

# The Bailey Dailey



**BAILEY**  
SCHOLARS PROGRAM

College of Agriculture and Natural Resources

December 2004

## MSU Dairy Products Evaluating Team:

National Competition in Lakeland, FL November 4-6, 2004

*By Blong Yang*

This semester I have been very fortunate to be a part of the 83<sup>rd</sup> Collegiate Dairy Products Contest representing the Michigan State University Dairy Product Evaluating Team at both regional and national competition in Chicago, IL and Lakeland, Florida respectively. This competition was sponsored by the three following organizations: The United States Department of Agriculture (USDA), The International Association of Food Industry Suppliers (IAFIS), and The American Dairy Science Association (ADSA). This program was available to all land-granted schools related to the agricultural college.



*Darclee, Ruti, Katie, Devin, Alena, Eric, Maria, and Blong in front of the AmeriSuite*

It has been a wonderful opportunity to be a part of this extra-curricular program, tasting cheddar cheese, Swiss style yogurt (strawberry flavored), 2% milk, cottage cheese, butter, and vanilla ice cream. This tasting experience has helped me understand how important taste is to the consumers in the dairy industry.

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The Dairy Product Evaluating Team competition takes place each year during the fall semester between October and November. Training practice may take anywhere between four to five hours a week for about six weeks prior to the competition. Each member is given a list of defects for each dairy product to study. Each defect was assigned to three possible characteristics—slight, definite, and pronounced. Slight means that the product has a small but significant change in flavor (barely noticeable), definite means that you are able to taste a difference in the product which does not hold true to its flavor, and pronounced is when the defect has overtaken the entire flavor of the product.

All six products were scored according to the number of defects each had and the ranking of each characteristic. Each product started with a perfect 10 score, and the score continues to drop to the lowest defect value. The milk and butter product are only evaluated based on its flavor, while ice cream and cheddar cheese are evaluated accordingly to its flavor, body and texture. The Swiss yogurt and cottage

cheese are evaluated on its flavor, body and texture, and appearance. Contributions to the defect may be acid, cooked product, bitterness, foreignness, high acid, saltiness, oxidization, or rancidness just to name a few.

At the national competition in Florida, our school was recognized at 10<sup>th</sup> place. We placed a bit low this year, but we're looking forward to bring home more trophies next year.

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***MSU Dailey Products Evaluating Team:***

The experience overall has been extremely beneficial for myself in the food industry. I truly appreciated the opportunity to tour the Kraft Center in Glenwood, IL and the Publix Center in Lakeland, FL. As a food engineering organization, I was most interested at how Publix processes their ice cream, milk, cottage cheese, and yogurt at a large scale of 70 thousand cases a day. I was not aware that the processing cycle to get raw milk to pasteurize, homogenize, and cook into a final product would range between 30-60 hours of labor. Many of the employees are required to work the entire 40+ hours shift, or switch shifts with another team until the every end, since cleaning plays a critical part of the process. One drawback of working for Publix is that you have to start from the very bottom of the labor force and climb your way up the ladder to production manager. Also, they currently have only two internships available every year.

My new knowledge from this experience is being able to categorize the defects found in dairy products. To be very honest, all dairy products do not taste the same anymore. When I have a glass of milk, without a doubt, I notice defects and it annoys my family when I share with them my biased opinion. Another example would be the butter I am having with my dinner roll and my quick judgment on that.

If anyone is interested in participating in next year's Dairy Product Evaluating Team, keep an open ear to hear more from the Food Science Club, or contact myself in the fall for more info. Check out the website for the Collegiate Dairy Products Evaluation Contest rules and history at <http://www.ams.usda.gov/dairy/cdpec/welcome.htm>, and look at their scorecards for each product and defect attributes. For more information, contact Blong at yangblon@msu.edu

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**Dr. Nancy Simpson Visits Bailey**

