

DEPARTMENT OF HORTICULTURE
2015 Alumni Newsletter

IOWA STATE UNIVERSITY

Greetings Fellow Horticulturists!



For some of you, the day you graduated from Iowa State probably seems like yesterday. For others, images and recollections of classes, field trips, and social events during your time as a Cyclone might have faded with time. But no matter to which camp you belong, my guess is that on a fairly regular basis, you find yourself remembering something from those formative and memorable college years. Maybe it was strolling across campus on a picture-perfect fall afternoon, as colorful leaves and golden sunlight cast a warm and inviting glow across the landscape. Or maybe you remember leaving the comfort of a warm bed to do battle with the worst conditions winter could dish out, all for the privilege of attending that 8:00 a.m. class. Or like me, do you remember how the drifts of redbud trees in full flower made you want to skip out on class/work and play outside all afternoon?

Then again, maybe you have fond memories of Horticulture Hall itself...where students have been coming to study horticulture for well over 100 years! Of course, the building has changed dramatically over the decades, even since your last visit to campus probably. We now have state-of-the-art greenhouses that practically run themselves...with capable assistance from our greenhouse supervisor Pete Lawlor of course. And you should see the poinsettia crop grown by our undergraduate students this year. Simply spectacular!

One of the most popular rooms in the entire building is the student reading room...a.k.a. the student hangout den fully equipped with computers, large screen monitor, refrigerator, and a fake leather couch that, if it wasn't so darn comfortable, would probably find its way to the dumpster. I guess I'll just take the students' word for it. You won't catch me lounging on that thing!

The landscape design studio is perpetually in use. Regardless of the time of day, or day of the week, you will always find students in there, hunched over their drafting desks, creating landscape designs that will someday leap off the canvas and into the ground.

One of the highlights from this past fall happened when a group of our students was asked to create a series of floral arrangements for display at the 40th anniversary celebration for the Brunner Art Museum located in the Scheman Building (Iowa State Center). Students arrived at 8:00 a.m. on the day of the event and finished their work mere hours before the proceedings that evening. Guests at the celebration raved about the creativity and beauty of the arrangements, but I was more impressed with how well our students "cleaned up" for the fancy gala! A very impressive and professional looking group, indeed!!!

Our graduate students were equally busy during the past year, tending to their own research projects, attending professional meetings, and just a few weeks ago, participating in our 2nd annual research retreat where many of them gave presentations that were as good as any I've ever seen at any professional conference. They are a bright and dedicated group of students, and all will go on to do great things after graduation.

Maybe you can tell that I'm more than just a little bit proud of our students, our supportive faculty and staff, and the way Iowa State horticulture is perceived around the state and around the country. Our students have always made us look good. In fact, just look in the mirror! That's right. You are part of our team, our legacy. And you will always be part of the Cyclone horticulture family. So, be proud of your roots and the place that helped you get your start in the world. Because we certainly are proud of you!

Best wishes for a prosperous 2016!

Jeff Iles, Professor and Chair

Department of Horticulture, Iowa State University, Ames, Iowa, iles@iastate.edu

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A Message from Dean Wendy Wintersteen



There are times in every season we need to be reminded of nature's beauty and bounty, and often that's when I am reminded of how an education in horticulture can brighten the days. Two recent examples come to mind.

As the holidays near, the Horticulture Club students are selling poinsettias in the Harl Commons of Curtiss Hall, bringing a welcome burst of color into the season of studying for finals. This year Merisa Lengeling, a senior, took charge of the planning and planting of the poinsettia crop, and has done a wonderful job. It was indeed a beautiful crop.

We featured Merisa in a video posted on our college homepage, and if you have a minute, you should check it out: <http://www.cals.iastate.edu/features/2015/horticulture-students-begin-poinsettia-sales-planning-spring>.

Earlier in the fall, the Department of Horticulture students and staff helped University Museums celebrate its milestone 40th anniversary at the Brunnier Gallery. One of the highlights of the event was the magnificent floral creations our horticulture team developed for table arrangements and hanging bouquets. The University Museums director's reaction summed it up: "It was breath-taking! Once again the ag and museum partnership was great!"

