪ STRONG WOMEN, HEAD TO TOE ▪ DONOR RECOGNITION

Veggies: a Reputation at Risk

For this installment of "Ask Tufts Nutrition," Assistant Professor Fang Fang Zhang, Ph.D., serves as our expert. Zhang, who specializes in cancer epidemiology and nutritional influences on cancer risk, joined the Friedman School faculty in May.

Q: Will eating fruits and vegetables prevent cancers?

A: A panel of experts at the World Cancer Research Fund and the American Institute for Cancer Research reviewed existing studies on this topic and published their findings in 2007. Their review, the most systematic one completed so far, concluded that the evidence that vegetables or fruits protect against cancer is less impressive than many people had thought. Findings from a recent cohort study of 478,000 Europeans also suggest that eating two extra servings of vegetables a day had only little effect on preventing cancer. Now, shall we pull the greens off of our plates?

Not just yet. Keep in mind that not all fruits and vegetables are created equal. We know that non-starchy vegetables are different from starchy vegetables in their calorie content. Fruit juice may have added sugar and reduced vitamins and fiber content compared to "solid" fruits. If we study starchy vegetables and non-starchy vegetables as one group, we may not see a beneficial effect because the benefit and the harm may cancel each other out. In addition, vegetables may prevent cancers of specific sites, rather than all cancers. For example, many studies showed non-starchy vegetables protect against cancers of the mouth, larynx, esophagus and stomach but not other types of cancer.

Moreover, compared to animal-based foods, vegetables and fruits contain fewer calories and less fat, which can help prevent excessive weight gain and obesity. The latter has been clearly associated with an increased risk of cancer in the esophagus, colorectum, breast (post-menopause), pancreas and kidney, as well as overall mortality. With this is mind, we should continue eating vegetables and fruits to stay healthy.

Please send your questions for future installments of "Ask Tufts Nutrition" to Julie Flaherty, Tufts University Office of Publications, 80 George Street, Medford, MA 02155. Or send an email to julie.flaherty@tufts.edu.

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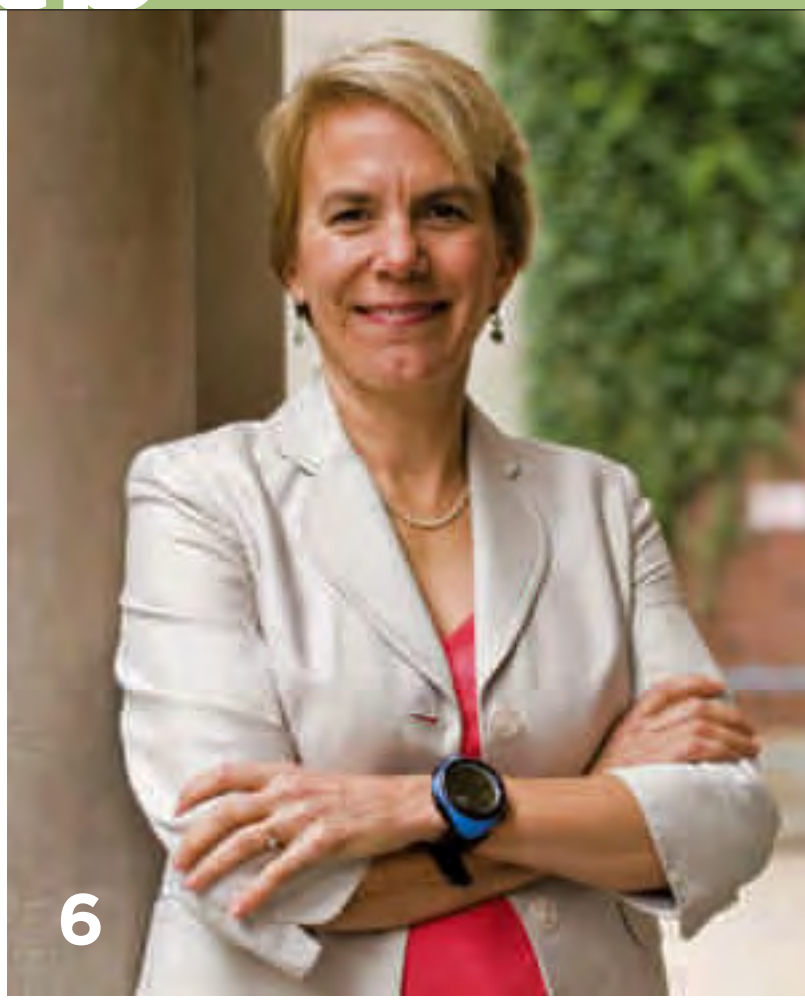

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On the cover, a New Entry Sustainable Farming Project site in Dracut, Mass. Photo: Alonso Nichols

A WAY TO STOP MALNUTRITION

Your article "Taking Risks to Manage Disaster" (Spring 2010) points out that the world's population is exploding and that humanitarian agencies will need to change their approach. But it omits one of the most important reasons for food shortages, malnutrition and conflicts over natural resources: Women are having lots of children.

In Niger, for example, a semi-arid country where desertification is a problem and many children are severely malnourished, the average woman has 7.19 children.

Other problem areas also have high fertility rates. In Yemen, the average woman has 5.5 children, in Pakistan 3.52, in Palestine 5.09, in Afghanistan 7.07, in Haiti 3.54, in Congo 6.70, in Iraq 4.26 and in Ethiopia 5.29. Some developing countries have been able to reduce fertility rates to population replacement levels. This has been done by giving women equal access to health, education and business opportunities. These include Kerala, a state in the south of India, Tunisia, Costa Rica and the Gilgit region of Pakistan.

When *Science* ran a series of articles on how to develop new technologies to produce food for nine billion people in 2050, it received 11 letters pointing out that one of the best solutions to the problem was family planning.

AL MATLACK
ADJUNCT PROFESSOR
DEPARTMENT OF
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THE FRIEDMAN SCHOOL CELEBRATED A FORMER FACULTY MEMBER and noted scientist with the Dr. James Sadowski Memorial Vitamin K Symposium on October 25. The event featured talks about the history of vitamin K research, including Sadowski's establishment of the Vitamin K Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging and current studies underway in the field. From left: Maggie Sadowski; Joseph Sadowski; Guylaine Ferland, Ph.D.; John Suttie, Ph.D.; Kyla Shea, Ph.D., N08; HNRCA associate director and Vitamin K Laboratory director Sarah Booth, Ph.D.; Laura Sadowski; and Elizabeth Cochary Gross, Ph.D., N82, N88, who, with her husband, Phill Gross, established the Dr. James Sadowski Memorial Internship Fund, which will offer Biochemical and Molecular Nutrition students resources to explore research opportunities.

Tufts NUTRITION

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The mission of the school is to passionately advance nutritional well-being for people worldwide through excellence in research, teaching and the shaping of public policy.

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A Palpable Energy Fuels Our Mission

MANY OF YOU ALREADY KNOW THAT I WILL BE stepping down as dean, effective June 30, 2011 [see story, page 27]. Now in my seventh year at the school, I've accomplished the principal goals I set forth for myself as dean and reflect with a great sense of fulfillment on what we have collectively achieved. It is a privilege to serve with such a stellar group of faculty, staff, Board of Overseers and other members of the Tufts community, and I look forward to continuing that relationship when I return as a faculty member in 2012.

Next year I will be on sabbatical. I will be devoting a substantial amount of time to two new nutrition programs in Asia and Africa that the Friedman School will be leading. In October, we announced that the school received two grants totaling $15 million from the U.S. Agency for International Development for this important work. Patrick Webb will lead the activities in Asia, while William Masters will head activities in Africa [see related story, page 29]. The programs, which involve a consortium of U.S.-based institutions and partners in developing countries, will support the federal government's new Feed the Future initiative, which seeks to improve nutrition outcomes for children and women in very poor countries.

The grant awards were just one of several thrilling moments at the Friedman School this year. In September, I had the opportunity to represent the school at an event co-hosted by Secretary of State Hillary Clinton and Michael Martin, Ireland's minister of foreign affairs. The discussion focused on nutrition during pregnancy and through the first two years of a child's life as the critical period for ensuring a healthier and more prosperous future. Research from the Friedman School has contributed important findings on this topic, including the work of Kate Sadler on community treatment of severe acute malnutrition; Patrick Webb's work with Bea Rogers, Irv Rosenberg, Amelia Reese-Masterson and Christine Wanke on food aid quality; the activity around food support for HIV/AIDS programming in Ethiopia by Shibani Ghosh, Kate Sadler, Jennie Coates, Bea Rogers and Patrick Webb; and the work in which I have been involved on scaling up nutrition interventions in developing countries.

A milestone for us was the November 6 kick-off event to celebrate the school's 30th anniversary [see story, page 30]. It was a fitting occasion to award the Dean's Medal to two of our outstanding faculty members. Jeanne Goldberg has been an integral member of the school almost from its inception. Her efforts created the Nutrition Communication program, which has blossomed into an internationally recognized program. Johanna Dwyer has trained and mentored hundreds of students in the combined master's degree/dietetic internship at the Frances Stern. An array of alumni and friends came to acknowledge the incredible impact both women have had on their training and careers.

Dovetailing with the anniversary celebration, this year's Friedman Symposium brought together a global cadre of speakers around the theme of nutrition security. Kathleen Merrigan, deputy secretary of the USDA, provided insights into the direction of U.S. agricultural policy and the challenges the department faces now and in the near future [see story, page 31]. She was among the dozens of speakers who addressed an audience live at the school and around the world by webcast.

As stimulating as these events and programs are, nowhere is the school's energy more apparent than in its students. This year's incoming class of 95 students is diverse, talented and dynamic. We also welcomed our second incoming class to the Tufts–Ras Al Khaimah program, using technology to connect the students in the United Arab Emirates to our Boston campus to meet the faculty and staff involved in the program.

When I review all that has happened at the school this year, a line from a song comes to mind: "This joint is jumpin'." I look forward to even more excitement in 2011.

EILEEN KENNEDY, D.Sc.

A New Home Ec

Home economics classes have all but disappeared, which may not be good for students' expanding waistlines

In a commentary published in the *Journal of the American Medical Association*, Gershoff Professor Alice H. Lichtenstein, D.Sc., and co-author David Ludwig, M.D., Ph.D., a physician at Children's Hospital in Boston, call for the development of a modernized home ec curriculum—for girls *and* boys—that would reintroduce food preparation, menu planning and nutrition in the classroom.

Part of the current pediatric obesity epidemic can be blamed on our dependence on high-calorie, low-nutrient convenience foods. "If we don't teach children how to cook healthy meals, it will be difficult for them to take control of what they eat to reverse course," says Lichtenstein, director of the Cardiovascular Nutrition Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts.

The authors recommend hands-on food preparation classes, as well as instruction in food safety instruction and nutrition basics. Field trips to farmers' markets and grocery stores would help students get familiar with ingredients like prewashed salad greens, cut-up vegetables and whole-grain pasta.

"Schools would have to carve out some extra time out for cooking classes, but nutritional themes can easily be incorporated into the existing curriculum," Lichtenstein says. "Discussions about diet-related diseases and calorie requirements can be folded into a science lesson. Math class is an opportunity to discuss food budgeting and calorie counting with older children."

Fit But Fat

College students who keep physically fit can bolster their protection against heart disease and diabetes, even if they carry a little extra weight.

Looking at data collected from 564 college students who enrolled in the Tufts Longitudinal Health Study, researchers at the Friedman School found physical fitness to have a greater impact on metabolic risk factors than body fat did. Being fit—in this case, as measured through performance on a three-minute step test—was associated with lower triglycerides and higher high-density lipoprotein (HDL, the "good" cholesterol) in women and lower blood glucose levels in men, all of which point to a lower likelihood of developing cardiovascular disease and Type 2 diabetes. The results are published in *Medicine & Science in Sports & Exercise*.

"Our results tell us that men and women in late adolescence and early adulthood are already showing chronic disease risk, but that keeping fit may help reduce this risk," says senior author Jennifer M. Sacheck, N01, Ph.D., an assistant professor at the Friedman School.

Snapshots sent to a researcher by study participants prompted data-rich discussions.

A Picture is Worth a Thousand Survey Questions

HELEN RASMUSSEN, A SENIOR RESEARCH dietitian at the Jean Mayer USDA Human Nutrition Research Center on Aging, has interviewed more than 15,000 potential study participants over her career. In trying to find out whether they would make good test subjects, she would often go off script, asking about habits that might make it hard for them to stick to a restricted diet. But getting an answer to the question of "what do you do each day?" was never easy.

While working on a health and well-being study for her doctoral thesis, Rasmussen came up with a research tool that would help her get those answers. She gave disposable cameras to 20 of the senior citizens participating in the study and asked them to take pictures of their daily lives.

The photos served as conversation starters. A living room photo that showed a heating pad on the sofa and a cane against the wall prompted a discussion about a recent back injury and arthritis. A shot of medications on a kitchen windowsill led to a discussion about compliance with doctors' orders.

Rasmussen presented her findings at an international conference on communication, medicine and ethics in June. Photo elicitation, as the technique is known, can be used with just about anyone; Rasmussen, who is also an instructor at the Friedman School, encouraged a student who was studying the diets of Cape Verdeans to try photo elicitation with her clients.

"I can see it would be a great way to understand cultures where you don't have that common language," she says.

Perhaps more important, Rasmussen believes the photo conversations led the participants, many of them longtime study volunteers, to trust her more. "You make a connection with Joan or Fred, rather than subject number 5 or 12," she says.

A CAVITY-FREE MENU

A simple nutrition survey that gleans what kids eat and when may help dentists target the children most at risk for tooth decay.

Dentists have long known which dietary habits contribute to cavities, but obtaining solid nutrition data from patients has always been difficult for them says Carole Palmer, G69, Ed.D., a professor at the Friedman School and the School of Dental Medicine. So she created a simple dietary assessment dentists can use in their offices to pinpoint which kids have the most risky eating and drinking habits, such as eating or drinking eight or more times a day, or drinking juice between meals.

Identifying and correcting specific habits is important, Palmer says, because more than 50 percent of U.S. children treated for severe early childhood caries will go on to develop new cavities. "Providing only general nutrition information to caregivers is usually meaningless because it doesn't personalize the information to their specific situation," she notes.

PHOTOS: COURTESY HELEN RASMUSSEN, ISTOCKPHOTO.COM

STRONG WOMEN, Head to Toe

BY JULIE FLAHERTY

When it comes to health, men and women are different, and not just in the obvious ways.

Women are more resistant to many types of infection, but are three times more likely to develop autoimmune disease. Women tend to have more persistent and more severe pain, but also manage it better, even though painkillers like ibuprofen don't work as well in women. Women make more stress hormones and have a harder time turning them off. Even mental illnesses fall along gender lines, with women more often reporting depression, anxiety and eating disorders, while men are more susceptible to schizophrenia and alcohol or drug addiction.

In her new book, *The Strong Women's Guide to Total Health* (Rodale), Miriam Nelson, Ph.D., director of the John Hancock Research Center on Physical Activity, Nutrition and Obesity Prevention at Tufts, makes the case that understanding those differences—and a little bit of the science behind the female body—are the first steps in protecting and preserving your health.

"My method for my books has been if people are informed and they understand—without diving into all the nitty-gritty details—it's easier to make changes," says Nelson, who is also an associate professor at the Friedman School.

Take bones, which too often grow brittle as women age. Estrogen boosts the activity of bone-building cells called osteoblasts, while also curbing the tendencies of bone-dissolvers called osteoclasts. That is one reason bone mass declines when estrogen levels drop during menopause. Exercise, however, can temper the damage by building muscle that stimulates osteoblasts.

PUTTING IT ALL TOGETHER

The idea for this, Nelson's ninth book in the *Strong Women* series, came from readers who were asking questions about things like skin creams, hair removal and libido, questions that seemed—at least at first—to have little to do with her area of expertise, which is exercise and nutrition.

But in practice, "those two pieces of the puzzle have downstream effects on mental health, on reproduction, on your skin, your eyes," Nelson says. In the case of eyes, for example, she and co-author Jennifer Ackerman, J01, N06, discuss Tufts research that found people who eat a lot of simple carbohydrates, like white bread and sugar, have a higher risk of developing age-related macular degeneration and cataracts.

So in addition to in-depth discussions of the heart, lungs and joints, for example, the book has sections on sexual health, mental health and beauty. Although that last one is short, and emphasizes sun protection more than make-up application, Nelson says it filled a need she saw in focus groups while compiling the book. "It was amazing how many people were clueless about sunscreen and vitamin D," she says. "There was a lot of confusion." She draws on interviews with experts in a variety of fields to flesh out the answers.

The "Total Health" in the title represents not only the encompassing scope of the book, but a philosophy. Too often people concentrate on a fad diet, the latest vitamin in the news or a lab test number, Nelson says, when they should really get to know their body in all its complexity.

"If you only focus on, say, cholesterol, and you only take a statin, you aren't getting the benefits of how you should be lowering your cholesterol," she says. "You won't be eating well and you won't be physically active, and those things will impact your whole health."