*By Diane Doberneck*

Nancy Simpson, Director of the Center for Teaching Excellence at Texas A&M University, visited the Bailey Scholars Program on November 18, 2004. Dr. Simpson first heard about the Bailey Scholars Program at a national American Association of Higher Education conference and decided to pay us a special visit while on campus. Frank Fear (CARRS), Geoffrey Habron (FW), Carole Robinson (CARRS graduate student), Glenn Sterner (HALE graduate student & Bailey graduate fellow), and Diane Doberneck (Bailey Scholars) met with her to give her a history of the program and to answer her questions. The open-ended conversation covered a lot of ground in an hour, including the history of Bailey, the details of the undergraduate specialization, faculty and staff involvement, conveners orientation and bi-weekly meetings, the scholarly underpinnings of the program, and Bailey in other colleges and at other universities.

**Conveners Conclave Set for Jan 7<sup>th</sup>**

The Curriculum Connections Team is hosting a Bailey-style orientation for the Spring Core Course Conveners. Past, current, and potential conveners—student and faculty scholars—are invited to attend the dialogue exploring the important question: “What does it mean to be a convener?” We’ll meet on Friday, January 7<sup>th</sup>, 2005 from 8:30 to noon in 65 Agriculture Hall. Everyone is welcome to participate in this morning of reflection and dialogue

# What it means to be a Bailey Scholar

By Frank Fear

Faculty members and students design learning experiences collaboratively in this 21-credit undergraduate specialization named in honor of Liberty Hyde Bailey, the legendary horticulturalist who emphasized active learning. In deciding what to study, when, where, and how, Bailey Scholars shift the conventional learning relationship from learning from the outside-in—students being taught by faculty—to learning from the inside-out, that is, sharing with each other what they want to learn, negotiating their learning agenda, and evaluating what they learn.

## Community of Scholars

The Bailey approach expands the way we typically think about the purpose of a college education because students take charge of their learning and faculty members engage students as learning partners. “The Declaration of Bailey” expresses the intent of the program and hangs in block letters around the ceiling of the community room:

*“We seek to be a community of scholars dedicated to lifelong learning. All members of the community work toward providing a respective, trusting environment where we acknowledge our interdependence and encourage personal growth.”*

## Why is Bailey Valuable?

By changing the traditional norms of classroom engagement, meaningful learning experiences emerge as students individually and collectively explore their interests. As a result, critical questions take center stage: What is my purpose in life? How can I be who I am meant to be? When interviewed by a researcher writing a book on undergraduate education, then-senior Robin McCoy interpreted her Bailey experience this way: “It switches emphasis from building a career to building a life.”

## The Five Bailey Questions

Four members of Bailey’s inaugural class—Kristie McElhaney, Andrea Fox, Hunter Freeman, and Melinda Dailey—connected their academic journeys with their personal lives through Bailey by asking: “What if we connect what we are studying in college to what is happening in our lives?”

Fundamentally, the program tends to and develops the whole person. To assist in that quest, learning experiences are guided by “The Bailey Five Questions”: *Who am I? What do I value? What is my worldview? How do I learn? How do my answers connect, personally and professionally?*

## Bailey in Action

In April 2002, the Bailey Scholars ANR 210 class (a course for incoming scholars) visited 4<sup>th</sup> grade students at Shaftsbury Elementary School. Bailey scholars created an interactive skit with elementary students to help them learn about the natural world. Interacting with these youngsters prompted a profound revelation for Bailey Scholar Jamielyn Kost: “I realized that this is what I want to do with my life—teach environmental education.”

Patricia Kenney, Bailey’s academic advisor, recognized that self-discovery is not restricted to undergraduates. During a 2003 experience in ANR 410 (a course for graduating scholars), she read the book, *Whistle While You Work- Heeding Life’s Calling*. Through class discussion, Patricia realized that her life’s “calling card”—a description of what you are meant to do with your life—is “awakening spirit.” As she now professes, “I’ve found that I use that phrase as a referent when I set priorities and consider the meaning of my work.”