Horticultural education, research and extension are an important part of how we fulfill our mission—for the benefit of gardeners, nurseries, landscapers, turf managers, local food growers, international partners and many more. But it's moments like these recent ones that tell a story of how beauty and bounty can be woven into the fabric of the college and the campus—thanks to the Department of Horticulture.

Thank you for your support of our horticulture programs and best wishes for 2016!

Wendy Wintersteen, Dean
College of Agriculture and Life Sciences

Horticulture Faculty

Ryan Adams, Lecturer/Turfgrass Extension
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Rajeev Arora, Professor
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Crop physiology – study of plant response to low temperature stress

Nick E. Christians, University Professor
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Reducing maintenance costs and energy consumption in the turfgrass industry; alternative pest management strategies for turfgrasses

Barb Clawson, Resource and Career Coordinator,
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Diana Cochran, Assistant Professor
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Extension specialist for fruit production

Christopher Currey, Assistant Professor
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Greenhouse and controlled-environment production of ornamental and food crops

Kathleen Delate, Professor
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Sustainable/organic horticultural and agronomic crop production and marketing

Kevin Duerfeldt, Lecturer, Global Resource Systems
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Shui-zhang Fei, Associate Professor
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Turfgrass breeding, genetics, and biotechnology

Mark Gleason, Professor, Plant Pathology
mgleason@iastate.edu
Research, extension, and teaching on sustainable disease management of fruit (apple, strawberry), vegetable (muskmelon), and ornamental (hosta) crops; plus turfgrass and shade trees

William R. Graves, Professor and Associate Dean
of the Graduate College
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Physiology and ecology of woody landscape plants

David J. Hannapel, Professor
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Molecular biology of growth and development; characterization of potato tuber proteins involved in the process of tuberization; regulation of potato gene expression by hormones and environmental factors

Cynthia Haynes, Associate Professor
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Consumer horticulture; human issues in Horticulture; youth and undergraduate education

Jeffery K. Iles, Professor and Department Chair
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Landscape plant establishment and maintenance; landscape plant selection

Ted MacDonald, Adjunct Assistant Professor
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Dorothy Masinde, Lecturer, Global Resource Systems
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David D. Minner, Professor
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EARTH – Education and Resiliency Through Horticulture

Ajay Nair, Assistant Professor
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Extension specialist for vegetable production

Gail R. Nonnecke, University Professor, Morrill Professor
nonnecke@iastate.edu
Horticulture: Management and physiology of small fruit crops; Global Resource Systems: Interdisciplinary major in the College of Agriculture and Life Sciences, Global Technical, cultural, leadership, and integration competencies

Lisa Orgler, Lecturer
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Aaron Steil, Lecturer
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Elly Sukup, Lecturer, Global Resource Systems
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Ann Marie VanDerZanden, Professor, Director, ISU
Center for Excellence in Learning and Teaching (CELT)
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Horticulture: Functional landscape design, construction, and management; curriculum development related to landscape issues

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2015 Awards and Recognitions



Dr. Ajay Nair and Dr. Kathleen Delate received awards from Iowa State University President Steven Leath.



College of Agriculture and Life Sciences

Dr. Ajay Nair was a recipient of the 2015 College of Agriculture and Life Sciences Early Achievement in Extension and Outreach Award. He was honored at the Spring Awards program in February.

Dr. Kathleen Delate received the Outstanding Achievement in Extension or Professional Practice Award at the 2015 University Awards Program this past spring. As Vice President for Extension and Outreach, Cathann Kress remarked at the awards ceremony, “Dr. Delate was the first land-grant faculty member in organic agriculture in the U.S. in 1997; and since that time, she has built an internationally recognized Extension and Outreach and applied research program.

Lisa Orgler was named recipient of the 2015 College of Agriculture and Life Sciences Excellence in Teaching by Lecturers and Adjunct Faculty Award. She was presented the award at the Spring Awards program in February.



