Andy Coblentz loves to dig his hands into the rich garden soil in his backyard and nurture tiny seedlings into strong, prospering plants.

He has gardened his entire life, beginning as a little boy helping his mother after school at their New York home, then during World War II in the Victory Gardens and later through years of a busy career. But upon retirement as a 32-year postal service veteran, he realized there was a lot more to learn about his favorite hobby.

So, like thousands of other garden enthusiasts across the state of Indiana, Coblentz, Lafayette, attended Master Gardener classes through Purdue Extension.
In 1978, Purdue Extension initiated the Indiana Master Gardener program with four counties. Currently, more than 50 counties have programs, and 2,500 participants are actively working on gardening education projects in their communities.

“The Master Gardener program is the most efficient means we’ve developed to meet the huge demand for home gardening information,” explains B. Rosie Lerner, Extension consumer horticulture specialist and Indiana Master Gardener program state coordinator. “We train a select group of individuals, and they pass the information on to people they meet in their communities, who then pass it on to more people.”

The program can be described as a crash course in practical horticulture. While curriculum varies slightly from county to county, students learn about plant science and nutrition, soil fertility, pesticide safety, and identifying and controlling insects, weeds and disease. Topics such as flower gardening, lawn care, fruit gardening, vegetable gardening, indoor gardening and composting also may be added to the curriculum.

“It’s a fun, diverse program,” says Lerner. “Once accepted, participants attend a series of weekly classes, followed by a comprehensive exam. Then, students are required to volunteer one hour of time per one hour of training. This time is used to spread the knowledge they’ve gained to others in the community.”

Ten years after Coblentz earned his Master Gardener title, he continues to share his gardening knowledge. Teaching courses at the Tippecanoe County Extension Office, answering questions at garden shows and caring for Purdue’s horticulture gardens are just a few ways he helps promote proper gardening techniques. Because of his experience as a Master Gardener, he was hired part time by a local greenhouse where he reaches hundreds of customers who welcome his growing tips.

**Acquiring gardening acumen**

People take the Master Gardener course for several different reasons. As a new retiree, Coblentz took the course as a way to stay active in the community and to heighten his gardening knowledge.

Bev Netzhammer’s story is a little different. She’s a degreed horticulturist and co-owner of ScapeArt Landscape Design and Installation in West Lafayette. She works with plants every day and is an experienced gardener. However, as Netzhammer explains, “There is always more to learn. Plus, as a Master Gardener, I have more opportunities to spread information on proper gardening practices.”

Netzhammer has participated in the Great Annual Annual Planting, in which she and other Master Gardeners work with the local parks department to plant flowers around the Tippecanoe County Courthouse each spring. In addition to staffing a horticulture booth at the Indiana State Fair and conducting workshops, Netzhammer writes a statewide Q&A gardening column.

“I love to teach others about gardening, and I get to meet a lot of great people who are as enthusiastic about gardening as I am,” she says.

Across the state in Fort Wayne, Ricky Kemery, Extension horticulture educator for Allen County, and about 175 Master Gardeners create the lush display gardens surrounding the Extension office, which is located on the campus of Indiana University Purdue University Fort Wayne. The Master Gardeners here donated 4,760 hours of community service last year through work with area schools and seminars for the general public. Plus, they have a gardening hotline—staffed by volunteers—that receives nearly 7,000 calls each year.

To share his vast horticultural knowledge, Kemery conducts neighborhood walks and talks. About 20 times per year, he and fellow Master Gardeners walk through neighborhoods, talking to homeowners and answering their individual lawn and gardening questions. “It’s a great way to meet people and talk face-to-face with them about their particular gardening issues,” he says.

**Giving back to the community**

Larry Caplan, program coordinator in Vanderburgh County, admits that individuals tend to take the course so they can take better care of their own property. “But then, they enjoy the course so much and the people they meet that they get hooked into sharing their knowledge through volunteering,” he says.

A stay-at-home mom in Evansville, Pat Marienau took the program in 1994 to find the answers to her specific gardening questions. Now she teaches inner-city youth about vegetable gardening through a mission program, Patchwork Central.

“We started by planting seeds with the children and talking to them about how plants grow,” says Marienau. “Last year they wanted to plant a salsa garden, so we planted all the vegetables needed to make salsa—tomatoes, peppers, onions. We worked together through every growth stage, and in the fall, we harvested our garden and made our own homemade salsa.”