## Origins of Bailey

This program emerged in response to a perceived gap between what is and what might be. In the mid-1990s CANR Vice-Provost and Dean Fred L. Poston and Associate Dean Richard Brandenburg concluded that the College must offer more than first-rate technical training to provide a world-class undergraduate experience. The issue was not improving the majors—all CANR majors were ranked in the top ten nationally—but broadening the undergraduate experience through a college-wide program to enable students to take greater control of their learning. A group of administrators and faculty led by Frank Fear (then-chairperson of the Department of Resource Development) began designing the program. To season their thinking, the Dean invited Richard Bawden, former Dean of the

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*What it means to be a Bailey Scholar:*

Hawkesbury School at the University of Western Sydney in Australia, to work with the design team. The program launched with fifteen students in January 1998.

### **Where are we Now?**

Bailey has been honored by The Templeton Foundation for its contribution to students' character development and by the academic honorary Phi Kappa Phi for its innovative approach to interdisciplinary scholarship. Bailey Scholars are featured prominently at the annual CANR awards banquet where they are honored for academic and service accomplishments. Several Bailey Scholars have

won the prestigious CANR Outstanding Leadership Award and, with it, invitations to deliver the Spring Semester commencement address.

But this is not a program reserved for the academic elite of our College. Although they come from diverse backgrounds and have varying academic achievement levels, Bailey Scholars work side by side, respectfully and collegially. Without such diversity, Bailey alumna Monica Glysson asserts, Bailey would not be Bailey: "There would be no new ideas, no opportunities to think of new and wonderful ideas, and no possibility for life changing moments. The sparks would be gone."

*Coauthored by Fall semester 2004 410 class. This article "What it means to be a Bailey Scholar" will be featured in a coffee table book of MSU along with other short essays. Look for the publication of the book about MSU in 2005.*

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## **Worm bin composting... Middle Twelve Student Organic Farm**

*By Lindsay Bodner*



It's finally time! I'm ready to get worms.

I was first introduced to vermiculture (worm bin composting) in my RISE freshman seminar when Christina Carra brought in her bin from home. While college is all about learning new things, some of the students in the class were completely disgusted. I was intrigued. But that was four years ago. I've got lots of excuses for not creating my own worm bin since then (dorms, traveling, roommates, community living, etc), but now I've run out of excuses.



I've had some experience with composting in a few different ways. I know families with simple outdoor piles; I've seen friends struggle with indoor worm bins; my Student Organic Farm RISE seminar last fall had group compost piles we tended each week; I've been on compost duty for this semester living in a student co-op.

As I prepare to move out west indefinitely, I'm interested in continuing this sustainable practice. However, in the Sierra Nevada, I have neighbors to be concerned with: black bears. I'm certainly not interested in attracting this sort of wildlife to my yard; we've already had to get a new 'bear-proof' dumpster and keep a flood light on all night. Bears are extremely curious and are always looking for a free meal. I haven't noticed any wildlife getting into the compost piles around the co-op, but Tahoe bears are a different breed. I try to do everything I can to keep them wild, which includes not providing anything edible that they can't find growing in nature.

I'd rather give my food scraps to worms. I plan to take just a few little ones out with me and give them a happy home in my little mountain apartment. If you know of any worms eager to travel, have them get in touch with me!

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# Learning Journey in Chicago

November 19-20, 2004, ANR 410

By Blong Yang

Earlier in the semester, our class had expressed several interests in exploring ideas of culture, lifestyle choices, responsibilities, community, and transition upon graduation. We were able to see the play *Over the Tavern* at the Boarshead Theatre in Lansing and grew interested in seeing a production shown in a big city, surrounded by a different atmosphere. Many of us have had the chance to visit Chicago, but have not had the experience to explore the 'local' culture. So we chose to visit explore this city as a class. In delight, we walked the Magnificent Mile; visited the Institute of Art; ate at the Cheesecake Factory, Bistro 110, and local bakery; had some Ghirardelli chocolate; and watched the MSU football game against Penn State.