Dr. Wendy Wintersteen gives award to Dr. Lisa DeVetter.



Mercy Kabahuma and Dr. Gail Nonnecke congratulate Dr. Lisa DeVetter. Mercy and Lisa were great friends from the Uganda service learning program and it was special for Lisa to see her again.

Dr. Lisa DeVetter was given the Outstanding Young Professional Award honoring an early to mid-career college alumnus who has distinguished themselves through significant advancement and achievement in their discipline or field.

Business Plan Competition

Alejandra Feliciano-Rivera, a graduate student in horticulture, and **Peter LaMair**, senior in agricultural studies, were each awarded a grand prize of \$5,000 in the Agricultural Business Plan Competition developed by ISU's Agricultural Entrepreneurship Initiative and sponsored by Stine Seed Company and Summit Group. Undergraduate and graduate students from 15 land-grant universities competed.



Alejandra Feliciano-Rivera holds the grand prize in the Agricultural Business Plan Competition.

35 Years of Service

Deb Cochran and **Dr. Nick Christians** were honored for 35 years of service to Iowa State University at a banquet on March 9, 2015.



Dr. Nick Christians, Deb Cochran and Dr. Jeff Iles at the 25-Year Club banquet.

Garden Writers Association

Dr. Denny Schrock was named a Garden Writers Association (GWA) Fellow during a symposium in Pasadena, California, in September 2015. The GWA is an organization of more than 1,800 professional communicators in the lawn and garden industry.

Faculty Professional Development Assignment (sabbatical) of Dr. Rajeev Arora



The primary focus of my research program at Iowa State University is to investigate cellular physiology of plant cold-hardiness. Some of the questions that interest me and my graduate students are: which proteins/genes are important for conferring cold- (freeze) tolerance to plant tissues; where and how, at the plant cell level, injury occurs due to frost; or, can plants recover from a sub-lethal freeze-damage and what is the cellular mechanism of such 'post-thaw recovery'. It was the desire to explore the last question, i.e. cellular mechanism of post-thaw recovery that took me to laboratory of Dr. Dirk Hinchta at the Max Planck Institute of Molecular Plant Physiology in Potsdam, Germany, for a 6-month sabbatical leave.

Potsdam is the capital city of Brandenburg province in Northeast Germany, and directly borders German capital Berlin. The city was the residence of Prussian kings until 1918 and, therefore, has several palaces and historical landmarks, in particular the parks and palaces of Sanssouci, the largest World-Heritage Site in Germany. The Potsdam Conference, the major post-World War II conference between the victorious Allies, was held at one of the palaces in the area, the Cecilienhof. The city houses University of Potsdam and many other research institutes, including the MaxPlanck Institute, named after the Nobel Laureate German physicist, Max Planck.

Results from our earlier research at Iowa State University had shown specific accumulation of several key proteins in onion scales and spinach leaves which also showed substantial recovery from the freeze-thaw injury. While this provided some clue as to the potential role for these proteins in recovery process, it is at best only a 'correlative' evidence, not 'causative'. One of the biological tools to explore a 'causative evidence' is the use of mutant forms of plants which are identical to the native form except for a specific gene which has been rendered non-functional. The native and mutant forms are then compared for the presence or absence of a particular response, such as the ability to recover from freeze-damage. Ability to recover by the native form but its



lack or deficiency in the mutant form would suggest the functional role of the gene (therefore, protein) in the recovery process. At MPIMP, I first established experimental protocols to assess freeze-injury and post-thaw recovery in *Arabidopsis thaliana* (a highly desirable model plant for genetic/mutant studies) and then investigated the recovery response in several mutant lines lacking some of the key proteins (genes) earlier hypothesized to be important for recovery. Pursuing collaborative research at MPIMP was an invaluable and enjoyable experience overall although I very much missed my family and the warmth and smiles of my colleagues in the Horticulture department and couldn't wait to return home in Ames.