SPREADING THE WORD

As in all her previous books, Nelson shares her personal stories: how one of her staff members pointed out she wasn't practicing what she preached when she stayed chained to her desk all day without an exercise break; how she personally dealt with entering menopause; and how mental health counseling has helped her weather the bouts of depression and anxiety she has had most of her life.

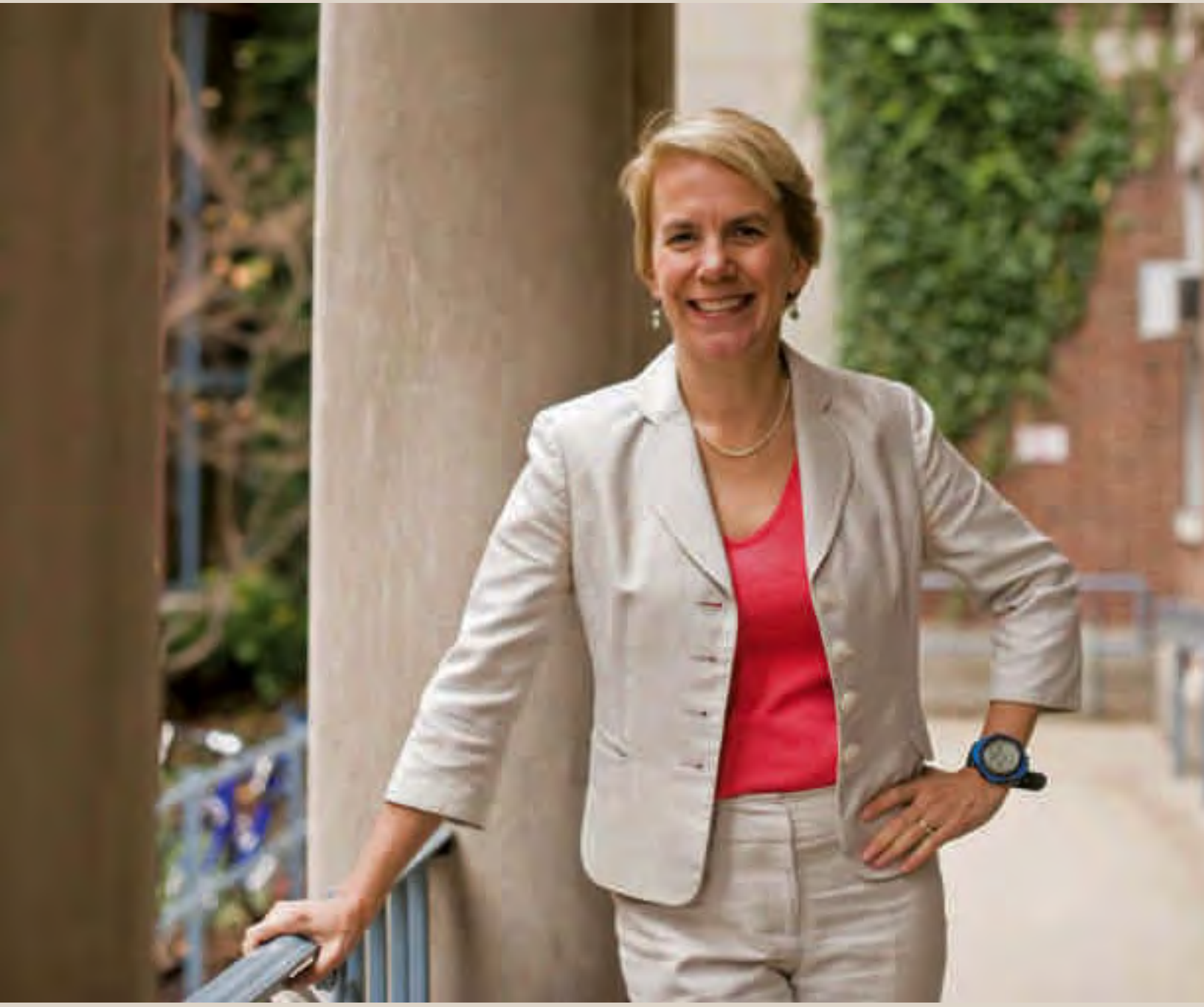
She also tells the story of the day her husband sat in on a talk she gave about the obesity epidemic, only to later say: "I know you have been working hard for the past two decades, but what the heck have you been doing? Things seem to be getting worse."

It is something, she says, she thinks about all the time, and the primary reason the research center she directs changed its focus eight years ago from studying individuals in the laboratory to studying interventions in real-world settings. A large part of this research revolves around the Strong Women Program, a community-based exercise regimen for older women that Nelson developed. It now has chapters in 40 states.

Her books, she says, are a way to fuel interest in these community programs. She is already working on her next one, which will look at what we're eating, how our culture has worked against our health and how women can help change the system.

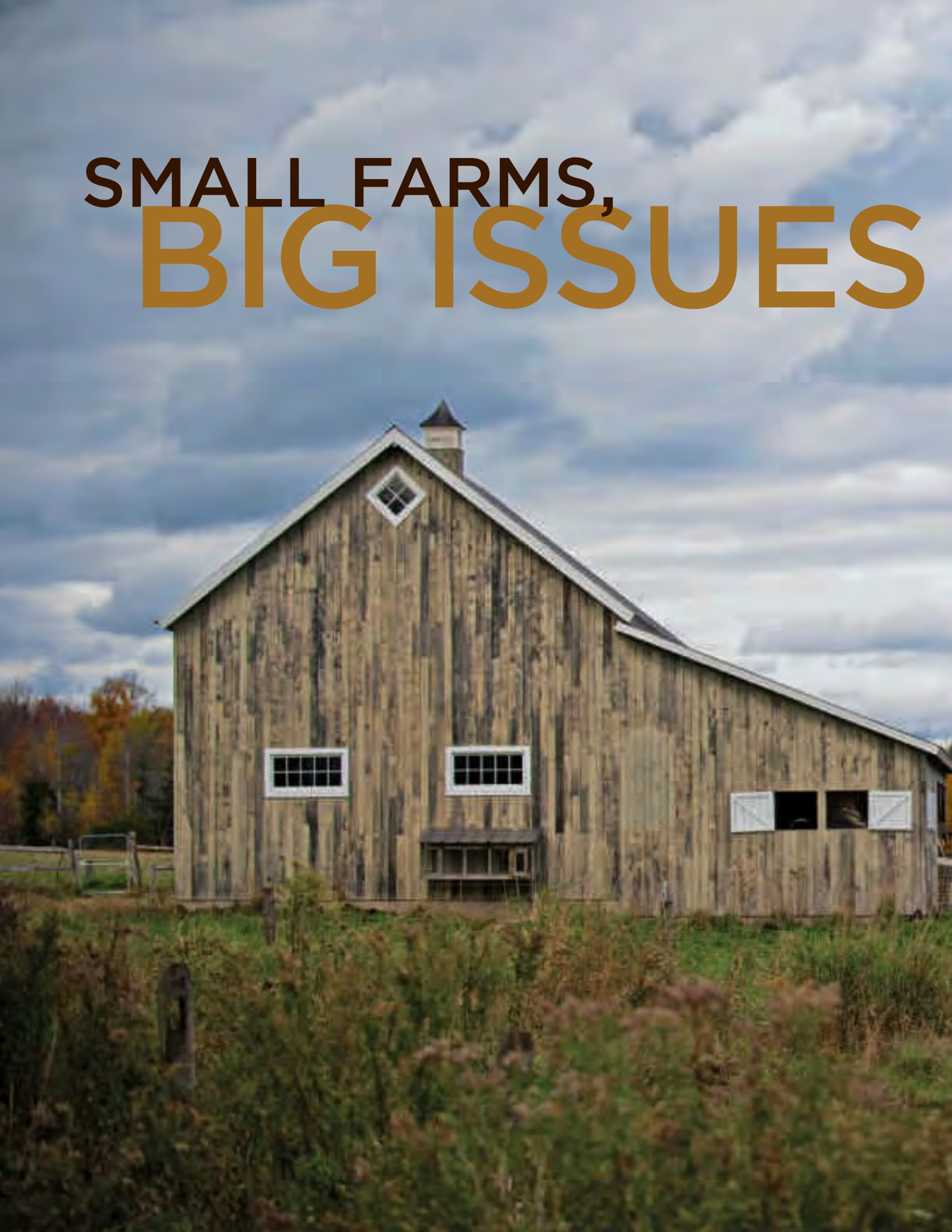
"Our research is trying to get women to understand some of the important things about their health and the health of their communities," she says. "We need to build a cadre of women who are going to scream out and yell and change the world." TN

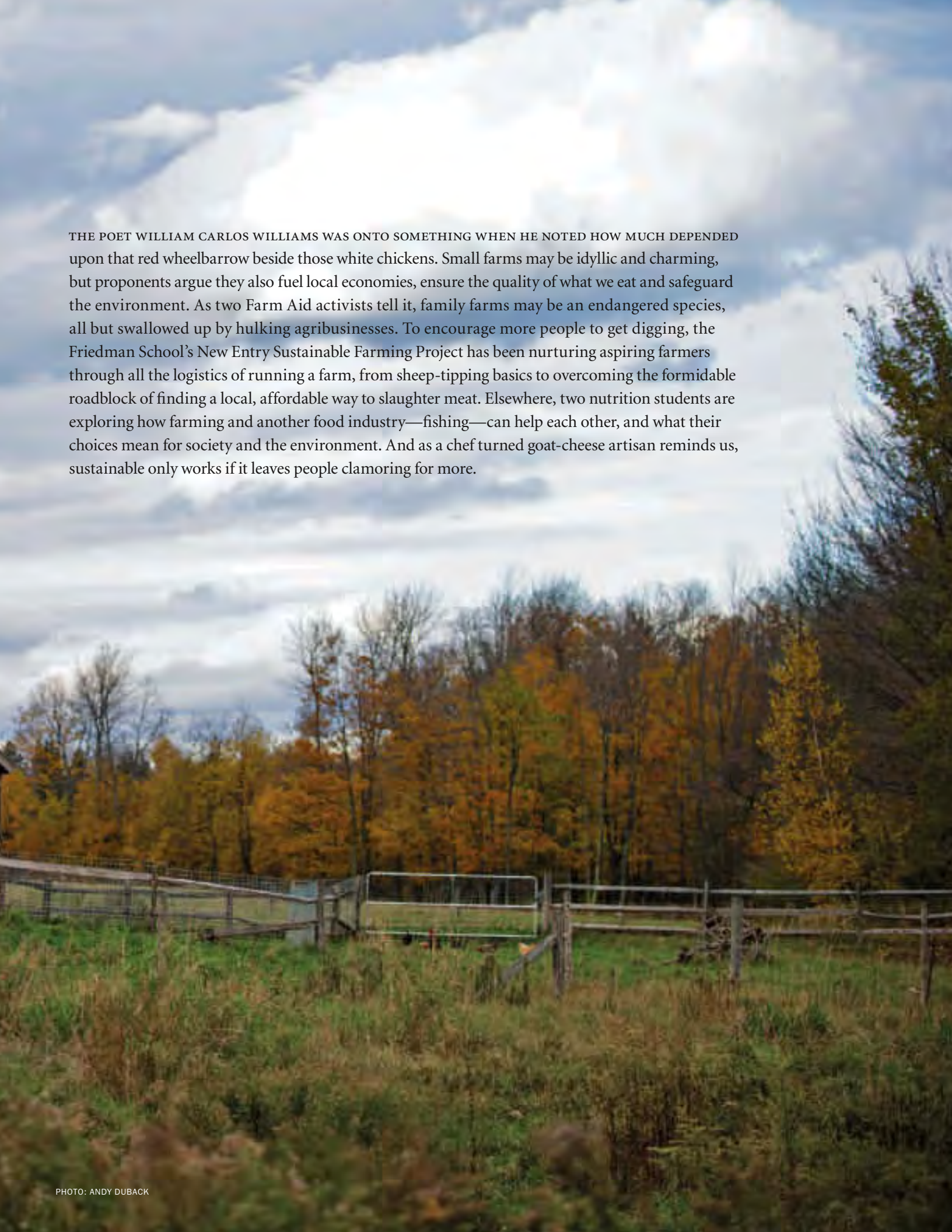
PHOTO: ALONSO NICHOLS



"WE NEED TO BUILD A CADRE OF WOMEN WHO ARE GOING TO SCREAM OUT AND YELL AND CHANGE THE WORLD." —Miriam Nelson

SMALL FARMS, BIG ISSUES





THE POET WILLIAM CARLOS WILLIAMS WAS ONTO SOMETHING WHEN HE NOTED HOW MUCH DEPENDED upon that red wheelbarrow beside those white chickens. Small farms may be idyllic and charming, but proponents argue they also fuel local economies, ensure the quality of what we eat and safeguard the environment. As two Farm Aid activists tell it, family farms may be an endangered species, all but swallowed up by hulking agribusinesses. To encourage more people to get digging, the Friedman School's New Entry Sustainable Farming Project has been nurturing aspiring farmers through all the logistics of running a farm, from sheep-tipping basics to overcoming the formidable roadblock of finding a local, affordable way to slaughter meat. Elsewhere, two nutrition students are exploring how farming and another food industry—fishing—can help each other, and what their choices mean for society and the environment. And as a chef turned goat-cheese artisan reminds us, sustainable only works if it leaves people clamoring for more.

PHOTO: ANDY DUBACK

SMALL FARMS, BIG ISSUES

White Cornish Cross and red Freedom Ranger chickens roam the grass at a Concord, Mass., farm looking for insects and worms. Opposite, Jennifer Hashley, director of the New Entry Sustainable Farming project, and her husband, Peter Lowy, would like to see more farms like theirs across the state.

Local Birds, from Start to Finish

A Tufts program is helping bring poultry farming back to Massachusetts

BY HELENE RAGOVIN PHOTOGRAPHS BY ALONSO NICHOLS

There used to be chickens at the Perry farm—thousands of laying hens and broilers on land in the hills of Truro, Mass., that the family had been farming since 1862. The Perrys became known for their fresh eggs and their tasty chicken pies.

But times change. By the late 1970s, restructuring in the poultry industry and new federal regulations were making it difficult for small operations like the Perrys' to turn a profit. And then there was the lightning storm and the fire that claimed 500 meat birds. So Stephen Perry quit the chicken business.

Now times have changed yet again. The chickens have returned to Perry Road, courtesy of Stephen's 21-year-old grandson, Drew Locke, who launched his own small-scale poultry business this past spring. By late August, he had sold about 1,000 cage-free, grass-pastured birds and was eagerly making plans for next year and beyond.

"My family was worried about my doing this because of what they went through," says Locke, who represents the seventh generation of Perry farmers on Cape Cod. "But I told them about the Tufts program, and the new age of farming. So they let me go with my idea, and the turnout from people wanting these chickens has been great."

Locke's success is due, in part, to the Friedman School's New Entry Sustainable Farming Project (nesfp.nutriton.tufts.edu), which helps people with limited resources get started in agricultural businesses by offering training in farm planning, techniques and management. In Locke's case, it provided him—quite literally—with the vehicle he needed to get his chickens ready for market.

When New Entry started, its participants focused on raising produce. And while the great majority still do, others are branching out into livestock. Chicken farming is a natural starting point, says Jennifer Hashley, G06, New Entry's director.

"Poultry is the gateway enterprise for livestock," Hashley says. "It's not hugely expensive or complicated, although it is labor-intensive, and there is a huge learning curve. But you can recoup your investment in eight weeks, and you can make a profit in one season or less."

OLD IS NEW AGAIN

Locke's story is one that's repeating itself often in the food industry: the success of a seemingly new product—in this case, grass-pastured, heritage-breed poultry—that's in essence the restoration of something that was once commonplace. The trend began with artisanal cheeses and heirloom produce, which have become mainstays of farmers' markets and upscale greengrocers.

"There is a new sense of trying to do something to change the quality of our lives; a push-back against mass-produced food," says the Tufts historian Ina Baghdiantz McCabe, who teaches a course on the history of food and clothing in the School of Arts and Sciences (see story, page 26). "The great change that is happening in America is the rise of the farmers' market."

The next wave is meat—not just poultry, but also beef, lamb and pork—from breeds generally bypassed by the large commercial enterprises. They are usually raised on grass pasture using traditional techniques and without antibiotics and hormones. This approach has provided a way for small farmers to maintain a toe-hold in a field dominated by huge corporations. It also offers an alternative for consumers concerned with the possible health risks, environmental impact and ethical implications of eating factory-farmed meat.

But the return to old-time chicken farming, particularly for those raising meat birds, isn't without stumbling blocks. And, as Drew Locke found out, they can be harder to overcome than family opposition. Yes, weather and predators can take their toll. But the hardest problem was finding a place where chickens can be processed—slaughtered and prepped for market—so that they can meet regulatory standards for retail sale.

"When I first considered raising meat birds, I thought I couldn't do it, because there was no place to process," says Locke.