My learning experience of the culture, food, and lifestyle in Chicago has been an enjoyable, memorable, and surprising one. It seemed as though our cup was overflowing with luck because everything that we had planned for worked out great, from the time arrangement to traffic and the weather. My biggest surprise was meeting Laurie from Eli Cheesecake. She was the former cake decorator at Central Bakery on campus two years ago; I did not expect to run into her in a city with two million people!



Frank, Blong, Carole, Lindsay, and Cortney at the Cheesecake Factory on Nov. 19, 2004 in Chicago

## Aida

*Aida* at the Lyric Opera in Chicago was phenomenal. The stage setup was beyond my imagination—several times I could not believe how real the setting was, and the lighting and emotion just drew me into the opera. The architecture did a great job of drawing the audiences' attention to the stage to become a part of the opera. It was just like watching a movie; instead, the opera is performing live before you. I heard that in New York, they actually have camels and elephants on the stages throughout the opera.

In case you are wondering, *Aida* is a romantic love story, which takes place in Cairo, Egypt. Aida is the princess of Amonasro, the Ethiopian king, who is a slave held captive by Amneris, the daughter of the Egyptian King. The complication in this opera was that Aida was in love with Radames, who is the captain of the Egyptian guards and later defeated the war against Ethiopia. Aida is challenged to make a decision between winning her own freedom or the freedom of her people by betraying her true love, Radames. To make matter worse, Amneris is in love with Radames as well and wishes to be wedded to him soon. The drama continues until the very end where love conquers all. Check out this website for a more descriptive detail of each act at <http://www.metopera.org/synopses/aida.html> in case my version confused you.

## Chicago Institute of Arts

Before completing our learning journey in Chicago, we visited the Institute of Art. There is so much to see in the Institute of Art—you will just have to visit it sometime and then we can talk more, because I can go on and on talking about the pictures I have taken. I was amazed at how

many artifacts they have compared to the Detroit Institute of Art. Below are some samples of the work they have in the exhibit.



Flower painting from the Modern Gallery



Front entrance of the Institute of Art



Cortney admiring John the Baptist



Famous painting by Wood focusing on the gothic cathedral

## Chicago

I loved the rich and dynamic culture of Chicago, being able to walk downtown freely and seeing people roaming through the streets without having to fear so much about the negative stereotypes. The people I have met were calm, relaxing, and willing to give directions. The cab driver on the other hand is another new “stress-learning”; of the six taxi cab drivers we had, one of them drove us through two one-way streets trying to save us time and money. We appreciated it, but boy, it was a scary feeling sitting in the back seat putting your life in the hands of the cab driver.

The train ride to Chicago was four hours long. This was my first time taking the train to Chicago instead of traveling by car. The funny thing about the ride into Chicago was that there were more stops than the one coming back to Battle Creek. I must say the coaches are much more comfortable than those of airplanes, and they have more room for your feet (stretch learning). My experience with the train ride has definitely opened my options of transportation. Before this experience, I preferred traveling by car and plane only, but now I am more open to train and taxi as another resource for transportation. The train whistle can be a bit annoying, but it’s nice to be staring out the window and counting the number of cars waiting in line for the train to go by than to be counting the number of train cars going by.

My highlight of this exploration of Chicago was learning about the Light Festival and walking through the Magnificent Mile. The Light Festival followed by a parade is symbolic as the official welcoming of Christmas by the locals. Although our train left before the parade even started, it was an amazing experience to be one of the hundred thousands of pedestrians waiting for the parade and fireworks. You can definitely sense the community involvement—very similar to Bailey, just on a larger scale. At the festival, we had the chance to decorate our very own slice of cheesecake from Eli Cheesecake, where I met Laurie.



Eddie Bauer on the Magnificent Mile - I was admiring the people traffic



Cheesecake, our way of ending a wonderful Chicago learning experience

In conclusion of this learning experience, I'm not as afraid of relocating myself in Chicago anymore if an employment opportunity arises. From this experience, I believe I am ready to make small steps toward making the "transition" from college to the working world.