This sabbatical provided networking opportunities and allowed me to come in contact with international scientists developing contacts for future collaborations, specifically from Vietnam and Chili.

"I am very grateful to ISU, CALS and Horticulture Department for affording me the privilege of availing this FPDA".



Horticulture Staff

TECHNICAL STAFF

Kenny McCabe, Research Associate with Dr. Graves

James Schrader, Assistant Scientist III with Dr. Graves

Pooja Sharma, Post-Doctoral Research Associate with Dr. Hannapel

GREENHOUSE MANAGER

Peter Lawlor

HORTICULTURE RESEARCH STATION STAFF

Nick Howell, Superintendent

Jeff Braland

Lynn Schroeder

Dan Strey

EXTENSION AND OUTREACH STAFF

Richard Jauron

Susan DeBlicck

GLOBAL RESOURCE SYSTEMS STAFF

Maggie Sprecher

OFFICE STAFF

Kim Gaul, Administrative Specialist

Colleen Johnson, Office Support Staff

Deb Cochran, Office Support Staff

Amanda Wilson, Hourly Student

IT STAFF

Dianne Brotherson

BUILDING STAFF

Josh Cunningham, Custodian

AREA STAFF

Joe Hannan, Field Specialist,
Adel, Iowa

Vince Lawson, Superintendent,
Muscatine Island Research Station,
Fruitland, Iowa

Patrick O'Malley, Field Specialist,
Iowa City, Iowa

Mike White, Viticulture Field
Specialist, Indianola, Iowa

From the desk of **Richard Jauron**, the person behind **HORTLINE**

Hortline was initiated in 1983 as a toll-free telephone service. Its purpose was to aid county extension staff in their home horticulture efforts and to provide unbiased, scientific information directly to home gardeners. In 1997, 17,000 individuals received assistance from Hortline. Unfortunately, many individuals couldn't get through as the lines were often busy. As a result, Hortline was moved from an 800 number to a standard (515) direct dial number in 1997.

From 1983 through 2014, over 213,000 individuals received Hortline assistance via the telephone. The breakdown of calls by subject material are as follows; vegetables (17%), tree fruit (6%), small fruit (5%), turfgrass (11%), woody ornamentals (28%), houseplants (6%), herbaceous ornamentals (15%), and miscellaneous (12%).

Frequently asked questions include:

- How do I control "creeping Charlie" (ground ivy)?
<http://www.extension.iastate.edu/article/yard-and-garden-removing-weeds-lawns>
- When is the best time to prune trees?
<http://www.extension.iastate.edu/article/yard-and-garden-when-prune>
- When should I apply a pre-emergence herbicide to my lawn?
<http://www.ipm.iastate.edu/ipm/hortnews/2007/4-4/preemerge.html>
- How do I control blight on my tomatoes?
<http://www.ipm.iastate.edu/ipm/hortnews/2014/07-25/tomatodisease.html>

Some rather unusual questions include:

- Which weighs more, 5 pounds of wet sand or 5 pounds of dry sand?
- How do I get a peach pit out of my bathtub drain?
- Can crushed birth control pills be used to fertilize vine crops?

In addition to the telephone, 16,500 individuals have received Hortline assistance via e-mail since 1997.



Horticulture Resource and Career Center

by **BARB CLAWSON, Program Coordinator**

Dear Alumni and Friends:

Welcome back from 107 Horticulture Hall! Don't be alarmed that Barb Osborn is no longer writing this column. I had a life event happen on January 4, 2015. I married my best friend, Jeff Clawson, on Trunk Bay, US Virgin Islands. Dr. Dave Minner, and Dana and Martha Robes attended the ceremony and celebrated with us on the island. It was a beautiful day!



The candy dish is full and another year is in front of us. The Hort Club is hosting the Mid America Collegiate Horticulture Society Conference October 9-10, 2015. Fifteen new freshmen and nineteen transfer students began on August 24, 2015. We have an enthusiastic group of students that are off to a great start this year. The department is home to 133 students beginning Fall, 2015. This year I'd like to feature some former grads that I had the opportunity to visit in a Houston, Texas trip, September 5-9, 2015.