He was not alone. "We had a lot of farmers who were interested in New Entry and wanted to raise chickens," says Hashley. "And I had to say, 'That's great, but unless you sell them live to customers, there are not a lot of

legal options for having them processed.' "

Over the past several decades, processing facilities in Massachusetts have shut down as one small poultry farm after another went out of business. "In the '70s and '80s there was a sharp drop-off in poultry farming in New England," says Chelsea Bardot Lewis, N10, who researched issues related to meat-animal processing as a student at Friedman. The poultry industry adopted a model of "vertical integration"—with the same corporations controlling hatching, breeding and processing—and moved south.

As the scale of poultry production grew, the federal government began requiring more regimented processing requirements, which made sense for plants that handled thousands of chickens a day but were difficult for small farmers, like Stephen Perry, to comply with. "The whole food system shifted over the last 30 years, and the infrastructure [for small-scale poultry farming] disappeared," Hashley says. And so, those who once ate chicken from Truro now ate chicken from Tulsa.

PROCESSING BOTTLENECK

The world of poultry production regulations is complex. Large poultry producers—those who handle more than 20,000 birds a year—must use USDA-inspected slaughterhouses. There is an exemption for lower-volume producers that leaves regulation up to the states. The result, however, is a crazy-quilt of 50 different sets of laws concerning poultry processing, and a great many of them are not amenable to the realities of the small producer.

Many poultry farms that do manage to run their own licensed processing facilities—such as mid-sized operations that also do hatching and breeding—don't provide slaughter services for outsiders because of biohazard concerns, Hashley says. And many farmers who raise free-range, grass-pastured birds, which fetch premium prices, are reluctant to relinquish quality control to get them processed.

"That's been the real challenge," says Hashley, who, in addition to her work at New Entry, runs a livestock farm that includes chickens in Concord, Mass., with her husband, Peter Lowy. She has experienced the "processing bottleneck" first hand.

The situation effectively leaves small farmers with no practical, cost-effective options for bringing their fowl to market, unless they move into the gray area of "black-market broilers."

"What's happening, in reality, is that there is a lot of 'don't ask-don't tell,' " says Hashley, describing on-farm or custom processing that skirts the law in various ways.

One solution has been the creation of Mobile Poultry Processing Units, or MPPUs, portable slaughterhouses that can travel from farm to farm, allowing several farmers to share the equipment and process their birds to meet state standards for retail sale. MPPUs are operating in several states, as are similar units designed to process larger animals, such as pigs, cattle, goats and sheep. In South Dakota, there's one for buffalo, and in Alaska, one for reindeer.

Seeing a need in Massachusetts, the New Entry Sustainable Farming Project and the New England Small Farm Institute (NESFI) worked together to procure funding from a combination of state, federal and nonprofit sources to buy the state's first MPPU. In operation since 2008, the unit is owned by NESFI and administered jointly by NESFI and New Entry.

Getting the MPPU up and running wasn't quick. State health officials had never dealt with anything like it, and a regulatory framework had to be established. Questions about safe food handling and the environmental impact of the solid waste and wastewater from the unit had to be addressed. To check adherence to these standards, the Food Protection Program of the state Department of Public Health monitors the MPPU.

But ultimately, the MPPU is what enabled Locke to get his business, the Hillside Poultry Farm, off the ground.

"I don't have the funds to buy a whole slaughterhouse, so this unit is great," says Locke, an agriculture student at the University of Massachusetts who has had his heart set on raising chickens since he wrote a business plan for a poultry business when he was in high school. "The MPPU is great for upcoming farmers to see if they have the market."

VOLUNTEER CORPS

The MPPU used in Massachusetts is basically an open-air trailer with a canopy. It contains stainless steel equipment for killing, scalding and plucking the birds; an adjacent canopied area has tables and equipment for eviscerating. The last step is an ice-filled chill tank in which the birds cool to a safe temperature before they are bagged.

Having the MPPU pull up at your farm isn't like a visit from the ice cream truck, with the finished chickens served up while you wait. It's very much a do-it-yourself operation, and there is considerable prep work and some expense involved. Farmers must complete training in food-safety protocols, recordkeeping and equipment use. They need to have a state slaughter license, undergo an inspection of their farm and flock, and obtain approvals from their local board of health. They also have to provide the electrical hook-ups, potable water, propane and a heck of a lot of ice.

They also must supply the manpower needed for processing day, which can mean anywhere from a dozen people on up, depending on the number of birds. Locke depends on friends and family to help with the processing. Hashley and Lowy have recruited a corps of volunteers—a dedicated bunch of farmers-for-a-day who include chefs, culinary students, a kitchen manager, a high school principal, a software engineer and a retired Army Ranger.

The volunteers turn out to help slaughter and process the white Cornish Cross and red Freedom Ranger chickens for reasons as varied as they are. Chef Jason Bond, for

> "Poultry is the gateway enterprise for livestock. It's not hugely expensive or complicated, although it is labor-intensive."
>
> —Jennifer Hashley, G06

A corps of farmers-for-a-day —including a chef, a high school principal and a software engineer—help slaughter and process the chickens on the Mobile Poultry Processing Unit. Volunteers get first dibs on buying one of the sought-after grass-pastured birds.

example, a veteran of such Boston restaurants as No. 9 Park and who recently opened Bondir in Cambridge, Mass., cites the quality of the birds. (Hashley and Lowy offer volunteers the chance to sign up early for pre-sales on next season's chickens.) Margaret Callahan, principal of a vo-tech school in New Hampshire, uses the opportunity to bring back information on butchering and raising poultry for the students in her school's food and plant/animal science programs.

"When I help out here, I feel more connected to my food. I have earned the right to eat meat," says Linda Lee, a repeat volunteer from Lexington, Mass., who has become adept at using a paring knife to pry open a gizzard so that the small bits of gravel inside can be removed. "I started off as a foodie who just wanted a certain quality of meat. But as I learned more about agriculture, sustainability, the environmental side, that became an added reason."

In general, a "sustainable" chicken—grass-pastured, free-range, heritage-breed or some combination of the above—runs about $5 per pound. That same $5 could buy an entire chicken, fully cooked, at a supermarket.

Yet the market for these specialty chickens appears to be healthy, an appealing prospect for New Entry farmers. Although neither the USDA nor other agricultural or commodity organizations keep track of specific sales figures for grass-pastured or heritage-breed poultry, sales of organic poultry—which attracts a similar consumer demographic—quadrupled between 2002 and 2006.

"There is a strong customer demand," says Peter Lowy, the Concord farmer. "Originally, we were going to do 250 chickens a batch this year, but we ended up doing 400 a batch." When the business opened its website in early spring for pre-sales to new customers, 600 chickens sold out in three hours. (Another 1,200 had already been pre-sold to existing customers.)

Locke, too, says there was considerable response as soon as he started advertising his new business last spring. "I worked pretty hard on marketing, but as soon as people found out, they started calling me," he says. He sold out all four batches of chickens he processed this year, and says he'd like to be able to process every week next year.

"I've been asked if I want our business to get bigger, and the answer is, 'not really,'" says Hashley. She would like to see consumer demand give birth to more poultry or livestock farms like hers. "The point of New Entry is to train many new farmers," she says. "My vision is to see a lot more small-scale farms scattered throughout the landscape."

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SMALL FARMS, BIG ISSUES

Farm Aid activists Alicia Harvie, A06, N09, and Hilde Steffey, N05

Behind the Music

25 years after the first concert, Farm Aid is still working to save family farms

BY MARJORIE HOWARD PHOTOGRAPHS BY STEVEN VOTE

In 1985, at the height of the U.S. farm crisis, the country singer-songwriter Willie Nelson organized the first Farm Aid concert to help farmers facing foreclosure. John Mellencamp, Neil Young, Bob Dylan, Billy Joel and others performed for nearly 80,000 fans in Champaign, Ill. The goal was to raise enough money and awareness to save the nation's family farms; the expectation was that Washington would take immediate action.

It didn't turn out to be that simple. The battle to keep family farmers on their land has proved a complex mix of agricultural policy, politics, corporate power, ecological choices, economics and human drama. But the musicians' efforts planted the seed for an enduring organization that promotes good food from family farms, advocates for fair farm policies, and helps farmers find technical, business, financial and legal assistance.

On the 364 days a year when the microphones are turned off, Farm Aid activists still have plenty to talk about. Working out of a jammed office tucked away in Cambridge, Mass., amid boxes of concert T-shirts and CDs and walls covered with political posters, are two staff members whose interest in sustainable agriculture has its roots in the Friedman School. Hilde Steffey, N05, the program director, is Farm Aid's principal issue analyst and liaison to food and farm groups across the country. Alicia Harvie, A06, N09, the program manager, provides research and written support for Farm Aid's activities and manages its grant program. Together, they provide the nuts and bolts to reinforce the organization's policy and grassroots campaigns.

"Consumers around the country are starting to recognize that farmers are stewards of the land," says Steffey, who, with Harvie, recently co-authored a report demonstrating how family farmers are rebuilding local economies from the ground up (www.farmaid.org/es). While enormous factory farms typically control numerous stages of production and send their profits to investors, Steffey says that family farms often funnel their earnings directly back into their communities to purchase goods and services.

"They keep us healthy. They're leaders in our communities, and they purchase goods, helping their regional economy," she says. "Having a thriving family farm-based food system maintains a lot of other systems critical to our quality of life."

Yet the typical family farmer is far from thriving. The USDA reports that corporate farms and very large-scale family farms comprise just 12 percent of all farms, but account for 84 percent of farm production. Between 1987 and 2007, the median hog farm size increased by 2,000 percent while the actual number of farmers raising hogs fell by 69 percent. The same is occurring in most sectors of U.S. agriculture as farms become fewer in number, but significantly larger in size.

Meanwhile, mid-sized farms continue to struggle, as they are often too big to survive on sales from farmers' markets or community-supported agriculture programs, yet too small to sell in volume to mainstream food distributors. The latest U.S. Census of Agriculture documented a loss of 80,000 such farms between 2002 and 2007, and some analysts predict they could all but disappear in a decade.

ANOTHER CREDIT CRISIS

The picture today is reminiscent of the mid-1980s credit crisis that spurred the first Farm Aid concert. Farmers, explains Harvie, rely on credit to keep their farms going, often borrowing money each spring to plant their crops. Even when successful, she says, small farmers only earn an average 10 percent of their living from their farms, looking to other jobs to supply the bulk of the family income. Farmers today are threatened with foreclosures and bankruptcy just as they were a quarter century ago.

Dairy farmers are especially hard hit right now, struggling through the worst crisis since the Great Depression, Steffey says. The price

Farm Aid organizer Willie Nelson and country music star Kenny Chesney perform at the 2005 concert in Tinley Park, Ill.

of feed and fuel has hit record highs in recent years. The share dairy farmers earn from milk dropped 25 percent between 1998 and 2007, even though the retail price increased by 40 percent. For much of the past 18 months, dairy farmers have earned half of what it costs them to produce their milk.

"Dairy is one of the last livestock sectors we have that hasn't been dominated by factory farm production," Steffey says. In June 2009, Farm Aid delivered a petition with more than 13,000 signatures to Secretary of Agriculture Tom Vilsack, urging him to set an emergency floor price for dairy farmers. But so far, "the administration has been frustratingly reluctant to institute a sweeping measure to stop the bleeding on American dairies," Steffey says. Farm Aid is now calling on the Department of Justice to follow through on anti-trust investigations into some of the biggest dairy corporations.

While dairy farmers are suffering, large companies such as Dean Foods, which processes milk, have recorded record profits. Consumers may not know the name Dean Foods, but they have probably heard of some of its more than 36 brands, including Garelick Farms, Land o' Lakes, Friendship dairies and Horizon Organic dairy.

"What gets difficult, what is hard for the consumer to see, is how concentrated our food supply is and who's really benefiting from it," Steffey says. "We see many brands but it's really a few companies producing many of them and reaping the profits."

And profit often drives a corporation's decisions, Steffey says, not any long-term vision involving our social fabric, economy or the use of our natural resources. So Farm Aid works with local, regional and national organizations to promote things like responsible use of antibiotics in livestock production and giving local communities a say in how the factory farms located in them are regulated.

BIG FARMS, POOR HEALTH

Steffey and Harvie also see a link between farm subsidies, which have supported the production of corn and soy, and the health of the nation. "Billions of dollars get funneled into those two crops, and those two crops are everywhere," Harvie says. They are turned into ingredients like high fructose corn syrup, an inexpensive sweetener used in soda and countless other products, and soy lecithin, an emulsifier that, for example, helps hold a candy bar together. "The consequence is that we have a lot of cheap food that tends to be junk food," says Steffey. Harvie adds, "Basically we are subsidizing the cost of less healthful food."

Over time, they say, subsidies have encouraged consolidation and industrialization in the farming sector, enabling the biggest farms to get even bigger and putting small and mid-sized family farms at a disadvantage.

Steffey came to Farm Aid in the spring of 2008, after earning a master's degree from the Friedman School, where she studied in the Agriculture, Food and Environment (AFE) Program. After graduating, she did consulting work around food and farm policy and taught nutrition and environmental science. She also worked in the Office of Sustainability at Tufts while volunteering at Farm Aid before she was hired.

> **"What gets difficult, what is hard for the consumer to see, is how concentrated our food supply is and who's really benefiting from it."**
>
> —Hilde Steffey, N05

As a Tufts undergraduate, Harvie was inspired by Tufts' Summer Scholars program, where she worked for Kathleen Merrigan, the former director of the AFE program and now the deputy secretary of the USDA. "My first day on the job was waking up at 4 a.m., hopping into Kathleen's truck and driving to Vermont to collect raw milk samples. It was a revelation to me." Harvie did her undergraduate thesis on certified organic farmers on the East Coast and later earned her nutrition degree, also in the AFE program.

If nothing else, Farm Aid gives farmers a place to turn for help through its hotline and referral service. "Someone may call us because he's thinking of switching to organic and wants to know if there is anything in his area that offers support. We connect farmers with partners we've worked with," Harvie says. "Or someone may have been raising poultry or hogs but wants to grow vegetables and needs a greenhouse and technical support. Our partners help with business planning and financial counseling." There are also calls about credit and debt issues from farmers struggling to make ends meet.

The concerts have continued, of course. The 25th event was held on October 2 in Milwaukee, where Nelson headed a lineup that included Dave Matthews, Kenny Chesney and Norah Jones. Offstage, Farm Aid sets up a "Homegrown Village," an interactive exhibit area that showcases farm groups from around the nation. Concertgoers can get their hands dirty, and learn how family farmers are protecting our soil and water.

Farm Aid also works with the venue's concessions managers to incorporate foods that come from family farms and have been raised humanely: the cheeseburgers are from local beef and the corndogs are organic. At the venue's "Farm Yard," farmers are scheduled throughout the day to be available to meet the public. "Some people never met a farmer in their lives," says Steffey. "Also, the farmers get to mingle with each other and celebrate a day in their honor."

Last year Farm Aid invited Merrigan to speak at the press conference that kicks off concert-day. Farmers used the opportunity to speak directly with her and share their concerns.

"Alicia and I both worked closely with Kathleen Merrigan at Tufts," Steffey says. "She was largely responsible for writing the Organic Foods Production Act and is considered a friend of sustainable agriculture and family farmers. But in Kathleen's words, it's a big ship, and it's not going to change course over night."