Children in Vanderburgh County also can learn about horticulture every time they visit Mesker Park Zoo. The Master
Gardeners maintain a colorful butterfly garden there and a display about the plants that attract larvae, caterpillars and butterflies.

In Hamilton County, Extension educator Bill Rice has his hands full keeping up with demand. “We host three 13-week classes every year with 35 students in each,” Rice says.

The Hamilton County Master Gardener Association has 130 members and 20 active committees that organize speaking engagements, maintain public display gardens and work with students in local schools. The group currently is researching Victorian gardens in an effort to recreate a Victorian ambiance at an historic Victorian house, which recently was relocated to a public park.

**Popularity on the rise**

Gardening’s popularity is growing every year. Why do people love it so much? For Nancy Werner, Lafayette, gardening is a great way to unwind after a stressful day at the office. “And it’s very fulfilling to see a plant flourish and know you’re responsible,” she says. Gardening is a recreational way to burn calories and an effective therapy for one’s body and mind. As the Master Gardeners testify, there are many good reasons to start a garden; any kind will do.

Indiana Master Gardeners is a unique group striving diligently to fulfill its mission—“helping others grow.” Like all Extension services, the Master Gardener program supports people helping people.

“Our network of educated, experienced gardeners is now teaching thousands of other gardeners across Indiana how to grow healthier plants and produce,” says Lerner. “It’s a win-win situation for everybody.”

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**Editor’s note:** If you are interested in becoming a Master Gardener, contact your county Extension office or B. Rosie Lerner at (765) 494-1311.

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**Horticulture Helpfuls**

Trying to identify a plant in your garden? Need to know more about planting trees? Having problems with pests? You’ll find many helpful tips from the following resources.

- **Purdue Extension** has a library of free bulletins on an array of horticulture topics. Contact your local Extension office or call Purdue’s Media Distribution Center at (765) 494-6794 or check its Web site [www.agcom.purdue.edu](http://www.agcom.purdue.edu) for a list of topics. In addition, educators at your Extension office can answer your questions and provide information about local gardening events.

- **Down the Garden Path**, a newsletter published by Purdue’s horticulture department, provides timely information on yard and garden care. You’ll acquire helpful tips on planting, growing and harvesting in each issue. For a $15 annual subscription, call (765) 494-7071, or view the newsletter online for free at [www.ppdl.purdue.edu/ppdl/Newsletters.html](http://www.ppdl.purdue.edu/ppdl/Newsletters.html)

- **The Plant and Pest Diagnostic Laboratory** at Purdue University can help you identify plants and pests in your garden. Just take samples to your local Extension office for submission to the lab. An $11 processing fee is charged per sample.

- **The Consumer Horticulture** Web page [www.hort.purdue.edu/ext](http://www.hort.purdue.edu/ext) contains archives of news releases, Q&A columns, bulletins, information on the Master Gardener program and more! Be prepared to spend a lot of time here because you’ll find hundreds of topics and links to other sites.

- **Possum in the Pawpaw Tree, A Seasonal Guide to Midwestern Gardening**, a book by B. Rosie Lerner and Beverly S. Netzhammer, offers a no-nonsense point of view when explaining gardening basics. Great for beginners! The book is available at most bookstores or by calling the Purdue University Press at 1-800-933-9637.
Nowhere in Indiana has the downturn in the global economy made itself harder felt than in Carroll County, one of the top pig-producing areas in the United States. And with world surpluses projected for grain, it could be déjà vu for crop farmers in the county this fall.

A slowdown in global demand for pork, fewer packing houses and too many hogs surprised most producers with the lowest hog prices seen since the Great Depression. Hogs that cost $38 per hundred weight to raise were selling for $8. Grocery stores charged more for a rack of ribs than many producers earned for the whole hog. It was a devastating time for farmers, and the effects will ripple through the community for years to come.

The darkest days of December 1998 coincided with the darkest days of the “hog price crisis,” says Steve Nichols, Carroll County educator with Purdue Extension. He and others worried about the emotional stability of farmers who were losing, in some cases, thousands of dollars per week. As losses mounted, farmers pulled into themselves, turning a solitary endeavor even more reclusive.

Nichols helped pull some of them back.