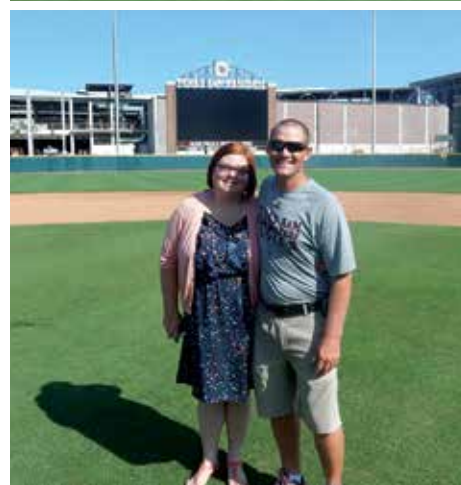
Dan Bergstrom, '95 grad, is the turf manager at Minute Maid Park-Houston, Texas; home of the Astros. Dan has worked for the Cleveland Browns, University of Kentucky varsity sports fields, and the University of Nebraska sports turf, before coming to Houston in March,



Dan Bergstrom at Minute Maid Park.

2004. Dan has some challenges with growing grass indoors with a retractable roof system. The challenge with that is negotiating time in the board room to open the roof to help grow grass. Ask any turf manager, and they will say Dan is the king of growing Seashore paspalum indoors. Dan employs six full-time year around, 3-4 part-time, and 10-11 on game days. The field looked in tip-top shape for the Astros vs Twins game on 9/6/2015. I had the opportunity to see the 8-5 Astros win and grand slam in the 7th inning by Jed Lowrie. Another challenge for Dan is coming up on September 10, 2015. Taylor Swift will be performing a concert and the field

will be covered with flooring and 6500 seats will be positioned on the Astros playing field to enjoy a night of music. His crew was expected to work around the clock from September 6 through the change-out completion on September 10. Dan's words of wisdom for students is to go out and outwork the expectations of the position. That creates success, trust, and dedication in the industry.



Holly Kasperbauer and Nick McKenna at Blue Bell Park.

Texas A & M sports turf is certainly a must see if you get close to College Station. **Nick McKenna**, December '02 grad, manages Olsen Field at Blue Bell Park for the Aggies. When Nick took the position, the complex was in month 4 of building a new stadium. The infield is Latitude 36 Bermuda and outfield Tiffway 419. It's equipped with the airfield drainage system

(continued)

Horticulture Resource and Career Center (continued)

on USGA sand base, with eleven inches of sand over the drainage. The field is in use January through mid-November. Nick hosts many camps and tournaments as well as the Aggies home stand games. There is about 17 acres of turf that has to be managed at Texas A & M. There are 5 full-time employees and 6-8 students. Nick believes in internships and welcomes students to do a study exchange with Texas A & M, while interning there. A newly renovated Kyle Field will house over 102,000 seats and is still in some construction phases as the football season begins. A soccer, softball, and track complex completes the Aggies varsity sports fields. Nick has worked at Hughes Nursery, Des Moines Golf and Country Club, Toro, Jack Trice, and Virginia Tech-while working on a Master's Degree in Crop, Soil, and Environmental Science from Virginia Tech. Also assisting in the tour was **Holly Kasperbauer**, AgEd '03 with a horticulture minor. Holly is the Assistant Director for the Public Service Leadership Program at the Bush School for Government and Public Service. She does leadership programming for the Masters students in two degree program and helps to manage the leadership certificate.



The fairways at Bluejack National.