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Raising Livestock 101

Newbie farmers head to school to learn the ABCs of animal husbandry

BY GENEVIEVE RAJEWSKI PHOTOGRAPHS BY ALONSO NICHOLS

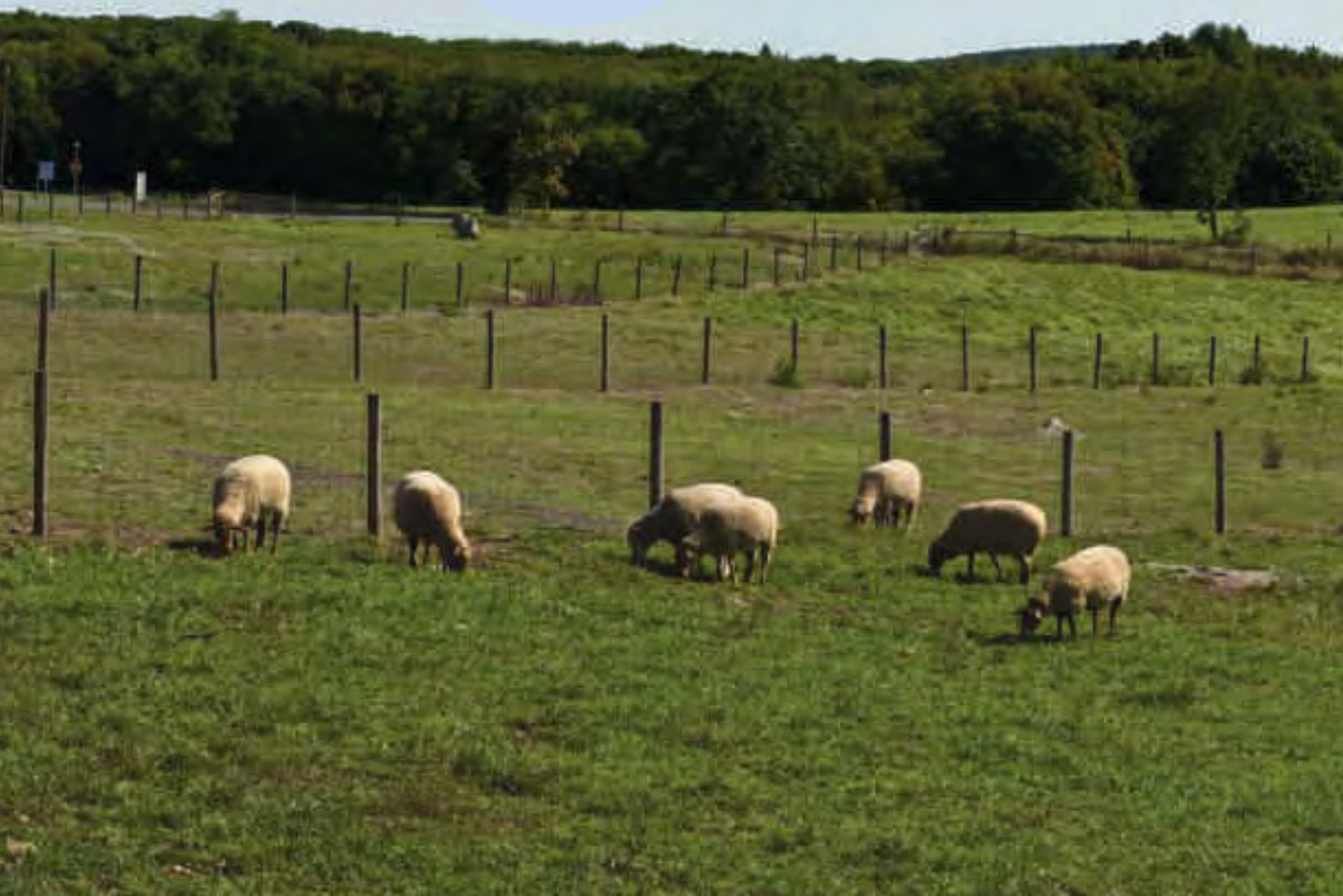
Twenty-five people clutching notebooks eagerly crowd into the deep shade of a farm shed, where Scott Brundage is demonstrating a judo-like maneuver that will set a sheep on its rump. The technique, known as sheep tipping, is a basic of herd management, allowing farmers to trim the animals' hooves and check them for disease.

"Tipping sheep is not about muscle or strength. It's all about balance," notes Brundage, the herdsman at the Cummings School of Veterinary Medicine at Tufts University. On this sunny fall afternoon, his students are participating in Sheep School, one in a series of Livestock Field Schools.

"First, you grab them here and here," Brundage instructs, gently taking a ewe's chin in his left hand, while wrapping his other arm around her side to grip her belly. "Now position your right knee against her side. Turn her head away from you until she is really leaning into your right leg. Now take that leg away!"

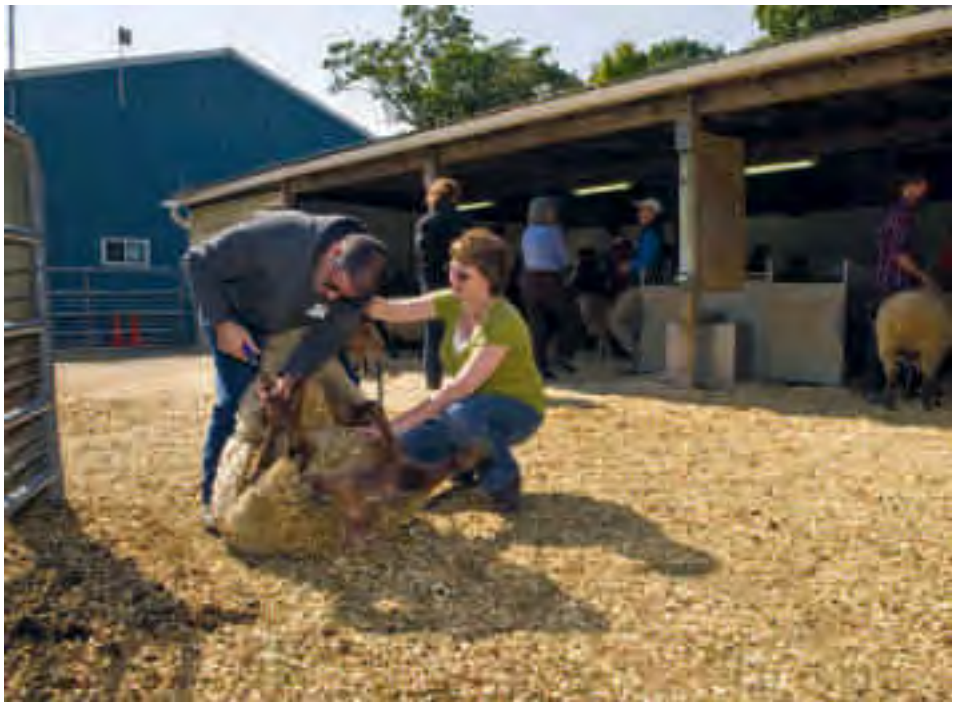
The sheep topples onto her side, where she remains, quite calmly. Brundage bends over, grabs the ewe's front legs and pulls her back until she is resting on her haunches between his knees. "From this position, you can trim the hooves," says Brundage, showing students how to wield their clippers.

After a few attempts that result in the sheep circling around him, Patrick McQuade, a registered nurse from Rutland, Mass., gets tipping down pat.



SMALL FARMS, BIG ISSUES

Clockwise from above: Farm veterinarian Rosario Delgado-Lecaroz, V97, explains how to detect a potentially fatal parasite; with the help of Cummings School herdsman Scott Brundage (in baseball cap), Patrick McQuade sets out to master sheep tipping; two participants practice trimming hooves.



McQuade discovered Sheep School while surfing for information on how to care for some Wensleydale lambs he had purchased. "You can only read so much on the Internet," he says. "Nothing beats hands-on instruction from actual professionals." McQuade decided to raise lamb after seeing the movie *Food Inc.*, a documentary about corporate farming. "I figured, at least this way, I'd know that the animals I eat were well cared for," he says. "I only work three days a week, so I have time to try farming on the side. So far, I love it."

As the eat-local movement inspires people to think long and hard about where their food comes from, more folks are turning to raising their own meat and eggs. These backyard farmers usually start off knowing next to nothing about animal husbandry—which is why, for the last two years, the Cummings School has offered the field schools through the New Entry Sustainable Farming Project, a nonprofit training program for newbie farmers of livestock and produce run by the Friedman School. New Entry also partners with Community Teamwork, a nonprofit in Lowell, Mass., that helps low-income people become self-sufficient.

SHEEP SENSE

Sheep tipping works because the animals possess natural defense mechanisms against predators. "She is feeling pretty good right now," says George Saperstein, DVM, professor and chair of environmental and population health at the Cummings School, of the tipped sheep. "When sheep are taken down by a prey animal like a wolf, their brains release endorphins so they will have a pain-free death."

However, those same instincts often make it difficult for novice farmers to judge a sheep's well-being. Standing out from the herd, say by acting lethargic or appearing a tad thin, attracts the unwanted attention of predators. So sheep evolved to blend in by not betraying any signs of discomfort or disease.

Consider the barber pole worm. This microscopic stomach parasite can drain a

sheep of a deadly amount of blood before causing any overt symptoms, even as the animal suffers from severe anemia. At this session of Sheep School, Rosario Delgado-Lecaroz, V97, a farm veterinarian in Upton, Mass., demonstrates a new technique for sussing out the presence of this potentially fatal parasite. Each attendee receives a plastic card featuring high-resolution photographs of sheep's inner eyelids in five possible shades of red. Delgado-Lecaroz then leads the students in comparing sheep eyelids against the take-home color charts to look for the paler reds that indicate anemia.

"The goal is not to rid a flock entirely of parasites," says Delgado-Lecaroz, noting that over-zealous de-worming of sheep has led to parasites that are now resistant to some of the drugs that control them. "The goal is a productive flock that can tolerate a reasonable level of parasites."

Although Americans eat just a quarter of the lamb they consumed in the 1950s, according to the U.S. Department of Agriculture, sheep might be the livestock animal best-suited for a revival in Massachusetts. "Back in the 1800s, [sure-footed] sheep were the most predominant animal in New England because of the rocky terrain," says Saperstein. "Just look at all the towns that sprung up around textile mills here."

STARTING ON THE RIGHT HOOF

Saperstein says that getting farmers started off on the right foot with animal care is the veterinary school's primary motivation for offering the livestock schools. "For the last 30 years or so, there hasn't been enough basic information about raising livestock available for new farmers," he says. "So when I was a practicing farm veterinarian, it was not uncommon to see animals with serious man-made health problems because their owners had little idea what to feed them to meet their nutritional needs or how to properly vaccinate or de-worm them."

The secondary focus of the field schools is on helping farmers achieve financial sustainability. For starters, local farmers need to learn how "to go back to using the grass that we have" to feed their livestock, says Saperstein. "The biggest cost to a meat producer is feed, and New England has the highest grain costs in the country because it has to travel so far to us," he explains. "Using grass more efficiently is the first step toward economic viability for our farmers."

Ten classes have been offered so far through the Livestock Field School series, which has received funding from the U.S. Department of Agriculture to offer the workshops. Classes have covered preventive care, handling, nutrition, feeding, breed selection and reproduction for chickens, cows, pigs and sheep. Other workshops have tackled pasture management, rotational grazing, fencing, direct-market opportunities and meat processing. In addition to faculty and staff from Tufts, the series has tapped industry experts, including breeders, chefs, representatives from the USDA and its Natural Resources Conservation Service, and extension service staff from the University of Massachusetts in Amherst, Penn State University and the University of Connecticut.

> **"For the last 30 years or so, there hasn't been enough basic information about raising livestock available for new farmers."**
>
> —George Saperstein, Dvm

To date, 372 people from all over the Northeast have attended a Livestock Field School.

Jana Dengler, the director of facilities and security at Boston's Institute of Contemporary Art, and Maryanne Reynolds, an assistant attorney general for the Commonwealth, have gone to field schools on poultry, swine, cattle, pasture management and direct marketing since purchasing their home with 110 acres in Petersham, Mass., last May. The married couple has 12 cashmere goats and two dogs to protect their livestock. They hope to add yaks to the mix this winter and plan to someday venture into raising poultry for eggs, meat and breeding stock.

The livestock schools "are great foundation classes," says Dengler, who ran a farm for four years in her 20s. "You come away with a good understanding of what the animals are like and their care and feeding requirements, as well as how to find a market for your product before you go ahead and invest money in buying 200 chickens. Not too many people have been raised on farms anymore, and the classes are especially good at getting people who have never handled an animal before comfortable with it."

"Because we both work full-time off-farm, time is a precious resource," says Reynolds, who appreciates networking with other attendees, who often have valuable experiences and information to share.

While New Entry stands ready to help those who choose to move forward with raising livestock after participating in a field school, sometimes success means preventing people from jumping in over their head.

Peter Kracke, E05, E08, a chemical engineering research scientist, attended Sheep School on a fact-finding mission. His family is exploring options for inexpensively mowing pasture they own in northern New Hampshire, and at first, sheep seemed a sound strategy, especially given the potential income stream from raising lamb. However, because of what he learned in Sheep School, Kracke has revised that game plan: "Sheep School, though a lot of fun, helped me figure out that it's not feasible for us to raise meat animals, given that lambing is in the spring months when none of us has enough time to do the work necessary to keep the animals healthy."

However, the experience did not dampen his desire to use the land for agriculture. Kracke says he is working on convincing his family to apply to the New Entry Farmland Matching Service as landowners seeking farmers.

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SMALL FARMS, BIG ISSUES

Amanda Beal, N11, and Ellen Tyler, N11, organized a series of forums where farmers and fishermen could talk and swap strategies.

The Surf and Turf Connection

Why the farmers and the fishermen should be friends

BY JULIE FLAHERTY PHOTOGRAPH BY ALONSO NICHOLS

What do farmers and fishermen dream about? A bumper crop of zucchini and calm seas? Perhaps. But both lose sleep over some of the same things: finding markets for their products, transporting their goods cheaply, tapping into the local foods movement and protecting the natural resources on which they both depend.

Although the two groups face similar challenges in keeping their businesses afloat, they rarely compare notes. Two students in the Agriculture, Food and Environment Program, Amanda Beal, N11, and Ellen Tyler, N11, are trying to change that. With a grant from the Eat Local Foods Coalition of Maine, they organized a series of forums around the state where farmers and fishermen could get together to talk and swap strategies.

"We're looking for really creative solutions to help both groups," Tyler says of the project, called By Land and By Sea. "So the more diverse perspectives we can pull in the more innovative strategies will emerge."

Farmers and fishermen who share transportation, for example, could potentially cut their costs and reduce emissions. "We've got a lot of empty trucks heading up the coast to pick up fish and a lot of empty trucks heading in the other direction to pick up produce," Beal points out. "It's kind of inefficient."

The two groups could also team up in educating their communities. Consumers are starting to cook more often with seasonably available produce, and teaching them about the seasonality of fish could be the next step. "There is a really dedicated core of people who want to buy locally and are willing to go out of their way to do it," Beal says.

The students have already seen some surf-turf crossovers. A few fisheries have copied the Community Supported Agriculture model: Just as CSA members purchase shares of a harvest at a local farm, local fishery customers buy a share of the week's catch. Some farmers' markets have also started offering fresh fish from local fishermen, though not all allow it.

Although they may have a reputation for Yankee reticence, the farmers and fishermen had a lot to share at the forums. "There were definitely some community connections that we watched happen in those rooms," Tyler says. At one meeting, a farmer asked a fisherman whether lobster shells, which are a natural source of lime, could be composted locally for fertilizer. Many Maine lobsters get shipped to Canada for processing, taking their shells with them. Setting up more facilities for processing fish locally would keep those useful byproducts from needlessly traveling hundreds of miles. In fact, the lack of processing facilities in Maine is a disadvantage to both fishermen and livestock farmers.

> **Although the two groups face similar challenges, they rarely compare notes.**

"We've lost a lot of processing infrastructure from both industries, and we really need to look at how to rebuild that," Beal says. "We have meat that goes to Maryland to be processed to come back and be sold as locally raised meat. We have milk that goes to New York to be bottled. We're seeing food travel a long way."

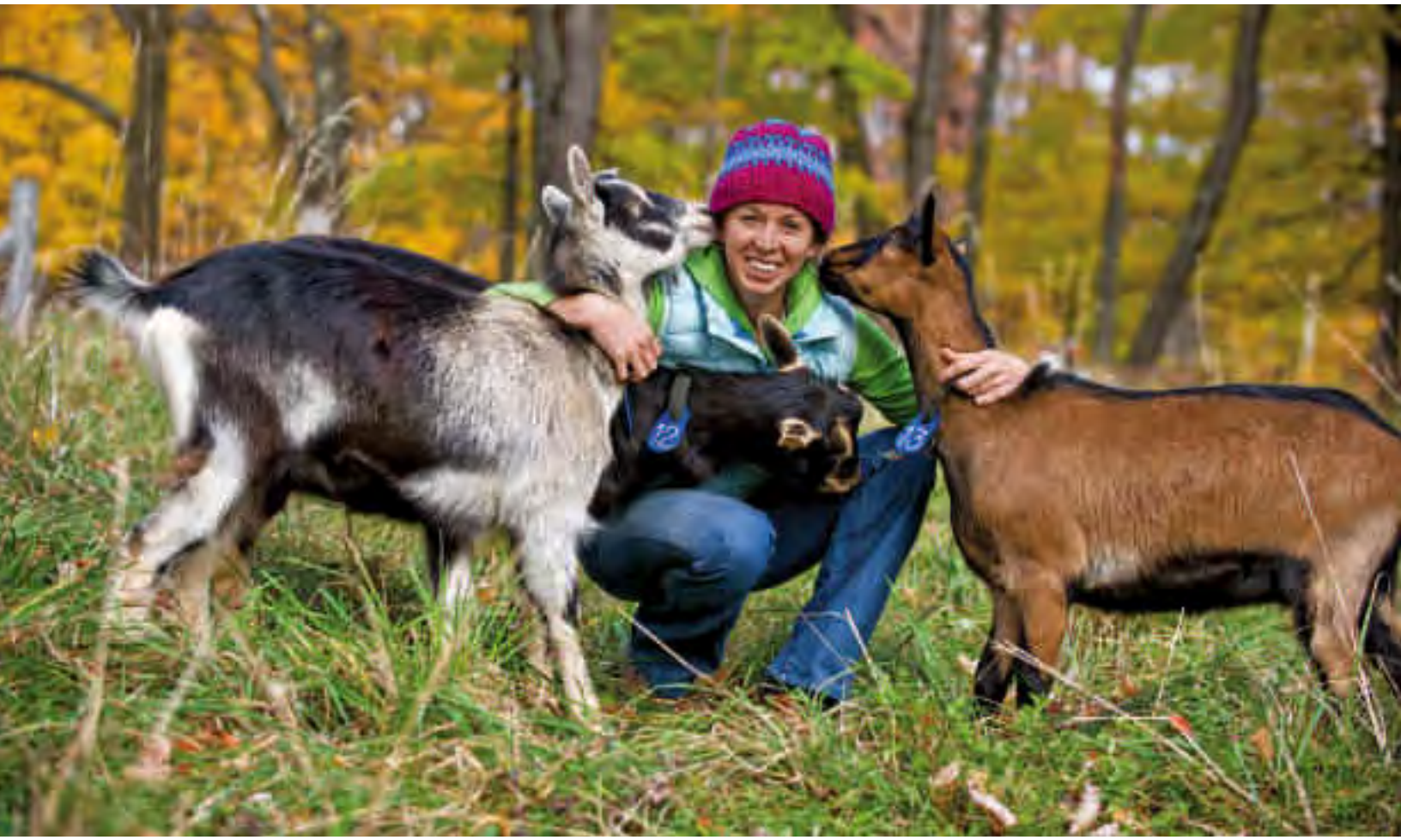
Just as important as getting the farmers and fishermen together was connecting the various groups that support them. As veterans of food policy circles and natives of Maine, Tyler and Beal could see there were many organizations "that were working with farmers or fisheries but weren't really working with each other," says Beal. "We thought it could be beneficial to bring those entities together to think about how to best utilize their resources." Tyler, Beal and the project partners used the data they gathered at the forums to create a policy brief, which the Eat Local Foods Coalition will use to make recommendations (such as allowing more fishermen to sell at farmers markets) to Maine's governor.