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## Looking back: Reflection of One of my Middle 12 Choices, RD 415

*By Jody Reno*

I chose a resource development class as one of my middle twelve classes because it was an eye-opener of a class. RD 415, Environmental Impact Assessment, is a required class for Resource Development majors. It is one of many choices in the department, but it offers skills that are not usually taught in the classroom. I took away so much information from the course that it helped me to develop a sharper environmental eye and learn valuable public relation and communication skills.

In RD 415, I learned the importance of a well thought-out, unbiased approach to evaluating a proposed project on developed and undeveloped land, consequences and mitigation approaches, alternatives and compromising solutions that fit the needs of all stakeholders involved—complicated stuff! I just did not think it was possible, but this course taught me how important people and good communication skills are in this field. Compromising and human relations are critical in this line of environmental work. I took these concepts and intertwined them with other newly enhanced environmental views and allowed them to help mold my current views. This then sparked and generated ideas of how I can help make positive choices and changes within my future career in the environmental field. I needed some inspiration, believe me! The course also has strengthened my beliefs that with proper evaluation and consideration of the complex ecosystems involved, smart environmental choices can be made and not impact the land in a negative way, while still meeting the needs of all stakeholders concerned. I think I will be able to use this new knowledge in pursuing my Nature & Wildlife preserve career. A thorough EIA will be required and I would like to be part of that process.



## CCT develops “Senior Reflections” for graduating scholars

By Diane Doberneck

Over the course of fall semester, the Curriculum Connection Team (CCT) has been exploring ways of getting a better understanding of student scholars’ learning journeys as a whole and of making their journeys more visible to those who might want to learn about them. CCT spent much of the semester developing an exit survey/interview, called Senior Reflections, for graduating student scholars to complete during their last semester in the program.

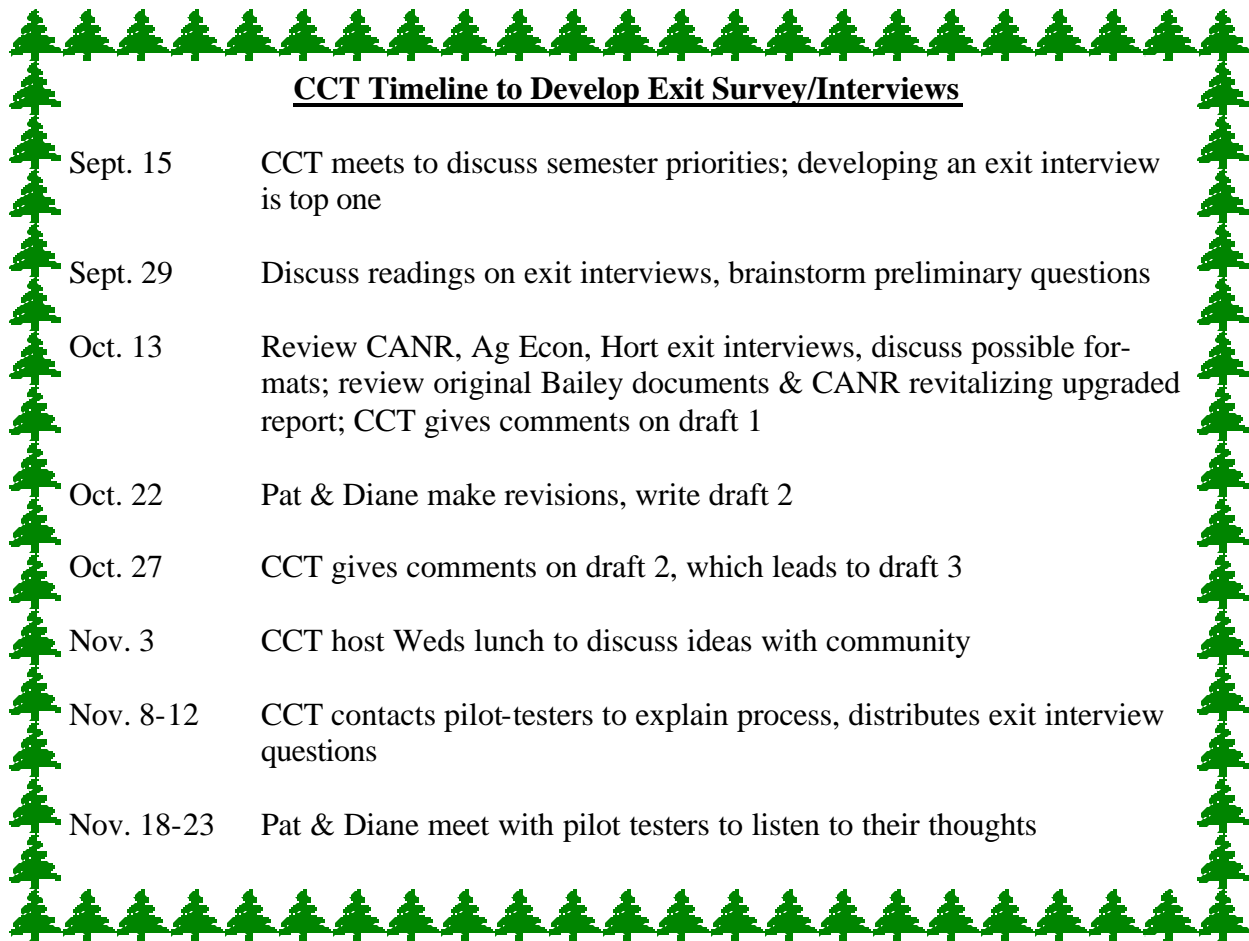
First, CCT learned about national examples of student exit interviews and assessment tools and studied the exit interviews used by different departments in the College of Agriculture and Natural Resources. As is to be expected, none of these existing assessments fit the Bailey situation—which led CCT to its second step, developing our own way of documenting students’ reflections at the end of their undergraduate learning journey.