For the farmers, he started a weekly luncheon meeting ostensibly to discuss cost-cutting strategies and market outlooks. “It really was a support group,” says Nichols, a tall, bearded man who raises hogs himself. Fifty people showed up for those sessions, which ran until the price of hogs rose to $25 in February. “They still weren’t break-even, but things were improving,” Nichols says.

A familiar figure on almost every board and commission in the county, Nichols worked the county like a performer who keeps dishes spinning on poles. Bill Pickart, a hog-and-grain farmer, says Nichols “shouldered a lot of the burden of others. He’s been almost a counselor, helped others find off-farm employment and make financial plans. He helped them realize it was not their doing, that it was external factors outside their control.”

Nichols also met with elementary school staff, organizing a meeting for counselors, administrators and school board members to explain that tight times on the farm might play out in the classroom. The community awareness meeting also was extended to clergy, police officers and public officials.

Ultimately, that meeting provided a model for similar events in surrounding counties and even other major hog-producing states.

Moving among the “horse-and-buggy” farmers, the large producers, and the county’s business and civic leaders, Nichols helped people work together to lessen the effects of an implacable global marketplace.

Working with the editor of the Carroll County Comet, Susan Moss Scholl, Nichols helped the county’s only newspaper cover the crisis to help the non-farm community understand the problem, but not hammer the people who were living it. “We looked to Steve to tell us what people needed to know. I wish we could have done more,” Scholl says. Nichol’s farm column helped put a human face on the headlines, she says.

by Chris Sigurdson

The community work won’t stop there. Nichols expects another 15 pork producers to leave the business this year. The loss of industry has implications for county government and the schools. Area merchants already have noticed the effects of a failing farm economy. Dave Mann, of Mann Chevrolet in Flora, says the big pickups aren’t selling. Pickart, who’s also a 25-year member of the school board, is wary. “As for the schools, we’re holding our breath, waiting to see what happens. May property taxes came in OK, but now we have to see how an extended period of low grain prices will affect us in November.”

Bright National Bank Vice President Monty Edging says this crop season will be critical for many farmers. “Their reserves are gone.” He’s had people in his office who don’t know what they’re going to do—and that may include farming.

Nichols says there were 800 full-time hog farmers in Carroll County when he arrived in 1977, and pork contributed $50 million to $60 million in gross receipts. Today, there are 100 pork producers on his newsletter mailing list, and he and others openly wonder what the future holds for their county. “The worst may be yet to come,” says one farmer.

U.S. Secretary of Agriculture Dan Glickman says it’s part of the rapidly changing rural landscape. Nationally, the number of farmers has dropped from 38 percent of the labor force in 1900 to 2.6 percent of the labor force in 1990.
“Farmers will have to become more entrepreneurial, more market-oriented. They will have to recognize that this isn’t their father’s farm economy. They will have to be better educated and more technologically sophisticated than ever before,” he told an audience of 400 farmers and faculty at Purdue in April.

Ironically, if farmers raise a good crop, it will be the fourth record-setting year of global production in a row, but low crop prices could be the last straw for many. Purdue agricultural economist Chris Hurt says corn and soybean prices this fall will be well below what it cost to grow them, and he estimates Carroll County farm revenue could drop $31 million from 1997 levels, the season before the hog crisis. Government payments will be the only relief for many.

With a conservative economic multiplier of $3, the economic loss to Carroll County communities could approach $100 million, a scenario that could play out across the state. “Corn and soybeans are billion-dollar crops for Indiana, and we would be approaching losing half of all the farm revenue in the state if crop projections come true,” Hurt says. “This could be the most difficult period since the farm crisis of the early ’80s.”
IRON RIVER, MICH.—Purdue Agriculture students Amy Dankert and Jeff Page compare compass readings, adjust their Global Positioning System (GPS) computer and make a note of their location before leaving the safety of a gravel logging road and diving into the unknown darkness of the Ottawa National Forest in Michigan’s Upper Peninsula.

Just across the state line, in Wisconsin’s Nicolet National Forest, another student, Zachary Lowe, quietly puts the finishing touches on an animal scent station, smoothing a layer of sand that will record the footprints of animals attracted to the smell.