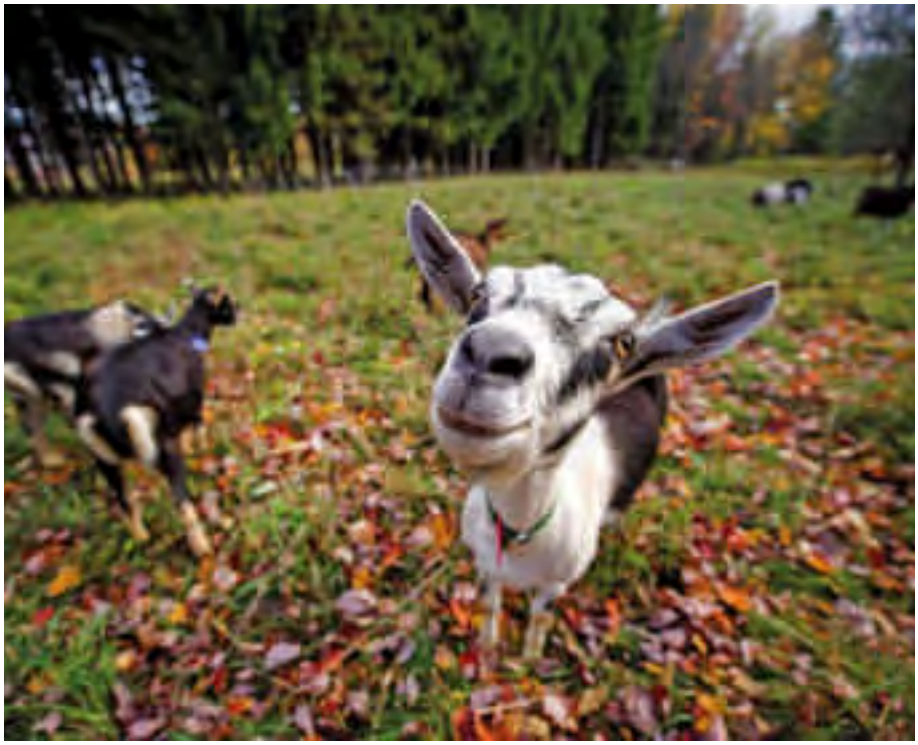
The students have gotten some recognition for their efforts. They were named winners of the 2010 Dow Sustainability Innovation Student Challenge, which recognized the ultimate goal of the project: building a more resilient food system. They were also delegates to Terra Madre, the annual international food conference in Italy, where Beal was asked to moderate a session and an online forum on the potential connection between farmers and fishermen worldwide.

Eventually, the two students would like to see more farmer/fisherman discussions about natural resources, climate change and the ways what we do on land may affect fish stocks in the Gulf of Maine. "There is a link there that we probably don't fully understand," Beal says.

"If and when those issues come up," Tyler adds, "we'll have a community of food producers who are used to working together and who know each other"—and who can keep the conversation going.

SMALL FARMS, BIG ISSUES





Molly Pindell, N05, stops to play with the small herd of Alpine dairy goats she and her sister raise. They easily sell out of the goat cheese they make each week.

The Right Whey

Molly Pindell took her own path to making scrumptious, sustainable goat cheese

BY JULIE FLAHERTY PHOTOGRAPHS BY ANDY DUBACK

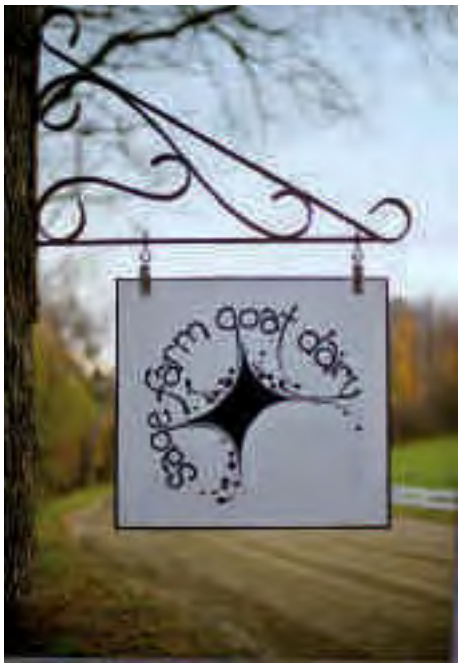
Molly Pindell's handcrafted goat cheese is in high demand, be it the rounds of soft, light chèvre or truncated pyramids of creamy Sterling. Still, her father-in-law likes to tease her: Did she really need a master's degree to become a goat farmer?

"Honestly, I didn't," says Pindell, who earned her degree from the Agriculture, Food and Environment Program in 2005. "But I do feel like a lot of what I learned in school has helped me to think big picture about the way I want my farm to be."

Pindell and her sister, Katie, started Sage Farm Goat Dairy, in Stowe, Vt., three years ago with the goal of making the farm as sustainable as they could. They move their small herd of Alpine dairy goats to fresh pasture on the 27-acre property each day. It's a lot of work, but keeps parasites down naturally and is better for the soil. Two enormous solar panels run the pasteurizer and most of their other electric needs. In the barn, layers of manure and hay compost throughout the winter, releasing heat that keeps the goats warm; in the spring, it becomes fertilizer for their two large vegetable gardens.

Staying local has been a calculated decision. They easily sell out the 60 to 70 pounds of cheese they produce each week, mostly through farmers' markets. As a former professional chef who worked under the celebrated Jean-Georges Vongerichten in New York City, Pindell admits that the requests she gets from four-star restaurants and high-end cheese shops outside Vermont are tempting. "There's part of me that would be very excited about that," she says. "But there is no way we would be able to satisfy all the demand we have. We're not planning on becoming really big, ever. It's very much a small, family operation."

Farming wasn't at the front of her mind when she enrolled at the Friedman School. She had her sights set on being a food journalist, a la Michael Pollan. Her longtime interests in writing, the environment and food politics came to a head while she was working as chef. "Even in these fancy restaurants, people didn't know where the food was coming from," she says. "By and large the meat was from a big nameless meat supplier, and to me it just felt very disconnected. I wanted to write about those issues."



After graduation, she published several articles and columns, but a move to Boulder, Colo., so her husband could attend graduate school, placed them very near a large goat dairy. She began working there, and soon fell for the cheese-making process.

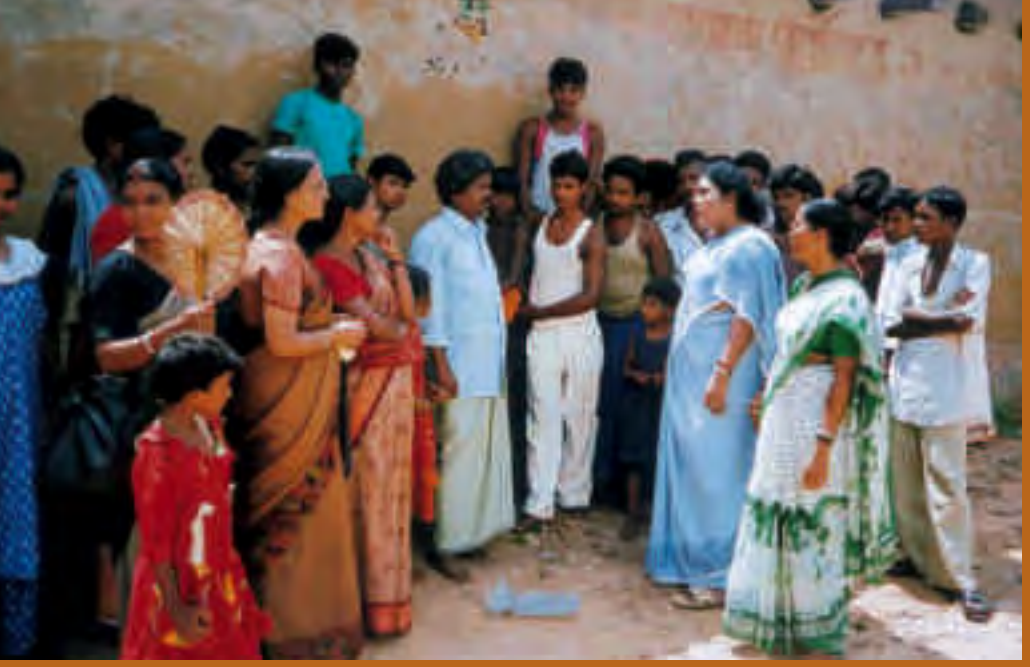
"I loved it. I just couldn't get enough," she says of both the cheese and the goats. "They are a lot like dogs. If they have the choice between staying with their herd and going out to pasture or playing with us, they'll play with us. They are just really interesting, curious animals." Plus, from a practical standpoint, she says, "they make wonderful milk, and their size makes them much easier to handle than cows."

She plans to get back to writing one day, maybe when her children, Juliette, 3, and Soren, 1, are a little older, and maybe when her daily workload lightens. Because she currently handles all the cheese-making, and the milk doesn't keep long, "even to leave the farm for one night is often impossible," she says.

Although the work is very physical (mucking out the barn in the spring is the single most back-breaking day of the year), she often exercises her academic muscles, drawing on the lessons she learned about organic standards, farm regulation and the misuse of antibiotics. "We don't treat our animals for anything unless we see a sign of ill health," she says, unlike farms that give all their animals regular doses of medications to prevent illness.

Though the aim is to make delicious cheese, she says part of her job is to educate people about farming, which she can do both as a practitioner and as a scholar. Even her hard-won nutrition science skills come into play when customers ask her why goat cheese is easier for lactose-intolerant people to digest (the fat molecules are shorter) and if its lower saturated fat content makes it healthier than many cheeses (it does). "I feel well armed with knowledge," she says. TN

Julie Flaherty, the editor of this magazine, can be reached at julie.flaherty@tufts.edu.



Child nutrition programs using the approach developed by the Sternins take place around the world. Clockwise from above: a community-based nutrition rehabilitation program in Nepal; spreading the word about childhood malnutrition in West Bengal, India; and mobilizing men to get involved in Mozambique.

Wisdom of the Outliers

A deceptively simple approach is solving some of the world's most intractable social problems

BY TAYLOR McNEIL

WHEN JERRY AND MONIQUE STERNIN ARRIVED in Vietnam in 1990, they had to work fast. They had been given just six months to come up with a way to combat widespread childhood malnutrition in the countryside. Previous efforts by outsiders had all failed, so they knew they needed a different tack.

Instead of heading in with ready-made solutions, the Sternins went to four rural villages to ask questions. The most important one was this: are there any families here that have children who are thriving?

Indeed there were a few, and the Sternins quickly sought them out. It turned out those villagers fed their children differently than their neighbors. They gave them smaller, more frequent meals and supplemented the staples with small bits of shrimp, crab and sweet potato greens. They fed them even if they had diarrhea. Those small changes meant these children thrived while their neighbors' kids did not.

That approach—looking for local people who had solved the problem and engaging the community to emulate them—soon became the basis for the Vietnamese government's childhood nutrition program in rural areas. After only six months, it reduced malnutrition in these poor villages by an astonishing 65 to 80 percent.

The project in Vietnam became the basis for the Sternins' work for the next two decades. In 2001, they came to the Friedman

School, and founded a program centered on this new approach. Monique Sternin, who has led the efforts since her husband died in 2008, recently published a new book about their work, *The Power of Positive Deviance: How Unlikely Innovators Solve the World's Toughest Problems* (Harvard Business Press), written with her late husband and co-author Richard Pasquale. It contains compelling case histories from Mexico to Indonesia.

Calling the approach "positive deviance" is admittedly awkward. What it means is this: in a community with a serious problem—in health, nutrition, education—identifying the people who deviate from the norm and find solutions on their own is crucial, as is the need for community engagement. "It has to be a problem that they want to solve," says Sternin, who leads the Positive Deviance Initiative (http://www.positivedeviance.org/) at the Friedman School. "It will motivate people to change."

What's needed for this approach to work is "a problem that's really intractable, that's worth the effort," says Sternin. Involving local leadership is also important. "The people with the money and power must relinquish control and let the community re-frame the problem," she says. "They need to let the people define the problem the way that they see it—and it actually does work."

COMMUNAL SOLUTIONS

Sternin points to work she did in the North-West Frontier Province in Pakistan, hard up against the Afghan border, a rugged area with extremely high infant mortality rates—85 deaths per 1,000 births. Working with Save the Children in 2002, she and her team met with the Pashtun village leaders and eventually steered the conversation to ask about local families whose infants had all survived. What were they doing differently?

Almost all village families delivered babies at home, and most followed traditional practices. They used a bamboo knife to cut the umbilical cord, fed newborns honey for three days before breast-feeding and often laid the babies on their huts' mud floors. But there were a few households that did not follow these practices: they used clean razor blades to cut the umbilical cord, began breast-feeding immediately and put their infants to sleep on pillows. In those families, the children survived.

After word spread, some villagers began to track the success of these non-traditional methods—and then began to imitate them. "That's what's important and worth the effort—not only is the problem solved, but it builds the capacity of the community to sustain the gains and go on and do something else," Sternin said.

Seeking out the anomalies is an approach that succeeds beyond the developing world. In 2006, the Pittsburgh Veterans Hospital contacted the Sternins to help with a campaign to eradicate the lethal MRSA bacteria from its wards. The hospital had tried many "best-practice" tactics, but the infection rate among patients remained alarmingly high.

The Sternins' team held small meetings with all hospital employees—from the doctors and nurses to cleaning and kitchen staff—to learn what might stop the MRSA infections. The large investment of time and effort—meeting with almost 400 people—paid off. Hospital staffers who earlier had felt ignored spoke up with new, useful ideas. Nurses felt empowered to remind doctors to wash their hands between patients. The result was dramatic: In a little more than a year, the MRSA infection rate dropped more than 50 percent.

"It's a non-expert driven approach," Sternin says. "To find the expertise and answers from within is very refreshing for workers, instead of being told what to do."

These successes were matched in other—and very different—circumstances detailed in the book: reintegrating rebel female soldiers in civil society in Uganda; curtailing female circumcision in Egypt; lowering school dropout rates in Argentina; increasing a company's pharmaceutical sales in Mexico. There were failures, too. In one case, conflict between an Indian Health Services hospital and the local reservation community proved insurmountable. "Failure happens, but it's usually because of a lack of leadership support," Sternin says.

Because the approach highlights community members who do things differently than everyone else, there is always the potential for conflict. "When you are involved in behavioral and social change, it's a very dangerous business," Sternin says. "Sometimes the discovery of what has been working completely threatens the status quo, the taboos, the ways things have been done so far." And that's why the buy-in of the local leadership is so important. "They have the power to say, 'Let's look at this.' "

> **"If you're able to let people express their fears and longings, they will be open to finding out what works for them themselves."**
>
> —Monique Sternin

As the approach has become more widely known, some have wondered how to expand it even further. But Sternin says the approach always has to be tailored to local circumstances.

"It's an approach, not a model," she says. If you lock it down to action plans, "it doesn't work anymore. By definition we have to be flexible. It is adapted to all the cultural and social contexts that give it its relevancy."

Even though the positive deviance (PD) approach is very labor intensive, it is increasingly seen as a potential game changer in many circumstances. In the nutrition field alone, it is used worldwide, Sternin says. Organizations such as the World Food Programme, UNICEF and foundations have used it to establish community-based programs to combat childhood malnutrition. Training others to take the approach out into the world is one of the main tasks of the Positive Deviance Initiative, Sternin adds.

"If you're able to let people express their fears and longings," she says, "they will be open to finding out what works for them themselves." TN

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Food and consumption aren't just a way to look at the past; they are a way to understand the present, too, says the Tufts historian Ina Baghdiantz McCabe.