Next, CCT looked at documents describing the Bailey philosophy, including some historical documents from 1998 when Bailey first launched with student scholars, and considered the important ways in which Bailey has time since then. With the Bailey philosophy in mind, we started drafting questions. After several drafts and re-writes, CCT settled on a comprehensive exit survey/interview that covers the following ten topics: learning vision statement, class-related learning activities, non-class related learning activities/experiences, Bailey core courses, middle twelve courses, overall learning journey, Bailey community life, Bailey environment, People in Bailey, and final thoughts. The exit interview includes a variety of charts for scholars to rank activities and open-ended questions to elicit their opinions and

reflections.

CCT then discussed the merits of different approaches for giving the exit survey/interviews. Again, we looked at existing approaches to see if any of them were appropriate for Bailey. Some exit surveys are handled on-line only. Other CANR departments hold interviews with each graduating students, where they share ideas off the cuff. Others distribute the survey and have a drop off box for the students to return the forms. Again, CCT did not believe any of these options supported the Bailey approach to learning through reflection very well. Instead, we decided on a multiple step process. First, a couple members of CCT would meet with the graduating scholar to describe the survey/interview, to emphasize the importance of their reflections, and to answer any questions. The scholar would then receive the Senior Reflections document and take it with them to complete as their schedule allows over a number of days. Once scholars have completed the survey, they meet again with two members of CCT to discuss their main ideas and reflections. CCT believes that this process promotes more reflection, synthesis, and dialogue more than the others.

Finally, CCT invited several recent alumni and the fall semester graduating scholars to pilot test the exit survey/interview. Pat and Diane followed the multi-step process with the scholars in late November and received very good feedback from them. CCT will make some minor adjustments to the Senior Reflections document, so that it is officially ready to use starting spring semester 2005. We sincerely hope that, over time, the Senior Reflections will contribute to Bailey’s continued growth as a vibrant learning community.