A few miles away, in the cold, clear waters of Lake Hagerman, Mackenzie Curless leans over the edge of the green, flat-bottomed John Boat—dubbed the Purdue Research Vessel—and watches trophy-size walleye gliding aimlessly off the boat’s bow.

These north woods and waterways are filled with Boilermakers. Some 47 students, five teaching assistants and
various professors are here to participate in the forestry department’s five-week summer camp.

Forestry students have been retreating to the woods for the past 70 summers, gaining first-hand knowledge no classroom lecture can match. And while many schools are scaling back their summer camp programs, Purdue’s program is expanding. This is the second year that students majoring in fisheries and aquatic science and wildlife have been required to join their forestry brethren as a condition of graduation.

Curless recently changed her major to fisheries and aquatic science for just this kind of hands-on learning opportunity.

“Summer camp is very expensive ($1,681 for Indiana residents, $3,736 for nonresidents),” acknowledges Dennis LeMaster, department head of forestry and natural resources.

“Other forestry and wildlife schools (Penn State, Michigan, Illinois, Iowa State and Oklahoma State, to name a few) have adjusted in many ways,” says LeMaster, “including discontinuing camp altogether, abbreviating its length and content, or substituting field course work during the academic year for camp.”

But Purdue students who participated in this year’s summer camp feel the program is a bargain bonanza of learning.

The cool, clear waters of Lake Hagerman in Michigan’s Upper Peninsula provide the base of operations for Purdue’s Forestry and Natural Resources summer camp. For five weeks in May and June, the lake and surrounding woods double as a home and a classroom for students. At left and top, fisheries and aquatic science students like Jason Lewis (front) and Nate Gould learn to electro-fish to study the lake’s population of fish. A meeting room in the camp is converted into a computer lab where Amy Dankert completes a homework assignment. At left, forestry students enter the woods as a group, but will exit in pairs, using a compass and a map to guide them back to safety.
“By seeing the actual organisms or species of study in their environment, we learn so much more than if we were sitting in a classroom watching an instructor with an overhead projector,” says Nathan Gould, a fisheries and aquatic science major.

Bringing the fisheries and wildlife students to camp fosters a degree of teamwork that LeMaster says will help students in their professional careers. “The students are going to need to work together in a professional capacity when they graduate,” he says, “and it’s best that they get to do it sooner rather than later.”

Forestry professor John Moser concurs. “Where better to learn to work together than being at summer camp and going through your program with other students?” And Moser should know. He’s been coming to camp every year since 1964.

Purdue’s first forestry camp was held near Scottsburg, Ind., in Clark State Forest in 1929. Camp was moved to Wisconsin in 1959 to accommodate construction of I-65 through southern Indiana. For the past seven years, camp has been held at Covenant Point, a Lutheran Church facility on the shore of Lake Hagerman, near the Wisconsin-Michigan (Upper Peninsula) state line.

“The objective of the camp is to let students learn to work together, learn to appreciate the other resources and learn things about the other resources as an integrated experience while they are up here,” Moser says.

Students and staff agree the hands-on experience makes the camp well worth sacrificing five precious weeks of summer vacation. “Sometimes, I think I’ve learned more in three weeks here than I learned in five years on campus,” Dankert says.

The ecological diversity of the Upper Peninsula allows students to see things foreign to the West Lafayette campus. “In Indiana, all you see are fields with small patches of trees in them,” explains Stephanee Gipson, “but up here, all you see are huge forests with small patches of fields.”

The economy of the area is dependent on fishing, logging and tourism, not farming and industry. It is in these types of areas that many forestry graduates likely will get their first jobs. Students visit area logging operations, lowland bogs and upland stands of hardwoods. Local experts, paper industry representatives and natural resources agents participate as guest lecturers during camp.

“Summer camp is an invaluable opportunity to put the student in the context of natural resources where natural resources are an important component in the environment,” Moser says. “It’s totally different than Purdue, where it is relatively flat, and there are not large, vast expanses of forests or natural resources.”

Jeff Page sums it up another way. “I’m used to seeing cornfields, cows and hogs. I got up here, and it’s nothing but big forests and wild animals.”

Teaching assistant Joel Merriman enjoyed the camp experience so much last year, that he decided to come back again. “I had a blast last year,” he says.

At camp, Merriman spends much of his time grading daily quiz papers and hauling students into and out of the woods in one of eight Purdue vans. However, he did manage to find some time to squeeze in his favorite hobby—bird watching.