Hidden History

How food tells the story of human culture through the ages
by Helene Ragovin

Wheat. rice. corn. potatoes. bananas. simple staples, yes, but also a window into the past. Food has influenced civilization in immeasurable ways—from where humans chose to settle to how they worshipped their deities. It has sparked worldwide exploration, mass migrations, revolution. It's a marker of social attitudes and ideologies.

Indeed, while the teaching of history is often presented through the lens of diplomatic, political or military events, looking at the details of daily life, such as what people ate and wore, can also illuminate the past. In her popular course for undergraduates, "Consumption, Power and Identity: History of Food and Clothing," the Tufts historian Ina Baghdiantz McCabe does just that.

Very often history focuses on elites, but the history of consumption is a way of understanding other, less-represented groups in society. "It's a history of daily life," says Baghdiantz McCabe, the Darakjian and Jafarian Professor of Armenian History in the School of Arts and Sciences.

While the importance of food is a common thread through all cultures, "what's interesting is how food can show great cultural diversity and great diversity in beliefs," Baghdiantz McCabe says.

"All societies have had staples: in the Americas, it was corn; in the Mediterranean, wheat; in Asia and Africa, rice," she says. "What's common is that when there is a staple food, it very often has a religious sentiment that's attached to it, a sense that it's a gift from the gods and has to be safeguarded. There are certain rituals associated with eating those staples."

The vestiges of those rituals remain, for example, in Christian communion—bread as the body of Christ—or the Jewish Sabbath blessing over challah, both originating in cultures that relied on wheat. "The staples might be different, the ritual might be different, but that main staple has a lot of significance," Baghdiantz McCabe says.

Food can also play a critical role in history. Bananas, for example, have fueled the politics of 20th-century Central America. A major factor in the U.S. involvement in the 1954 coup in Guatemala, which led to a long series of repressive military regimes, was concern by United Fruit that its banana franchise there was threatened. In Ireland, the failure of the potato crop was a touchstone in its 19th-century history and the subsequent Irish diaspora.

The popular course draws upon the considerable amount of new scholarship examining food, dress and other quotidian subjects, Baghdiantz McCabe says. Her students read Caroline Weber's *Queen of Fashion: What Marie Antoinette Wore to the Revolution*, which chronicles the politics of the time via the queen's wardrobe (her refusal to wear a whalebone corset shook the Bourbon-Hapsburg alliance, for example), and Karl Gerth's *China Made: Consumer Culture and the Creation of the Nation*, which looks at early 20th-century Chinese nationalism and revolution through the political lens of consumerism.

Food and consumption are also a way to understand the present. The rise of consumerism in the United States after the end of World War II is a distinctive element of our time—never before in history has mass consumption influenced the social, political and economic landscape to such an extent. And during the past 20 years in particular, Baghdiantz McCabe says, a new type of "informed consumerism" has begun to change the American mindset.

"People are boycotting things they don't believe in," she says. "They are looking for fair-trade products and organic food."

PHOTO: JODI HILTON

Dean Kennedy to Step Down

Her leadership brought financial and academic strength to the Friedman School

Eileen T. Kennedy, dean of the Friedman School, has announced that she will step down from her position at the end of the academic year next June. After a sabbatical year spent working on research and an important global nutrition effort, she will return to the faculty at the Friedman School.

"Dean Kennedy has taken the Friedman School to new heights of excellence—it is stronger than when she assumed her deanship in 2004, and is now positioned for a brilliant future," said Provost and Senior Vice President Jamshed Bharucha. "She has created a stable financial foundation for the school, secured new resources and elevated its international reputation."

Under Kennedy's leadership, the Friedman School collaborated with the government of Ras Al Khaimah, United Arab Emirates, to establish a one-year master's degree focused on nutrition and public health challenges in the Middle East, North Africa and South Asia. With the support of her faculty and Board of Overseers, she began the Friedman Symposium, an annual forum bringing together academics, policy experts, industry leaders and others interested in nutritional well-being to share ideas and gain knowledge that will direct policy, advance scientific understanding and improve the quality of nutrition for people worldwide.

Dean Eileen T. Kennedy

She has also led important internal efforts to add organizational strength to the Friedman School. Two departments—Nutrition Science and Food and Nutrition Policy—were formed to focus research and curricular activities while facilitating the important interface of science and policy.

In addition, a new Office of Academic Initiatives was created to support faculty development and pedagogical innovation. Academic excellence at the Friedman School was recently recognized by the National Research Council's 2010 graduate program assessment, which found the school's doctoral program in nutrition to be among the very best of its kind in the country, and one of the best doctoral programs at Tufts.

Kennedy has also strengthened the Friedman School financially by prudently managing its budget during the recent economic crisis, and leading the school's successful efforts to exceed its $50 million fundraising goal for Tufts University's Beyond Boundaries campaign, with a total so far of $61 million. During her tenure, research dollars have grown by 91 percent to close to $4.5 million annually.

"It has been a privilege to work with

See **KENNEDY**, *next page*

KENNEDY, *continued from previous page*
Eileen Kennedy to strengthen nutrition at Tufts," said President Lawrence S. Bacow. "Whether collaborating to establish an innovative distance learning program abroad or on using the Boston Marathon to generate resources to support scholarship on hunger, famine and obesity, I have always found her to be a smart, thoughtful and strategic academic leader. These same qualities have made her a terrific member of Tufts' Academic Council, helping us frame and address a full range of issues of university-wide importance. She has also become a good friend as well as a great colleague."

Bharucha said, "I will be convening a committee to advise me on the future challenges and opportunities for nutrition science and policy studies at Tufts, how we can further strengthen synergies around the university, and the leadership that we should seek."

Last month, the Friedman School announced that it was the recipient of awards totaling $15 million from the U.S. Agency for International Development (USAID) to implement a Global Nutrition Collaborative Research Support Program focused on multidisciplinary research and action programs in Asia and Africa.

Kennedy, who is co-principal investigator on the project, said she would devote a substantial part of her sabbatical year to working on this effort.

She will also continue to interact with United Nations agencies and others who helped launch the Scaling Up Nutrition effort, specifically focusing on capacity building in food and nutrition in developing countries. In addition, she will be coauthoring a book titled *Fundamentals of Nutrition Policy* before she returns to the school in 2012.

"I am proud to be dean of such an outstanding community of talented and passionate individuals," Kennedy said in a statement to the Friedman School community. "We have accomplished much together. I look forward to completing my final year, working with you to continue to fulfill our critical mission of improving the nutrition and health of people worldwide."

Constant Craving

Gershoff Symposium explores the addictive side of food

CAN FOOD REALLY BE ADDICTIVE? AND IF SO, COULD TREATING OVEREATING like an addiction help curb the obesity epidemic? Experts in nutrition, psychology, neuroscience and even the law examined the evidence at the 12th annual Gershoff Symposium.

Professor Susan Roberts, Ph.D., director of the Energy Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging, kicked off the afternoon with an overview of the obesity epidemic. In 1975, U.S. farms produced 2,200 calories per day for every American, about the right amount for healthy, active adults to stay trim. Today, those farms produce 564 more calories per capita, "mainly thanks to high fructose corn syrup and oils," Roberts said. In the same period of time, the production of beef, dairy products and seafood has remained relatively flat. "So we didn't become obese by gourmet dining," said Roberts. "We are overweight by and large because of high fructose corn syrup and edible beef tallow."

Roberts, who has studied diets and dieters since 1994, noted that the neurobiology that regulates hunger is based in the limbic system—the very primitive part of the brain that also controls breathing. "Willpower doesn't reach down there," Roberts said. "Diets fail because of unconscious preferences that are not controlled by willpower."

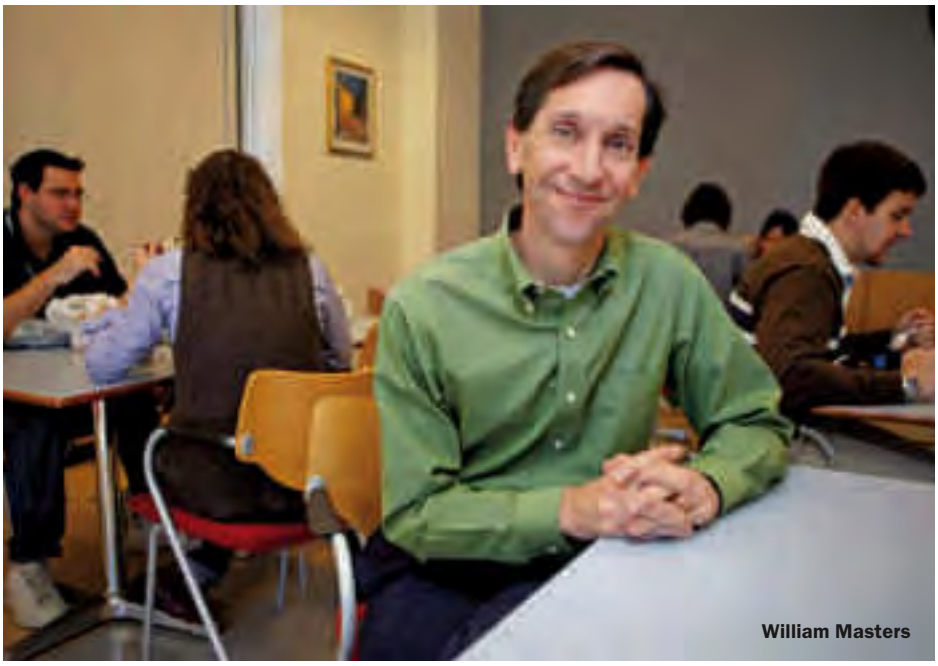
Psychologist Marcia Pelchat, Ph.D., a researcher at the Monell Chemical Senses Center in Philadelphia, drew parallels between food cravings and drug cravings. Food and cocaine both cause the brain to release dopamine, the neurotransmitter associated with the feeling of reward, she said. Pelchat cited a 2003 study that found that obese people—like many drug addicts—have decreased sensitivity to the dopamine-reward system. Though dopamine metabolism is still not well understood, the evidence suggests some people may overeat to compensate for that insensitivity.

Food in its natural state is likely not addictive, according to Gene-Jack Wang, M.D., a senior scientist at Brookhaven National Laboratory. But Wang suggested that sugars, sodium and fats manipulated by the food industry may "make you behave similar to an addict. Food is not evil, but we changed the food . . . so we want more and more of that."

So is it time to regulate? Richard Deynard, Ph.D., J.D., a professor of law at Northeastern University, is battling obesity in the courtroom. "No single regulation will make a difference," said Deynard, who counts getting soda machines out of schools as one successful campaign. "But smart regulation combined with education will." Deynard believes the movement to make nutrition labels more visible in chain restaurants like Starbucks is one way regulation will help America trim down.

Established in 1998, the annual Gershoff Symposium honors Dean Emeritus Stanley Gershoff, who served as the first dean of Tufts University's school of nutrition from 1981 to 1993. The symposium is organized by Alice Lichtenstein, D.Sc., who in 2002 was appointed the Stanley N. Gershoff Chair of Nutrition Science and Policy, and the Gershoff Scholars, current outstanding doctoral students who receive a full scholarship and stipend from the school.

—JACQUELINE MITCHELL



William Masters

Fearless Asymmetry

William Masters uses economic theory to crack nutrition roadblocks

You walk into a grocery store and are presented with a choice: Do you pick the $5 box of heavily advertised cereal or the no-name brand with the $1 price tag? What if your child's life depended on your decision?

In many developing countries, parents rely on infant cereals, high-density sources of fats and proteins, to complement breastfeeding for their children, from about ages six months to two years. Expensive, well-recognized brands like Cerelac, which is put out by Nestlé, dominate the market, even though locally produced products developed by public service agencies contain roughly the same nutrients and cost as little as one-fifth the price.

Professor William A. Masters, Ph.D., theorizes that parents shell out for the brand-name product, even if they can't afford to buy as much as their children actually need, in part because they have no way of judging for themselves the nutritional quality of what's inside. "They have no choice but to rely on advertising, price and packaging to decide which products to trust," he says.

The remedy, he says, is certification. In 2001, he conducted economic experiments at various marketplaces in Mali in which mothers were offered a free package of Cerelac. They were then asked for how much of a less-familiar, but tested product they would be willing to trade it for, to reveal what they would pay for products that had been given a "seal of approval." (Having a third party do the testing is important, Masters says, to gain the trust of both buyers and sellers.) Factoring in the additional cost of a certification program, he estimated that introducing quality assurance would help parents save about $20 per year per child, enough to buy each child an extra month's worth of food.

This year, Masters and colleagues at the University of Ghana took the first steps toward developing an infant food certification program in that country, where malnutrition stunts the growth of 28 percent of children under age five. "Certification would help local producers meet infants' needs at much lower cost, which would go a long way towards solving the country's nutrition problems," Masters says.

Masters joined the faculty of the Friedman School's Food Policy and Applied Nutrition program in July after nearly 20 years at Purdue University, where he was associate head of the Department of Agricultural Economics. His research uses economics to improve food systems, especially in Africa.

While his focus has been on markets and trade, he has recently been looking at innovation and information. In Ethiopia, for example, he is exploring whether giving prizes to innovators who introduce improved farming techniques would "put into sharp relief what's worked and what hasn't" and spur agricultural advances. More specifically, he is looking at whether proportional prizes—where winners would be paid according to how big an impact their methods have, rather than the more common "winner-take-all" approach—would encourage more people to take part and capture a wider range of ideas. Improving Ethiopia's food system will take innovations both big and small, Masters says.

"In medicine, it's often one disease, one cure," he says. "In agriculture, that's almost never the case, so we need to keep looking for incremental improvements to suit each specific problem. There are endless opportunities to make a difference."

Masters' research on infant foods and on new farming techniques both draw on the economic theory of asymmetric information, in which one party in a transaction has more information than another. "The economic theory is pretty well developed," he says. "The question is how that plays out in agriculture and nutrition. Solving food problems requires a lot of fieldwork to learn how nature has set the rules."

In the coming years, Masters and his Friedman School colleagues will have a lot of fieldwork opportunities. In October they were awarded a five year, $15 million grant from USAID for research on how to improve nutrition in Asia and Africa. Masters will direct the work in Africa. "The project involves all kinds of scientists," he explains. "That's good—the natural systems involved are really complicated. Sometimes the economics is the easy part."

PHOTO: KELVIN MA

CELEBRATING 30 YEARS

The school throws a birthday party, and honors two stellar professors

THE FRIEDMAN SCHOOL BEGAN THE YEAR-long celebration of its 30th anniversary with a Dean's Medal tribute to two of its most cherished professors, women who were instrumental in putting the nutrition school on the academic map.

Hundreds of alumni, colleagues and friends attended the November 6 program honoring Jeanne Goldberg, G59, N86, J92P, founder of the Nutrition Communication program, and Johanna Dwyer, director of the Frances Stern Nutrition Center, with the highest award a school at Tufts University can bestow.

Dean Eileen Kennedy credited Goldberg with keeping her on track during her years as a Washington bureaucrat.

"When I needed a reality check, when I needed someone to give me sage wisdom, one of the first people I always called was Jeanne," Kennedy said. "And after every call with Jeanne I felt extraordinarily better."

Goldberg began her college career as a home economics major, but a field trip in 1955 to the then Frances Stern Food Clinic put her on a new path.

"What was being taught at Frances Stern was that if you treated people while they were still on their two feet, you might prevent them from going to the hospital," said Goldberg, pointing out that the idea of "preventive medicine" was still a novel one at the time. By 1959, she had completed a master's degree at Tufts and a dietary internship at Frances Stern.

She eventually took a job as a research nutritionist at the Harvard School of Public Health, where she worked with nutrition luminaries including Jean Mayer, who asked her to write the weekly question-and-answer portion of his nationally syndicated newspaper column. The Q & A, which she continued writing for 22 years, appeared in approximately 170 newspapers around the country and internationally.

"We were a voice of accuracy and hopefully clarity in a time when there was lots of misinformation out there," she said.

Soon after, Mayer, the new president of Tufts University, asked Goldberg to resurrect a long-dormant nutrition course. When the nutrition school was founded, she became one of its first doctoral students, earning her Ph.D. in 1986 and joining the faculty soon after.

Recognizing a need for clear and accurate nutrition information and an opportunity for nutrition graduates, she created the school's Nutrition Communication program in 1993. Anita Owen, an overseer emerita of the school and co-chair of the Friends Council, read a message from one of the program's graduates, Jen Hellwig, N97, who said she was amazed at how important the program's alumni have been to her career. "Jeanne is the reason the alumni community is so active, engaged and robust," she wrote. "She is not only a wonderful counselor and a mentor to current students, but she continues in that role with the alumni as well."

In addition to spearheading many research projects and community interventions, Goldberg created the Nutrition Navigator website (navigator.tufts.edu), the first online guide to accurate sources of nutrition and fitness information on the Internet. Michael Mudd, then senior vice president at Kraft Foods, which provided support for the navigator, wrote that Goldberg provided compassion and inspiration to those around her. "What Jeanne is is a humanitarian who happens to be an expert in nutrition," he said.