<u>CCT Timeline to Develop Exit Survey/Interviews</u>	
Sept. 15	CCT meets to discuss semester priorities; developing an exit interview is top one
Sept. 29	Discuss readings on exit interviews, brainstorm preliminary questions
Oct. 13	Review CANR, Ag Econ, Hort exit interviews, discuss possible formats; review original Bailey documents & CANR revitalizing upgraded report; CCT gives comments on draft 1
Oct. 22	Pat & Diane make revisions, write draft 2
Oct. 27	CCT gives comments on draft 2, which leads to draft 3
Nov. 3	CCT host Weds lunch to discuss ideas with community
Nov. 8-12	CCT contacts pilot-testers to explain process, distributes exit interview questions
Nov. 18-23	Pat & Diane meet with pilot testers to listen to their thoughts

## **My Middle Twelve Experiences – Fruit and Vegetable Production**

*By Debby Williams*

I am a Horticulture major specializing in sustainable fruit and vegetable production. Two of my middle twelve classes were: 1) Vegetable Production and Management, and 2) Tree and Small Fruit Production and Management. It has been quite a challenge figuring out a way to share these classes with the broader community without putting most of you to sleep. What I thought I would do is contrast the methods by which we were taught and the production techniques.

Tree and Small Fruit Production was taught jointly by the professors in Horticulture with a fruit specialization. Eric Hanson organized and coordinated the classes. Each professor taught his specialization. Ron Perry taught us apple and pear production, particularly pruning and training systems, Jim Flore taught tree fruit physiology and stone fruit production, and Eric Hanson taught us blueberry and bramble production. There were many other topics, which are too numerous to list here. This was a great way to get to know many of the professors in the department.

The production methods that were taught are for large-scale operations, using conventional methods. We were taught about managing 100+ acre blueberry fields and apple orchards, using mechanized harvesting and integrated pest management techniques. I overheard one student say that he would never be able to afford to buy into an orchard. During a lab that was to

*My middle Twelve Experiences— Fruit and Vegetable Production*

demonstrate conventional vs. organic pest management in blueberries we were taught that you just substitute spray A for spray B. I became very frustrated and pointed out that if I were growing blueberries organically I would not have a monoculture, that I would be using biological and mechanical control, and minimal spray.

There were many times that Dr. Hanson tried to start a discussion on organic production during our lectures, but the information did not seem to be readily available with this group of professors. It's a shame, since I have never tasted anything more wonderful than a locally grown, organically produced apricot. It truly is the nectar of the gods!

John Biernbaum taught Vegetable Production and Management. Dr. Biernbaum took a totally different teaching approach. Although he provided us with materials for large-scale production, his lectures and labs focused on small, sustainable systems. His reason was simply that most of us were not going into vegetable production, and he wanted to teach all of us something we could use at home. If we wanted to enlarge the size of our production, these techniques would work there as well.

Our textbook was The New Organic Grower by Eliot Coleman. In this text we were introduced to the idea of growing enough vegetables to support 100 people on 2.5 acres, during ten months of the year. How? The use of season extension techniques allows one to grow vegetables during early spring and late autumn. The use of compost to enrich the soil allows it to produce abundantly. The highlight of the semester was a visit by Mr. Coleman to the Student Organic Farm, followed by a lecture.

I enjoyed both of these classes and learned many of the production techniques I will use when I start my career. I found that there is a serious lack of information available for organic stone (apricot, cherry) and bramble (raspberry, blackberry) fruit production, two of the areas I am interested in. During the vegetable production class, I became a firm believer in Eliot Coleman's farm model and would like to emulate it in the near future. My next step in learning is doing,

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## **Core Course Share Night on December 7<sup>th</sup>**

*By Diane Doberneck*

Bailey scholars participating in the core courses—ANR 210, ANR 310, and ANR 410—will join together in Bailey's first annual Core Course Share Night. Each core class will share a summary of class and describe the learning that took place. This is an opportunity for scholars to see how core courses have coalesced this semester and to understand the group-learning processes that take place in them. Prospective core course conveners—student and faculty scholars—are encouraged to attend. The Curriculum Connections Team (CCT), hosts of the event, will provide a delicious homemade meal of lasagna, salad, bread, and cheesecake. Everyone is welcome—feel free to bring friends and colleagues.



## Vickie Lovejoy Joins the Bailey Community

Vickie Lovejoy recently joined the Bailey Scholars Program to lend secretarial support to the program.