“I love this place; the birds up here are fantastic!”

Five weeks in the woods provide some time for recreational activities. Teaching assistant Joel Merriman (top) found time to pursue his hobby of bird watching, while Stacy Shorter (front of canoe) and Eileen Oppelt relaxed by canoeing across Lake Hagerman (near right). But there was plenty of work to be done, too. Jan Apolinar and Paul Wigginton (above) empty their nets into the flat-bottomed boat, which students dubbed the Purdue Research Vessel. Andy Freise and Stephanee Gipson (far right) find their way through the woods. Anne Spacie (bottom) conducts a class lecture on the banks of a woodland stream.
TRAINING GROUNDS

Agriculture
Progress came to Gibson County—whether citizens were ready for it or not. And while it came cloaked in the form of a Toyota truck assembly plant that will eventually employ 2,300 people, occupy some 1,100 acres and strain the county’s inadequate infrastructure, Toyota turned out to be just the spark that ignited the flame.

Snagging the $700 million plant was a coup for Gibson County—a prize sought after by several states, as well as next-door neighbors Vanderburgh, Warrick and Posey counties. But a by-product of the deal was that residents had to confront zoning, roads, sanitation, pollution and education—issues they had swept under the carpet for years.

Unity has become an important word to Indiana communities. It represents a newfound philosophy of self-reliance where individual citizens come together to lead their community into the future. And Purdue Extension is helping to show them the way. Through Extension’s Leadership and Community Development Programs, people of all ages and walks of life are becoming involved, helping solve problems and making informed decisions for the betterment of their communities. And, as the following stories reveal, these programs can be tailor-made to fit an individual community’s needs and respond to its concerns.

After completing a Gibson County leadership program, Richard Paul launched a successful run for county commissioner. “I wanted to try and make a difference,” he says.
Growth from the grassroots

On the surface, Community Systemwide Response (CSR) efforts in Marion County’s Perry Township and Brightwood/Martindale/Forest Manor communities may seem very different. At first glance, Perry Township, on Indianapolis’ affluent west side, may have little in common with the three communities in a low-income, high-crime area near downtown. What connects the two communities, however, is federal court-ordered desegregation that buses students in Brightwood/Martindale/Forest Manor to Perry Township.

In any community, CSR must first begin with a steering committee that has the juvenile judge, prosecutor, law enforcement and school firmly on board. Through a series of community partnership meetings, citizens identify key issues and brainstorm for ideas. Focus groups then begin meeting on the issues and decide what they want to accomplish.

“But that’s where the similarities end,” says Dorothy Campbell, Extension educator in Marion County. “No two communities are the same. You can’t go in with preconceived ideas about what’s wrong. You have to let the citizens tell you.”

And tell they did. Among the priority concerns voiced were family breakdown, drugs and alcohol, violence, financial concerns, youth gangs, peer pressure, job security, community curfew and support for families.

“The participation was more than I had hoped for,” Campbell says of the meetings, which drew an average 80 people in the inner city and more than 200 in Perry Township.

As a result, five major programs were started. Campbell counts curfew sweeps, a mentoring program and more family involvement among CSR’s big success stories.

Networking on the ’net

A county so skinny that its name has to be printed vertically on the state map, Vermillion County is wedged between the Wabash River and the state of Illinois. But its location in cyberspace lets it reach far beyond its narrow physical boundaries.

Vermillion County is just one of a handful of Indiana communities that received a grant through Access Indiana to create a local community network and join others in the Indiana Community Network Association.

“Access Vermillion County can be used by people inside or outside the county,” says Mark Spelbring, Vermillion County Extension educator who chaired the creation of the community project. “For example, if you want to plan a meeting, you can find out what is going on in the county at the same time.”

What else is on the network? You can tour local historical sites, check out special events, consult a community calendar, reference city/county and emergency services, contact elected officials and even find out about your high school reunion.

Although Gibson County is large in land mass, it is small in population. Predominately agricultural, it has only 32,000 residents, some 10,000 of whom live in Princeton, the county seat and the largest of the more than a dozen towns scattered throughout the county. Bordered by the Wabash River, Gibson County has remained true to its agrarian roots, which date back to the days when Indiana was part of the Northwest Territory—until that fateful day in November 1995, when Toyota officially announced the county would be the site of its new plant.