A GRAND FACILITATOR

Dwyer left her job as an assistant professor at the Harvard School of Public Health (where she received her D.Sc.) to become an associate professor at Tufts Medical School and director of the Frances Stern Nutrition Center at Tufts Medical Center (then New England Medical Center Hospital) in 1973. She was on the faculty council when the nutrition school was being created and

From top: Lynne Ausman presents the Dean's Medal to Johanna Dwyer; Jeanne Goldberg receives her medal from Anita Owen, overseer emeritus and Friends Council co-chair.

PHOTOS: KELVIN MA

helped create the dietetic internship master of science degree, which was a significant change from the existing dietetic internship master of education degree.

She is the author or co-author of more than 200 original research articles and 280 review articles, primarily looking at the prevention of diet-related disease in children and adolescents; maximizing quality of life and health in the elderly; vegetarianism and other alternative lifestyles and nutrition in chronic disease.

Many of those articles have been written with colleagues, students and interns, who are frequently included in her work, Professor Lynne Ausman said in introducing her.

"She is the ultimate grand facilitator," Ausman said, describing Dwyer's penchant for phone calls and blackberry emails, each with "another wonderful suggestion or idea of a new direction that one could go in: 'Lynn, here is something you should apply for.' 'Who would be good at doing this?' 'Would you like to be sponsored for this award?' 'Would you like to collaborate on something?' These are questions to all of her colleagues, everyone she works with. This is how she treats them."

"Her productivity is legendary," Ausman said, recounting just a few of her many awards and leadership roles, including serving as president of the American Society for Nutritional Sciences and a member of the national committees for the dietary guidelines and the daily recommended intakes—positions, she said, where Dwyer actually "got work done." And the work continues: as a senior research scientist at the Office of Dietary Supplements at the National Institutes of Health, Dwyer has been developing a database for dietary supplements and analyzing dietary supplement intake data in the National Health Interview Survey, which has been assessing Americans' well-being since 1957.

Kennedy said her first encounter with Johanna Dwyer was as her interim dissertation advisor. "I learned more from Johanna in that first four months than I think I've learned from anybody else in my career," she said. "She has been a strong mentor, strong advisor and strong advocate for professionals in nutrition."

HUNGER DOESN'T TAKE A BREAK

NOT LONG AFTER SHE WAS SWORN IN AS DEPUTY SECRETARY OF THE U.S. DEPARTMENT OF Agriculture, Kathleen Merrigan found herself in the situation room at the White House discussing the potential ramifications of the H1N1 influenza outbreak.

"There was a lot of talk about what would happen to the 31 million children who depend on school lunches for nutrition if we had to close the schools for two months at a time," recalled Merrigan, who was an assistant professor and director of the Agriculture, Food and Environment program at the Friedman School until 2009. "I said, 'What do you think happens in summer? Hunger doesn't take a break.' "

"The magnitude of what we are about to face is heart-stopping."

—Kathleen Merrigan

Addressing the widespread and growing problem of hunger in the United States is the USDA's core mission, said Merrigan, who gave the keynote address at the fifth annual Friedman School Symposium on November 5. More than 17 million American families struggle to put enough food on the table, according to 2008 statistics from the USDA. "We have elders choosing between buying medicine and buying food," said Merrigan. "It's unacceptable."

With so much food insecurity, how can America also be in the midst of an obesity epidemic? "It may seem like a policy paradox," said Merrigan, "but, actually, the root cause of both is lack of access to good, healthy food."

She said the solutions to these complex, intertwined problems lie in innovative strategies. One is to bring mobile food trucks to the rural areas and urban neighborhoods that can't support brick-and-mortar stores. Another is to reimburse public schools that purchase produce from local growers, delivering healthier foods to school children and boosting the regional economy. "People are enacting changes at the local level, and I find that quite exhilarating," Merrigan said.

To support farmers and revitalize rural America, Merrigan is spearheading the USDA's Know Your Farmer, Know Your Food initiative. It aims to protect natural resources and promote healthier eating by creating farmer collaboratives and awarding small grants to train novice farmers and assist food banks, for example.

"These farming communities were dying long before this recent economic downturn," said Merrigan, adding that the average age of American farmers today is 58. "We need to usher in the next generation of people to work our land."

The USDA is also feeling the impact of the recession. While the number of Americans receiving assistance through the Supplemental Nutrition Assistance Program rose from 28 million in 2008 to 45 million this year, Merrigan expects the new Congress in 2011 to cut the USDA budget to back to 2008 levels.

"The magnitude of what we are about to face is heart-stopping," Merrigan said. "I think we are going to have to think about new ways of doing things, building unusual coalitions and muscle our way through this."

—JACQUELINE MITCHELL

PHOTO: ALONSO NICHOLS

ONLINE GRADUATE CERTIFICATE PROGRAMS TO START IN JANUARY

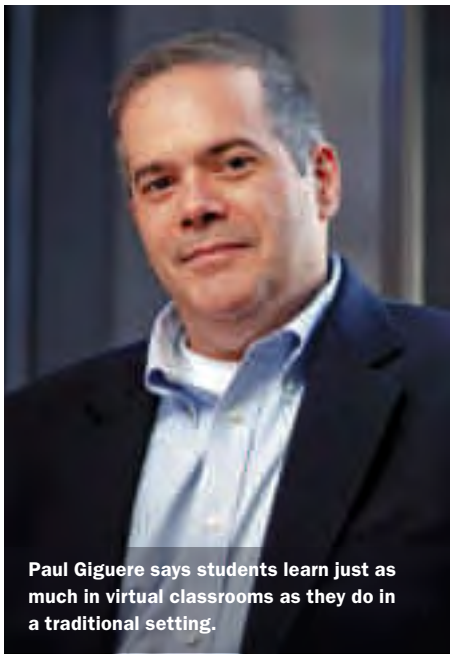
The Friedman School has launched its first online graduate certificate programs, with classes scheduled to start in January. The three programs are designed for mid-career professionals who may already hold an advanced degree and have significant experience in their respective fields, but would like to deepen their nutrition knowledge in specific areas.

The certificates are offered in Applied Positive Deviance, Nutrition Science and Communications for Public Relations Professionals, and Delivery Science in International Nutrition. All courses are taught by core Tufts faculty and adjunct faculty, and are held to the same academic standards as those taught live on the school's Boston campus.

Assistant Professor Paul Giguere, Ed.D., the school's senior director of academic initiatives and an expert on instructional technology and distance education, spoke with *Tufts Nutrition* about what it took to create the online courses, and what the certificate programs mean for the school.

Q: HOW DO ONLINE COURSES COMPARE TO THEIR LIVE COUNTERPARTS?

There has been a lot of research comparing online learning to face-to-face learning—two versions of the same courses—and these studies basically found no difference in grades, no difference in what the students learn. The big difference is how students access the course. A lot of students would prefer to be on campus, but they take online courses because it meets their particular needs—it's either convenient for them or it's accessible. That's really why we developed these courses. When you offer a program like, say, Delivery Science in International Nutrition, you're looking at students who are going to be all over the world. It allows us to extend our academic mission to audiences we want anyway, but that we don't have access to right now. It allows us to contribute to a raising up of consciousness and understanding of nutrition and how it fits into a lot of other venues and contexts.



Paul Giguere says students learn just as much in virtual classrooms as they do in a traditional setting.

Q: HOW DO YOU GO ABOUT CREATING AN ONLINE COURSE?

We put a lot of stock in instructional design. We work closely with faculty to match appropriate interactions, activities and assessments into the course so that it works well in the format it needs to. We find the right technologies to have them do that. It's really a time-proven, effective way of developing courses, which, unfortunately, a lot of institutions sometimes don't follow. They simply think it's a matter of technology, and it really isn't; that's actually a secondary consideration. What we look at first is: what do we want the students to be able to do when they are done with the course? Then we work backwards, creating a course with the instructor that will help the students achieve those learning objectives. We build and scaffold it.

We also work with faculty on teaching skills. They learn the nuances of how to facilitate an asynchronous discussion—in other words, one that isn't live—and how that can still be a dynamic and engaging discussion. It can lead to a much greater depth of thought and consideration for the course content than you can achieve in a three-hour class where at least half the class is lecture.

Q: DOES THAT INFLUENCE HOW FACULTY MEMBERS APPROACH A COURSE?

It does require that teachers use more constructivist approaches to learning, as opposed to an information transfer modality, where it's: "I'm the expert, the sage on the stage, and I'm going to impart my knowledge to you through 65 slides that I'm going to go through for 14 weeks." At the graduate level, it's highly important to encourage collaboration, because we're dealing with adults. They are savvy, they have been in the workforce, and they know that you work in groups, you work in teams, to accomplish goals. They have knowledge and experience and information to share and integrate into the learning experience. Knowledge transfer is important, but it's not the entire thing.

For more on the graduate certificate programs, visit: **http://nutrition.tufts.edu/certificates.**

PHOTO: KELVIN MA

Clockwise from top left: Dean Eileen Kennedy; Erin Hennessy, J99, N03, MPH03, who received her doctoral hood from Associate Professor Christina Economos; Sonya Irish Hauser, N05, who completed her Ph.D. in August; master's degree recipients Lindsay Peterson and Jalal Elhayek.

Commencement 2010

It's time to remake the food system, graduates are told

THE FRIEDMAN SCHOOL AWARDED 61 MASTER'S DEGREES AND 20 doctoral degrees at its 29th commencement ceremony, held in May on Tufts' Medford/Somerville campus.

Bill Layden, owner and partner of the food and nutrition consulting company Foodminds, encouraged the graduates to share themselves and make a difference in the lives of others.

"With all due respect to the popularity of *carpe diem*, I believe old Horace was wrong," said Layden, a member of the school's Board of Overseers. "Please don't seize the day. Rather, I say give the day. Give the day and your future will be trusted. The world needs more givers and fewer seizers."

He spoke of the imperfect food system the new graduates have inherited, one that has given us "an overweight, undernourished population while depleting and destroying our natural resources."

"Some would look at you and say, hey you smart, young people, can you fix it? Can you change it? Can you make it better?" Layden said. "Instead, I challenge you to break it, and break it good. Sometimes you have to tear down something to make it better."

He spoke of his time as a congressional investigator with the Government Accountability Office, when he concluded the way the EPA reviewed pesticide safety needed to be redesigned, not just improved. The report earned him a meritorious service award from the GAO.

In her class address, Dawn Undurraga, who received her master's degree, looked to the rows of graduates and noted the diversity of career paths that will grow from their nutrition studies.

"I see farmers, development workers, scientists, dietitians, policy analysts, researchers, epidemiologists, public health workers, urban gardeners, planners, writers, journalists, entrepreneurs, teachers, mentors, advocates," she said. "I see people who care about living their lives with passionate purpose."

Undurraga, who has been a U.S. Schweitzer Fellow for public service, continued: "Whether we do our work bending over petri dishes in a lab or blending hummus in a kitchen; volunteering in Chinatown, Dorchester or Somerville; or interning in Italy, India or Ethopia, Friedman students are working hard to answer our president's call to 'form a more perfect union.' "

PHOTOS: EMILY ZILM

G75 **Helene Fuchs** is now a lecturer in the nutrition department at Simmons College, joining fellow Friedman School alumnae **Esther Kim**, **N98**, and **Kendrin Rae Sonnenville**, **N02**. The nutrition department is chaired by former Frances Stern staff member Nancie Harvey Herbold.

N85 **Miriam Nelson**, **N87**, wrote *The Strong Women's Guide to Total Health* with alumna **Jennifer Ackerman, J01, N06**. It was published in the spring of 2010 [see story, page 6].

N98 **Esther Kim**, see G75.

N99 **Patricia Bannan**'s new book, *Eat Right When Time Is Tight: 150 Slim-Down Strategies and No-Cook Food Fixes*, includes the latest health and nutrition research. It was released on October 25. Visit her website for more information: www.patriciabannan.com.

N01 **Jayong Chung** is an associate professor in the Department of Food & Nutrition at Kyung Hee University in Seoul, Korea.

Since October 2009, **Danielle Nierenberg** has been on a journey with Bernard Pollack to visit nearly every country in Africa. They are blogging about their experiences at http://blogs.worldwatch.org/nourishingtheplanet. Here's an excerpt: "At every stop they are meeting with farmers, community organizers, labor activists/leaders, non-governmental organization (NGOs), the funding and donor communities, and local, regional and international press . . . . They will tell the stories that aren't being told—from oil workers fighting to have a union in Nigeria to innovative ways farmers and pastoralists are coping with climate change."

N02 **Dara Borto** and Matthew Borto announced the birth of their daughter, Jessica Marie, on June 17, 2010. She joins big sister Julie, who loves to make Jess laugh.

Jessica Bruso and Jay Bruso announced the birth of their third daughter, Robin Syona, on January 18, 2010.

Jennifer Hastings works as a project director at the North Carolina Institute of Medicine, based at the University of North Carolina at Chapel Hill. The majority of her work focuses on prevention for population health improvement. She writes that she also has a wonderful 14-month-old son.

Kendrin Rae Sonnenville, see G75.

N05 **Charlotte Block** is now working for Project HOPE in Virginia as a program officer for global health. She provides program and technical support for chronic disease and nutrition programs.

Xiang Gao, a research scientist at the Harvard School of Public Health, is serving on the Committee on Nutrition, Trauma and the Brain at the Institute of Medicine this year. The committee will review the existing evidence that supports the potential role nutrition may play in mitigating or treating the short- and long-term effects of neurotrauma, with a focus on traumatic brain injury. The American Academy of Neurology (AAN) issued a press release for his study of "Use of Non-steroidal Anti-inflammatory Drug and Risk of Parkinson's Disease," which was presented at the 2010 AAN annual meeting. Also this year, the American Academy of Sleep Medicine issued a press release for his study of "Restless Legs Syndrome and Erectile Dysfunction," which was published in the journal *Sleep* in January.

Fan Fan Han has completed her Ph.D. program at the CDC in China. Her thesis topic is "The Study on Food Safety Risk Communication Strategy." She

also visited with two Friedman students in Beijing last spring, **Hanqi Luo, N10**, and **Zhanglin Kong, N11.**

Erin Boyd Kappelhof was one of 30 people selected to attend the European Nutrition Leadership Program (ENLP) in April 2010 in Luxembourg. ENLP aims to promote nutritional well-being through a multidisciplinary and multicultural network of nutritionists that is internationally recognized for excellence in science and communication. During the week-long course, held annually since 1994, emphasis is placed on understanding the qualities and skills of leadership, team building, communication and the role of nutrition and science in society.

Yuri Kim is a faculty member in the Department of Nutritional Science and Food Management at Ewha Womans University in Seoul, Korea. In April, she received the Scholar-in-Training award from the American Association for Cancer Research in Washington, D.C.

Shauna Sadowski recently became the director of sustainability for Annie's Inc.

N06

Jennifer Ackerman, see N85.

Rebecca (Reynolds) Mozaffarian is the project manager at the Harvard Prevention Research Center on Nutrition and Physical Activity.

Meghan Slining recently finished her Ph.D. and married Rusty Miller on May 29, 2010. She is a research assistant professor in the Department of Nutrition at the University of North Carolina at Chapel Hill.

Anna Zampini, see N09.

N07

Nicole Ferring married Karl Holovach on Anna Maria Island, Florida, on April 25, 2010. Fellow alumnae who attended were: **Jasmine Chan**, **Janel Ovrut**, **Vanessa Salcido Ibanez** and **Laura Grande, N08**.

N08

Jessica Cohen is studying cardiovascular epidemiology at the Harvard School of Public Health. She's expecting to graduate in 2015 with a doctoral degree.

Megan Cunningham, MPH08, recently moved from Massachusetts to Georgia, where she is a Public Health Prevention Service fellow at the CDC. The three-year training and service fellowship focuses on public health program management and provides experience in program planning, implementation and evaluation.

Laura Grande, see N07.

Syrah Merkow McGivern is an aquaculture research analyst for the Seafood Watch program at Monterey Bay Aquarium in California.

N09

Lisa Damon is working with the Massachusetts Department of Agricultural Resources as a Farmers Market Nutrition Program coupon coordinator.

Sarah Ledbetter is a first-year student at Tufts University School of Medicine, and she anticipates receiving her M.D. in 2014. She is a classmate of fellow Friedman alumna **Anna Zampini, N06**, a second-year medical student at Tufts.

N10

Chelsea Bardot Lewis, A06, is the agricultural development coordinator with the Vermont Agency of Agriculture in Montpelier, Vt.

Ashley Colpaart landed her first job out of the Friedman School as the farm to institution coordinator for Tierra Miguel Farms and the San Diego Growers.

Hanqi Luo, see N05.

Betsy (Rakocy) Rakola is now a grants management specialist at the USDA National Organic Program in Washington, D.C.

REUNION
Save the date

The 2011 All-Alumni Reunion will be held April 2–4

Don't miss this opportunity to reconnect with the Friedman School's mission, learn about its current priorities, catch up with friends and professors and make new contacts. This year's event will have a science focus, as well as special celebrations for the school's first five graduating classes and the class of 2006. As always, alumni of all years are invited and encouraged to attend. If you would like to get involved in planning Reunion, please contact Sean Devendorf, director of annual giving and alumni relations in the Friedman School Office of Development and Alumni Relations, at sean.devendorf@tufts.edu.