The staff at Bluejack National greeted me with open arms and showed me all around the developing stages of a wonderful golf community. It's not often that one gets to see the development stages and building of a new golf course, but two Hort grads, **Brandon Goodyk** '97, Bluejack National Director of Development and **Bryant Marks** '15, AIT (Assistant in Training) are doing just that. Brandon has worked at Augusta National, Macura Club in Fort Worth, and took some time to experience building homes. Bluejack National is on the site of a former golf community, Blaketree National. It was a private club that closed in 2010. In 2013 Beacon Land Development purchased the property and hired Tiger Woods Design as the designer of the new Bluejack Golf community, featuring Tiger Woods' first golf course in the United States. It sits on 755 acres of heavily wooded land. There is approximately 105 acres of turf to manage. There will be a fish club, featuring thirty-five acres of fishing lakes. A fishing pro will be on board to organize fishing events. The "Playgrounds", a Par-3 course, is sodded with L1F zoysia on the fairways and M85 zoysia on the greens. "The Place", in partnership with Nike Golf, is a cutting edge golf performance center. The driving

range, is an inside climate controlled approach to working on your swing along with instruction programs, club fitting, performance testing, and personal training. There will also be a golf related exercise room and a grill overlooking "The Playgrounds". "The Fort"-a community center, will house a resort-style pool, skate park, tennis and sports courts, fishing and canoeing lake, baseball and football fields, zip lines, movie theater and a burger joint. Bluejack will offer 386 private residences from short-term visits to year-around living to 550 members. 234 estate homes, 5 homestead lots, 23 Sunday Homes, 96 cottages, and 38 member suites. Riley Maxey, Texas A & M '07 grad was hired as the superintendent and began on January 19, 2015; the first roll of sod was laid on January 18, 2015. The course is sited to open on November 5, 2015. There are about 28 full-time employees, 6 temporary laborers, and 7 off the construction crew that are helping to prepare the course for opening. The fairways were sodded with Zeon Zoysia. The tee-tops, approaches, and collars are L1F Zoysia, a new variety that can tolerate a lower mowing height. The greens are TifEagle bermudagrass. The turf drainage system consists of laterals at 20" spacing intervals and extra where needed. Leaf spot, army worms, sod

Bryant Marks, Brandon Goodyk, and Riley Maxey at Bluejack National.

web worms, mole crickets, and bill bugs provide sown challenge to the management of the turf. Riley has had experience at Traditions Club and Miramont Country Club, both in Bryan, Texas. Riley credits some of his turf education to Sean Hogan, '98 Iowa State grad now at Gaillardia Country Club, in Oklahoma City, OK and Jeff Kadlek, '97 grad, GLK Turf Solutions in the San Antonio, Texas area. Riley would like to see all students participate in a variety of internships before they graduate to make sure they have chosen the correct career path. Brandon too has had many experiences that have shaped his career. One he spoke of, was his time with Mike Andresen at Jack Trice and John Newton at Veenker, student positions while he attended Iowa state. Both men helped Brandon grow into the turf professional he is today. Brandon also spoke of his two years as a Cyclone Football player under the direction of Dan Mc Carney. His second summer he had to choose between summer training camp and an internship at Augusta. His choice is apparent, and Coach Mac wished him well.

My final stop was the Houston Texans. **Kevin Hansen**, '13 grad and Masters of Ag, '15, accepted a position as a grounds foreman for the Houston



Kevin Hansen at NRG Stadium and Houston Texans Practice Field.



NRG Stadium in Houston.

Texans in July 2015. Kevin Taylor, (Clemson University 90'), CSFM, CGCS, is the Sports Field & Grounds Manager at NRG Park. The Texans field is TifSport bermudagrass, grown in a tray system on the parking lot of NRG Stadium. This is the only field in the US grown with this system. There are approximately 2,700 trays in total, and it takes 1,200 to make the Texans playing surface for the football field, and 1,242 trays for the soccer field. Each tray weighs about 4,000 pounds and is set on palates, loaded on a flatbed and pulled into NRG Stadium. The trays are taken off one by one, and snugged up tight against each other to make the playing surface. Once all the trays are in place, the seams the four corners have to be filled with green sand. The turf in the tray system is maintained in the same manner that the traditional fields are. They have to be mowed, aerated, top-dressed, fertilized, and treated in the same manner. Irrigation is set up around the trays in the parking lot. When the Houston Rodeo comes to town, all of the trays need to be loaded up and taken to a local high school parking lot. This poses some challenges with irrigation. The staff watches the turf closely and hopes that Mother Nature can provide irrigation, so the portable irrigation