To get citizens involved and to allay some of their fears, Keeneth suggested the county participate in Take Charge, a program offered by Purdue Extension that helps communities plan for the future. Take Charge brings citizens from all walks of life together to identify and discuss major issues, as well as chart a plan of action to reach their goals.

“The program fits individual community concerns, whether it’s land use, property taxes or school finances,” says Janet Ayres, who heads Purdue Extension’s leadership and community development program. “It brings people together to look ahead collectively and develop a vision.” Programs like Take Charge became necessary after federal and state programs—so prolific in the 1970s—were cut back to a trickle, and communities had to find ways to solve their own problems. To date, nearly a third of Indiana’s counties have participated in Take Charge.

“We sent out more than 600 invitations to a cross section of the population,” says Keeneth. An average of 123 people attended each of the three meetings, the largest Take Charge audience in Indiana history. Among the key areas identified were land use and controlled growth, transportation, employment, education, leadership, and environmental and solid waste management. Committees were formed to address each of these issues.

Public issues by nature are often controversial. And while consensus was reached on several topics, others evoked opinions that after long laying dormant came rushing to the surface, sparking heated debate.

Fast forward to 1999, three years later.

In April, committees held their reunion meetings, as they do annually now, to discuss county issues.

What has happened during the three years since Take Charge was initiated? Plenty.

“A lot of people who never knew each other before are working together now,” says Keeneth. “People are taking more of an interest in what happens to the county.”
Many of these new community leaders are graduates of a Gibson County leadership program that holds sessions twice a year. Among them is retired businessman Richard Paul, whose call to action was a growing dissatisfaction with the progress—or lack of it—the county was making in some areas. As a result, he launched a successful bid for county commissioner in 1998 and, upon his election, vowed to make a difference. Now, he lobbies to build grassroots support for comprehensive planning.

“We need to look ahead to the future of our county and decide where we want to have our business and industry, our residential areas and our farmland,” he says.

**Leading the way**

Leadership Perry County, a program supported by the Perry County Extension Office, is reaping big rewards. Naturally, program participants gain from the training they receive, but a hallmark of the program is that every class has to have a community service project.

The first class set the benchmark, starting the Perry County Community Foundation, which to date has raised more than $1 million through Lily Endowment’s matching grant program.

Other class projects have included a study-buddy program where adults work with students in local elementary schools; Hello Perry County, a program to reach out to newcomers; and We the Youth, a spin-off of the adult leadership program that is designed for high school students. And with help from a grant, We the Youth will begin recruiting students even earlier. “We visit schools and talk to eighth-graders about the importance of leadership,” says Allen Ullom, Perry County Extension educator, who works with the program.

The Education Committee, which identified a need for vocational training and adult education, is working with community colleges in the area. “We’re surveying all the businesses in the county to see what their current and future needs and skill levels are,” Keeneth says. And the county anticipates expanded job opportunities from satellite businesses that are beginning to pop up around Toyota. “Toyota has raised everybody’s job skills,” he says.

In the southern part of the county, there is now ambulance service where once there was none. Aging septic tanks in and around small towns, where high levels of E. coli have shown up in nearby ditches, are being updated to modern sewers.

New construction is under way on both apartments and high-end housing. Land values, too, have increased.

Still, some things are slow to change. Traffic jams plug Princeton from east to west. City streets and two-lane highways were not built to accommodate the increased traffic of another 1,000 commuters a day. Jobs for low-paying and unskilled labor now go unfilled.

And although it’s slowly being revived by Paul’s efforts, talk of a comprehensive plan for land use still looms somewhere in the future.

But at least it’s a future that people seem assured of and one they feel confident will bring good things to Gibson County. Of the inevitable progress, one farmer said it best: “I hate everything that is being done, but I approve of it, because it will give my grandson an opportunity to live in this county.”

**Leap of faith**

A hand-crafted tree of life in the entry of the Wells County Community Center recognizes the efforts of nearly 300 organizations, companies and individuals in the small rural county who raised more than $1.2 million to fund the center.

A February 1996 community rally—dubbed Leap of Faith in recognition of Leap Year, which occurred that year—spurred gifts of $1,000 or more from 85 community groups. A $285,000 challenge grant from the county council and leadership gifts from local businesses and foundations helped the campaign raise more than $1 million in two months’ time.