Vickie was recently employed with the Construction Management Program as the fiscal manager and assistant to the director, with overall coordination of the director's office. Previously, she worked in the College of Agriculture and Natural Resources External Relations Office and the College Alumni Office for 17 years; here she helped to plan many college alumni events, including AutumnFest and the ANR Golfing for Scholarships outing. Also during this time, she worked with the College Academic and Student Affairs Office as the Graduate Secretary and helped support the Associate Dean with administrative duties. Before joining the College of Agriculture and Natural Resources, Vickie worked in the MSU Library system for seven years.



Vickie is looking forward to working with the Bailey community and hopes to remain with the program until she retires, approximately ten years down the road. She has been interested in the Bailey program from its beginning and said that this is her dream job. She feels that her responsibilities of the past will encompass and embrace her new role in Bailey, giving her lifelong learning journey a new direction.

### Bailey Scholars at Autumnfest

A special thanks goes to all of the scholars who represented Bailey at the 2004 CANR Autumnfest. Monica Glysson (FW, Bailey Alum '03), Bailey Community Council member and Glenn Sterner, HALE graduate student and Bailey Graduate Fellow (AEE, Bailey Alum '04) put together the booth and materials. Katie Clark helped with set up the night before, and Amanda Sloan (Horticulture), new Bailey scholar, accompanied Glenn during the event. Kids who stopped by the booth received Bailey frisbees.

### Portions of Blong's Middle Twelve: Electrical Power and Control BE 456 Bailey Community,

I would like to share with the community my first middle twelve experiences. As many of you might recall, I mentioned in my learning vision statement that I would like to be a handy person someday. This vision became a reality since the end of September. Since then, I have been doing a few house repairs and have come to realize that I am one step closer to achieving that personal goal. I felt great being able to put my engineering knowledge into good use after four years of higher education thus far.

The first repair I did was changing the garbage disposal. A big thanks to my mom, who kept encouraging me to fix around the house. It **was** my father's responsibility; however, the responsibility shifted in 1999. I have done little weekend projects before, such as painting, putting in new floor tiles, carpeting, waxing, and yard work. I have never handled any electrical wires before and know that any wrong wiring would result in electric shock. Having taken BE 456, I got the courage and confidence to think more like an engineer and start locating the problem. I was able to replace our garbage disposal this summer, replace several light switches, old light fixtures, electric outlets, and the hotplates on the stove last month. I found out that by using a light bulb of 125 Watts or larger, it will actually save you money because the voltage that flows through our electric outlet is 120 Volts. Watts is equal to voltage multiplied by the current. By having a higher wattage, it reduces the chances of blowing the light bulb.

#### *A quick lesson on where our power supply comes from.*

To have a better understanding, let us trace our power supply backward, starting with our home to the power plant. The wires connecting to the outside of our house to the power lines are transformed from a high voltage of 720 volts to 120 volts through a customer transformer. The three wires hanging on the power line in your backyard are referred to as distribution line, and by law they are required to have at least 4 posts (poles) holding those wires

*Continued on page 12*

every mile. If you follow the distribution lines back, it will lead you to the substation transformer; often you will find it to be a rectangular box with fences all around it and signs saying HIGH VOLTAGE. Avoid the area, if you can. Tracing back from the substation transformer would lead you to the transmission lines, which are the high-rising steel towers you see in the open field or behind people's backyard. Some of these transmission lines can carry up to 765,000 volts. Tracing back farther, the transmission line will lead you to another transformer before entering into the power plant, which usually has 15,000 volts coming out from the plant. Note that transformers can change the voltage source to either a larger number, if it has to deliver the voltage across the country, or a small value when entering your house. If you are on the road and you see any of these landmarks, now you know that you are close to a power source. Be very cautious, because it is not the voltage (the energy) that can kill you, but the current (the rate of negative charges flowing through a conductor) that can shock/kill you. Current is what keeps the power going.



Liberty Hyde Bailey Scholars Program  
Michigan State University  
65 Agriculture Hall