does not have to be moved to the high school. In addition the Texans playing field turf, the staff maintains three practice fields, an indoor facility with a synthetic surface and trays to lay down a synthetic field used for high school and college games. September 4, 2015, the NRG Stadium hosted a local high school football game and on September 5, the Texas A&M vs Arizona State University game was played; both on the synthetic field. It takes approximately 12 hours to do a field change-out. The field usually comes out after every NFL game. Kevin Taylor shares that in the NFL it's all about perception, safe playing surface for the athletes, and detail orientated employees.

I couldn't have asked for better tour guides, or any more hospitality. Each visit was an amazing testimonial of the skills and technical knowledge gained from the Department of Horticulture at Iowa State, combined with some top-notch internships and job experience. In all facilities, the current students of horticulture have an open-ended invitation to apply for internships. I hope this is the first of many tours of, "where in the world are the Alumni of the Horticulture Department at Iowa State University."

Graduate Student Horticulture Society

Congratulations!

Graduate Degrees and Students

GRADUATE DEGREES HORTICULTURE-SUMMER 2014

Kevin Richard Duerfeldt

Major: Horticulture and Sustainable Agriculture

Jingjie Hao

Major: Genetics

Tian Lin

Major: Plant Biology

Brandon Henry Carpenter

Major: Horticulture

Leah Beth Riesselman

Major: Horticulture

Dylan Paul Rolfes

Major: Horticulture

Sharon Mbabazi Tusiime

Major: Horticulture

AGRICULTURE-FALL 2014

Bruce Joseph Black

Major: Professional Agriculture

HORTICULTURE-SPRING 2015

Frank Dominick Balestri

Major: Horticulture

Alejandra Feliciano

Major: Horticulture

Jennifer Louise Tillman

Major: Horticulture and Sustainable Agriculture

AGRICULTURE-SPRING 2015

Daniel John Strey

Major: Professional Agriculture

CURRENT GRADUATE STUDENTS

Kalynn Doebel

Nick Flax

Samantha Green

Zachary Hudson

Dana Jokela

Ray Kruse

John Krzton-Presson

Joshua Lenz

Alex Litvin

Yang Liu

Kenny McCabe

Paul Merrick

Isaac Mertz

Colton Metzger

Brandon Miller

Kyungwon Min

Kristine Neu

Daniel Strey

Bryn Takle

Sharon Tusiime

Kellie Walters



Officers from left to right: Zachary Hudson, John Krzton-Presson, Kellie Walters, Nick Flax, Kristine Neu, Brandon Miller, Alex Litvin.

The graduate student horticulture society (GSHS) has been busy this past year. The goal of our organization is to foster communication networks between graduate students and faculty. We have done this by hosting socials and bicycle rides. These activities have helped create a family-like community within the department where graduate students can bounce ideas off of one another and use each other's skills to further their research. The GSHS also participated in Reiman Garden's first annual Plant Sale Extravaganza. Members grew a variety of vegetable transplants and helped customers make selections at the sale. We are looking forward to another successful sale this year.