“We did not have a YMCA or any big facilities for banquets and conventions,” says Roger Sherer, Wells County Extension educator. “And the one restaurant in town that had meeting rooms burned down.”

Completed in November 1998, the center, located at the county fairgrounds, already has hosted numerous community events. The 16,400-square-foot facility features meeting rooms, a multi-purpose room that can accommodate a banquet for 500, kitchen facilities and a distance learning satellite hook-up, as well as county Extension offices.

**Agricultures**
Please pass the disease prevention
For the first humans, food was fuel. As they hunted and gathered for their suppers, they might have asked: “What can I find, and will it be enough?”

As people became farmers and manufacturers, food became easier to find. Industries formulated, processed and packaged food in a myriad of ways. We started searching through an ever-expanding array in grocery stores for our suppers, asking: “Which food should I choose?”
Now, as the millennium is drawing to a close, the question is getting even more focused. We’re still scanning grocery shelves for our suppers, but instead, we’re asking: “Which food is best for me? What should I eat to keep me healthy?”

The focus on disease prevention was inevitable after researchers found that certain components of food can do more than just correct nutrient deficiencies, says Bruce Watkins, a Purdue University food scientist. Now, when people hear that a certain food helps prevent cancer or helps children grow and develop, they search out those foods and empty grocery store shelves. Then, food manufacturers rush to fill the void—and start looking for ways to offer healthier foods to the public.

Watkins and other researchers want to bring healthier foods into our diets, too. At Purdue, scientists are looking for ways to alter animal diets to make products healthier for us and to come up with new and better foods.

“In 1995, we spent $1 trillion on health care to treat diseases. I believe we should spend money on keeping people healthier to improve the quality of life,” Watkins says. “This is how food and agriculture are going to develop as we move into the next century. We’ll be creating foods that are better for people. We’ll be going back and looking at more food components that are not classical nutrients, but that seem to be health protectants. In the future, foods may be matched to an individual’s risk for chronic disease.”

These foods will be part of the new science of “nutraceuticals,” “phytochemicals,” “functional foods” and “designer foods.”

**Fat-balanced, designer eggs**

Most of Watkins’ research has revolved around dietary fat and bone health. He’s discovered that bones need certain fat combinations for growth and that vitamin E is essential to bone and joint health.

We need fats in our diets, he says, but it’s no secret that some fats are better for us than others. For optimum health, we need to include more omega-3 fatty acids (common in fish and canola oil) and fewer omega-6 fatty acids (common in corn, soy and safflower oil).

“We’ve altered our fatty acid intake over the last centuries, because we’ve moved from a hunting-gathering lifestyle to an industrial lifestyle,” says Amy Devitt, who worked with Watkins as a graduate student. “The Western diet has changed so that the ratio of omega-6 to omega-3 fatty acids in our diet is 25-to-1.” It used to be—and should be— somewhere between 10-to-1 and 4-to-1, she says.

“In 1995, we spent $1 trillion on health care to treat diseases. I believe we should spend money on keeping people healthier to improve the quality of life.”

*Food scientist Bruce Watkins*

“Because we’ve moved to intensive animal production and changed the rations they’re fed, we’ve altered the fat composition of beef, pork and poultry from 100 years ago,” Watkins says. “Meat and poultry contain less of the omega-3 fatty acids. The way we’re eating, with high omega-6/omega-3 ratios, we’re increasing our risk for arteriosclerosis, certain cancers and inflammatory diseases.”

While Devitt doesn’t figure she can improve the eating habits of the entire population, she’s trying to take us a step in that direction. She’s hoping to create at least one designer food—a designer egg—that delivers a better balance of fatty acids. She picked eggs because they’re eaten the world over, and because consumers already accept and buy different kinds of designer eggs.

At first, Devitt fed laying hens two different levels of supplemental conjugated linoleic acid (CLA). CLA is thought to help prevent cancer, arteriosclerosis and inflammation. Yolks from the eggs of these hens contained more CLA than did yolks from hens fed the same diet without CLA. The supplement didn’t change egg production, weight or consistency—a good sign that CLA-enhanced eggs could eventually be developed for commercial markets.