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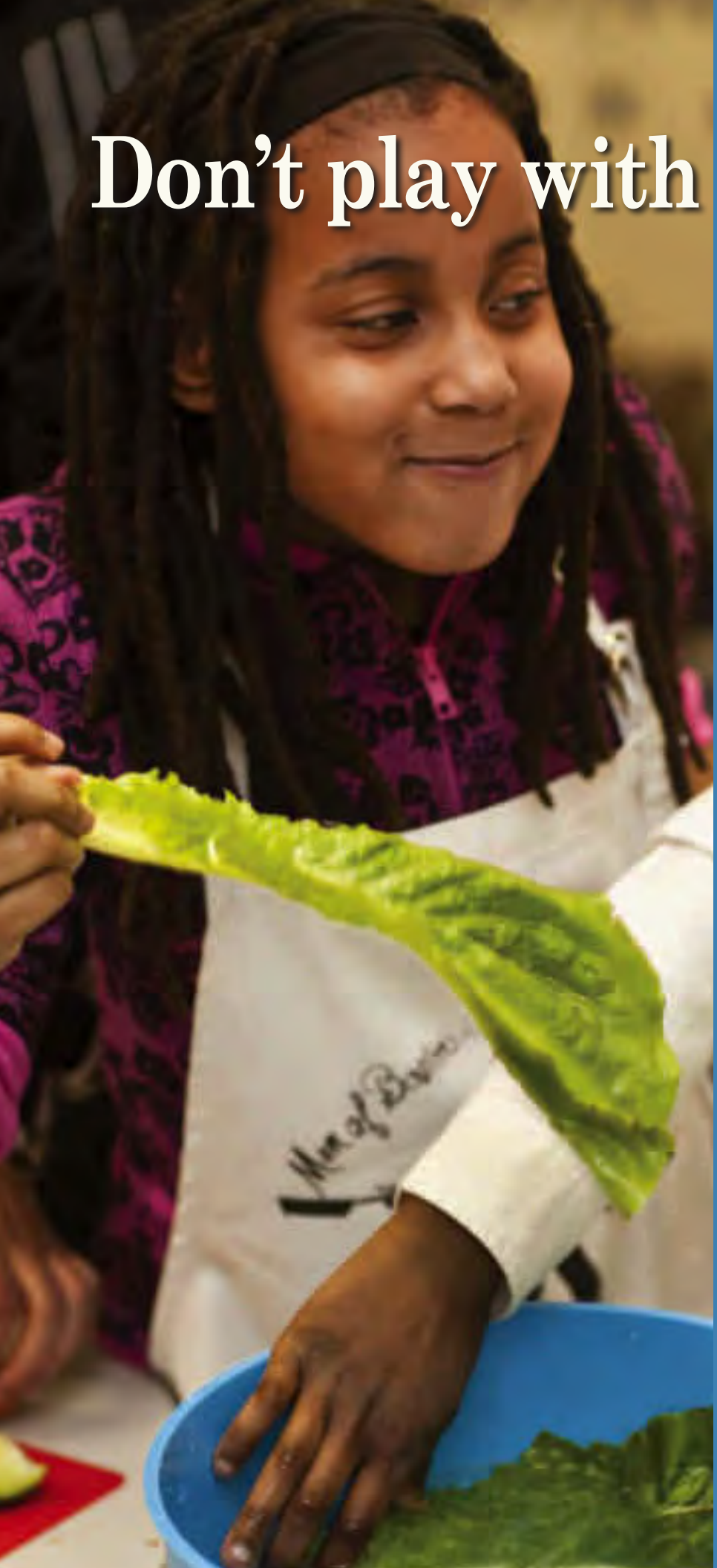

Don't play with your food!

Sound familiar? At the Friedman School, students are turning this age-old refrain on its head with Jumbo's Kitchen, a program that teaches inner-city children the joys of chopping, peeling, and yes, even enjoying fresh fruits and vegetables. The goal? To help reduce alarming juvenile obesity rates, which run as high as 50 percent in some local urban neighborhoods.

Your annual gifts support life-changing programs like Jumbo's Kitchen. Please make your gift to the Friedman School today using the envelope in this issue or online at giving.tufts.edu/givenow2.

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Nourishing Minds.
Nourishing Humanity.

Tackling Giants

Some days, Maurin Wallace, N11, feels like she is living the story of David and Goliath. And she wouldn't want it any other way.

As a frontline defensive player for the U.S. Women's National Rugby Team, Wallace appreciated the Americans' underdog status as they headed into the World Cup in London this past summer to play against countries where rugby is the national sport.

"While my team grew up watching basketball and baseball, theirs grew up emulating famous rugby players," Wallace said with a laugh. She had confidence in her team, though, and the U.S. women went on to finish a respectable fifth out of 12 countries competing.

The California native started out as a devoted soccer player, and she expected that sport would figure large in her selection of an undergraduate college. But a back injury during her senior year of high school spoiled her chance of making the team at the University of California, San Diego.

"After that, I just happened to see a flyer for rugby and thought, 'tackling, running around, everything I think I wished soccer was,' " she said. "I was immediately hooked."

Since then, Wallace has tried to get in as much rugby action as possible, playing for San Diego club teams and working her way up to the national team through her performance in regional tournaments. Eventually, she was among 25 to 30 players who got the opportunity to compete internationally.

Rugby isn't the only place where Wallace finds herself the underdog. When it comes to issues of health and nutrition, she sometimes feels like she is taking on a colossus.

"Anytime I get into a conversation with somebody about agriculture, food or nutrition, I find myself saying, 'It's really complicated,' " said Wallace, who is a student in the Friedman School's Agriculture, Food and Environment Program. "There are too many problems to solve, but I definitely want to be one of those problem-solvers."

—KAITLIN PROVENCHER

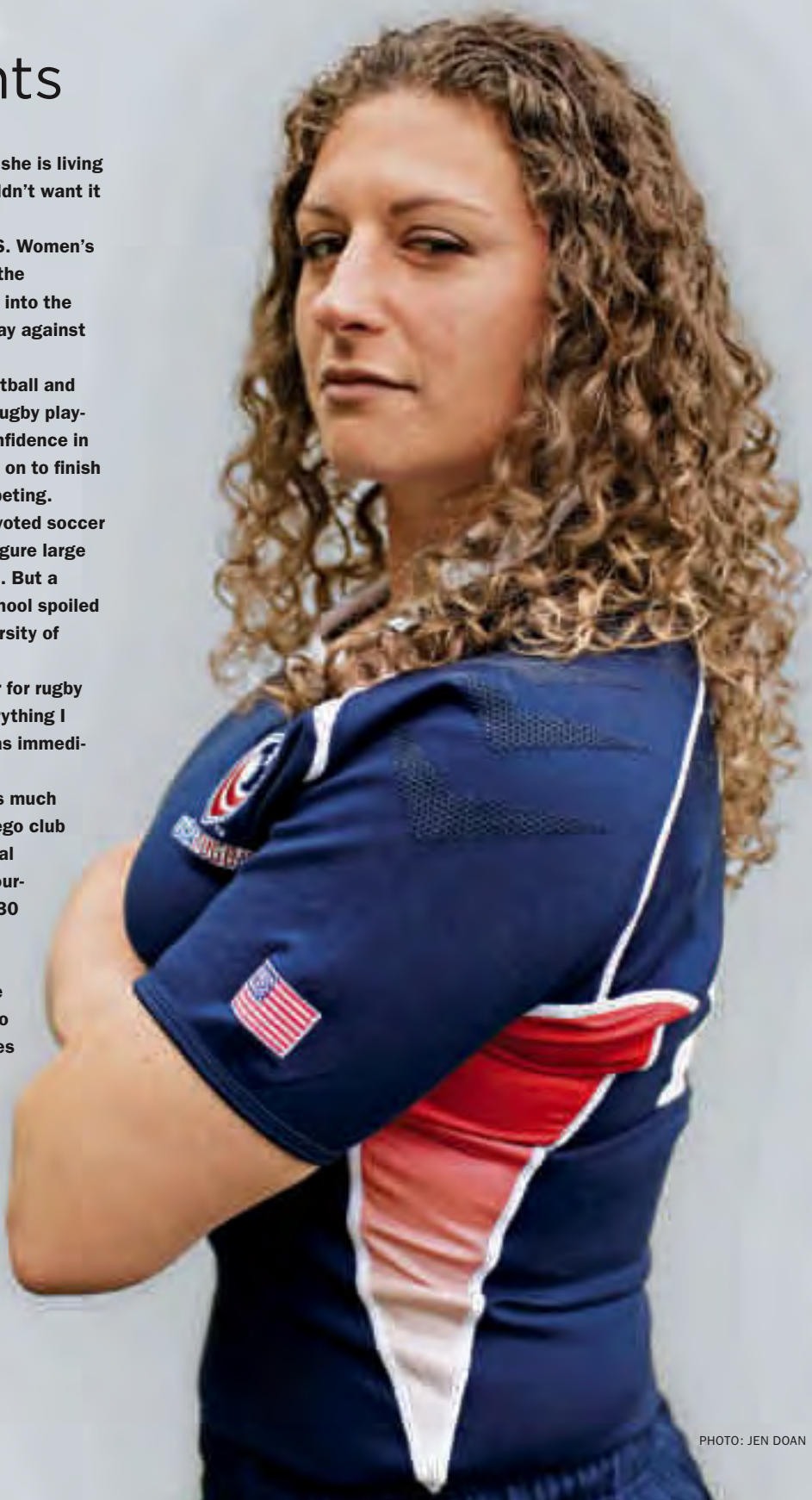
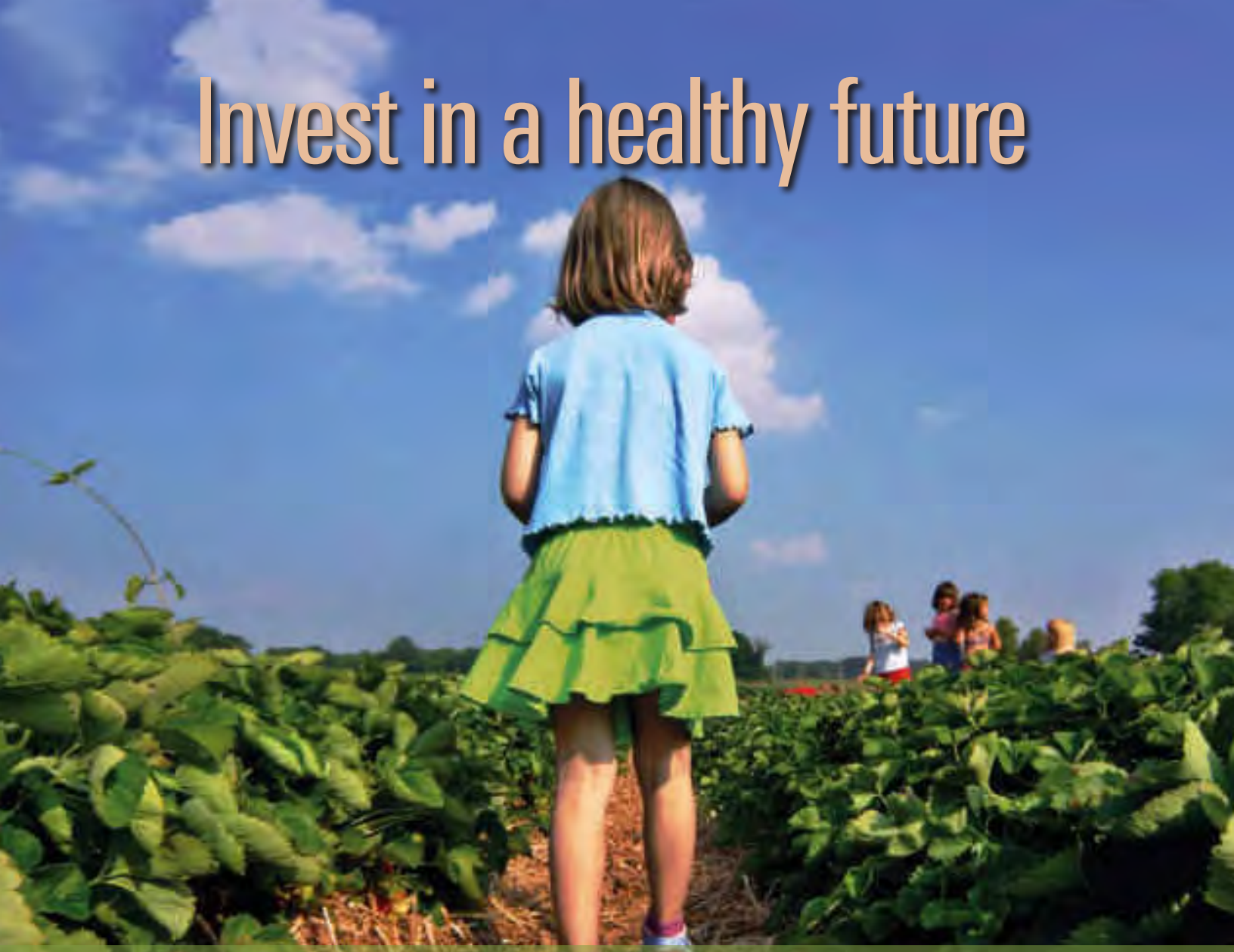


PHOTO: JEN DOAN

Invest in a healthy future



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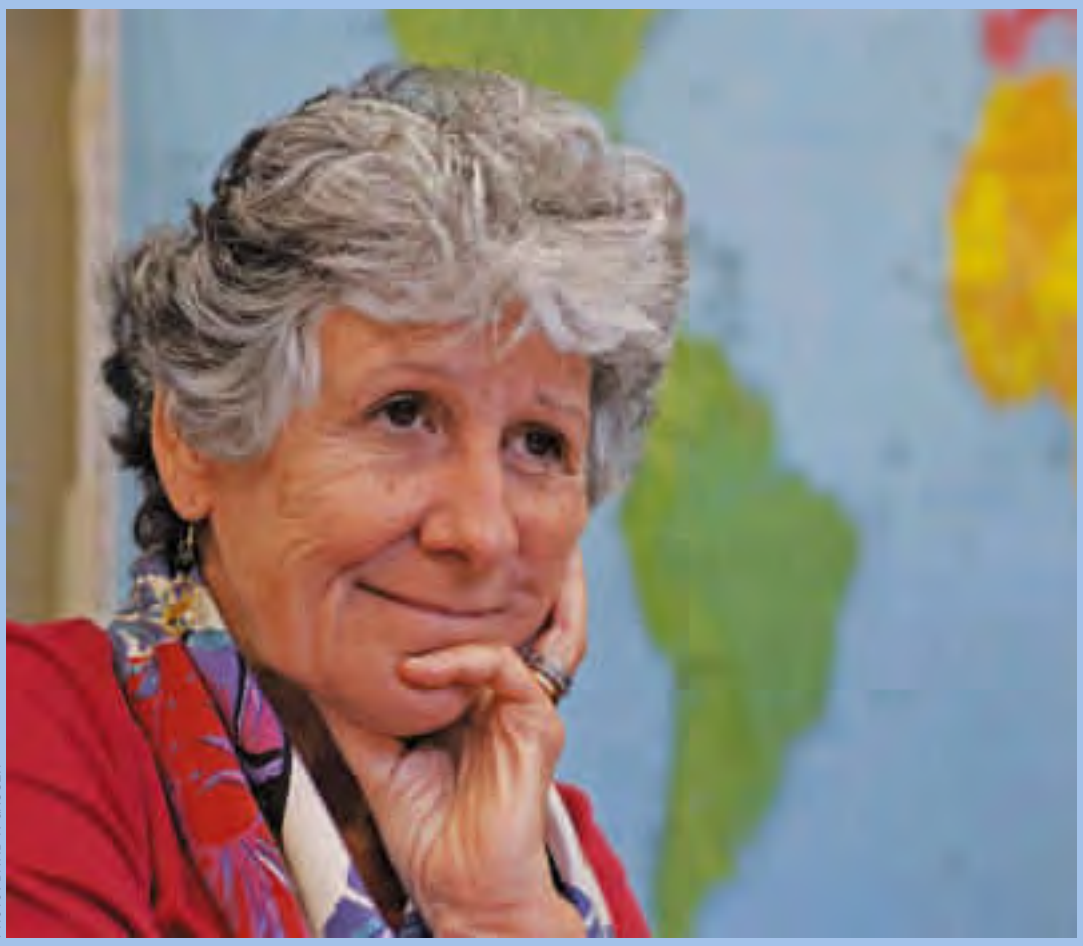

PHOTO: DAVID F. GASSER

PROOF POSITIVE

Are there any families here that have children who are thriving? That was the question that Monique Sternin (left) and her husband, Jerry, had for the villagers in rural Vietnam, where childhood malnutrition was widespread. The key, they found, was locating the local people who had solved the problem and engaging the community to emulate them. In six months, they had reduced malnutrition by an astonishing 65 to 80 percent. For more on the story, and the ways their approach has been applied to everything from raising business sales to lowering dropout rates, turn to page 24.

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