Since adding one dietary fat worked so well, Devitt decided to try a blend of two fatty acids. She fed laying hens a diet that contained more CLA plus docosahexaenoic acid (DHA). DHA is an omega-3 fatty acid that is known to reduce the risk of cancer and cardiovascular disease. It also promotes neural and retinal development in infants.

The eggs from hens that ate both CLA and DHA were richer in both of those beneficial fatty acids. In fact, there was a synergistic effect, Devitt says. Egg yolks from hens that ate both had higher levels of CLA than did eggs from hens in the first study. And the eggs from hens fed both fats contained higher levels of DHA than did hens fed only DHA.

Devitt’s work is promising, but you won’t see fat-balanced eggs in stores next week. Compared to traditional eggs, the enhanced eggs from her final study have orange yolks and a bit different texture and flavor. However, Devitt feels sure that by fine-tuning hens’ diets, food scientists eventually will come up with a marketable, fat-balanced egg.

**In search of antioxidants**

As a plant breeder, Rick Vierling approaches the problem of making food healthier from a different angle. Vierling, a Purdue geneticist who has a joint appointment as director of the genetics laboratory at the Indiana Crop Improvement Association, goes looking for plants already rich in health-promoting compounds. Once he finds a plant with
promise, he identifies the good genes and breeds the promising traits that go with it into plants already grown for market.

One group of health-promoting compounds Vierling looks for in plants is antioxidants.

Antioxidants protect cells from the damaging effects of free radicals, which are molecules that chemically break down fats, proteins and DNA in the body. Some of the most notable antioxidants in the human diet are vitamin E, vitamin C and carotenoids.

Some plants produce higher levels of antioxidants than do others, but you can’t tell the antioxidant-rich ones from the others just by looking. In fact, tests to locate and measure them can be expensive and time-consuming. So Vierling created his own new technique. He calls it TNAP: total non-enzymatic antioxidant potential test. “TNAP is a broad screening tool,” he says. “It’s inexpensive, fairly quick and can be automated,” he says.

The new antioxidant test uses only a tiny bit of a plant, one one-thousandth of an ounce—less than a caterpillar could eat in a day. So if a seed, for example, tests high in antioxidants, it can still be planted to produce more seeds with the same trait. In fact, seed banks could quickly be screened for plants with antioxidant potential without destroying the saved seeds.

So far, Vierling has tested herbs, spices and the seeds of rainforest trees, looking for plants that promise the benefits of antioxidants.

Antioxidants against cancer

David Waters might be able to use the antioxidants that Vierling harvests. Waters, associate professor of surgery and comparative oncology in Purdue’s School of Veterinary Medicine, is also the associate director of the Gerontology Program and director of the Drug Developmental Shared Resource of the Purdue Cancer Center. He studies the link between aging and cancer.

“The older people get, the higher the risk of cancer,” Waters says. “More than half of cancers occur in people 65 and older, but we don’t know why.”

He wants to find out.

We know that oxidative damage is linked with aging, Waters says, and that oxidative damage to DNA can cause cancer. He suspects a link. To check out his suspicions, Waters is using a test developed by researchers that can tell how much oxidative damage there is in cells, such as lymphocytes in the blood, or epithelial cells in the breast and prostate.

He’ll compare lymphocytes in dogs on regular diets to lymphocytes in dogs eating diets rich in antioxidants. He’ll also watch for development of prostate cancer, to see if there is any link between oxidative damage and cancer development.

Why prostate cancer?

Prostate cancer shows the strongest link with aging and potentially with oxidative damage, says Waters. Eighty percent of 80-year-olds have cancer in their prostate glands at autopsy, he says.

And why dogs?

“Dogs and people have been tied together since our early history,” Waters says, “and dogs are the only nonhuman species that spontaneously develops prostate cancer. Also, because of their compressed lifespan, two years of antioxidant supplements in dogs is the equivalent of 15 to 20 years in humans.”

Waters hopes that someday doctors will be able to test people for oxidative damage through a simple blood test, then recommend dietary changes or treatment to reduce their cancer risk.

“Just as in cardiovascular and neurodegenerative diseases such as Alzheimers, disease prevention is the ultimate key,” Waters says.

Prevention of many diseases may just start with what you’re eating. Purdue researchers like Watkins, Vierling and Waters are finding and designing foods to protect your health and the health of your pets, so that you can drop by the grocery store and pick up some disease prevention for dinner.