Co-presidents: Kellie Walters and Kristine Neu

Treasurer: Zachary Hudson

Historian: Brandon Miller

Social Co-chairs: John Krzton-Presson and Alex Litvin

Graduate Student FOCUS



John Krzton-Presson

Advisor: Dr. Ajay Nair

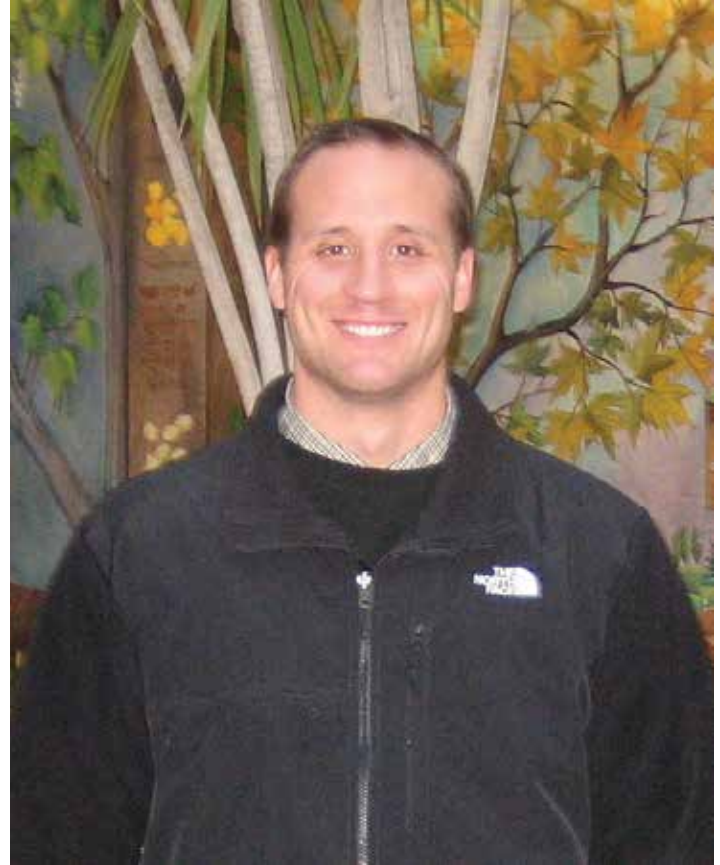
Degree Seeking: Masters of Science

Major: Horticulture and Sustainable Agriculture

Current Research: My current research focuses on the effects of tillage and cover crops on food safety, soil health, and yields in muskmelons. Specifically, we are using *Listeria innocua* as a surrogate for the human pathogen *Listeria monocytogenes* to investigate its survivability and ability to contaminate melons under field conditions.

Hometown: Utica, Kentucky

Career Goals: To find a position that allows me to support horticultural producers through education and advising. Likely with a state or federal government agency.



Paul Merrick

Advisors: Dr. Shuizhang Fei

Degree Seeking: Masters of Science

Major: Genetics

Current Research: I am researching the efficacy of using CRISPR-Cas9 targeted genome editing technology in a polyploid species. I am using a tetraploid cultivar of switchgrass to characterize mutations caused at a targeted locus in the genome. To achieve this I use basic molecular genetic techniques such as PCR, sequencing, cloning, Agrobacterium genetic transformation, among others.

Hometown: Guttenberg, Iowa

Career Goals: Continue genetic based research.

Graduate Student FOCUS



Brandon Miller

Advisor: Dr. William Graves

Degree Seeking: Masters of Science

Major: Horticulture

Current Research: My research will focus on overcoming common production issues with hickory (*Carya*) species native to North America. I plan to investigate the growth responses of these trees to various container types and growing media. Additionally, my research will compare the characteristics of the upland and lowland species of this genus for application within ornamental horticulture.

Hometown: Crystal Lake, Illinois

Career Goals: Upon completion of my M.S. degree, I intend to further my education with the ultimate goal of a career in academia. Furthermore, I plan to continue working on nursery-related research that analyzes the potential of underappreciated species within horticulture.



Kristine Neu

Advisors: Dr. Ajay Nair

Degree Seeking: Masters of Science

Major: Horticulture and Sustainable Agriculture

Current Research: My primary research project focuses on high tunnel tomato production. This research is examining the effect of grafting on two types of tomatoes: Mountain Fresh (determinate hybrid cultivar) and Cherokee Purple (indeterminate heirloom variety). We are currently analyzing marketable yield, nutritional quality, and plant response to disease pressure. The goal of this project is to conduct research that vegetable producers may use to improve their high tunnel production systems, and this will likely expand to examine other factors in the future.

Hometown: Pelican Rapids, Minnesota

Career Goals: After graduation I see myself working in extension or a non-profit organization with a horticultural emphasis. I am also open to working internationally if the opportunity arises.



GREENHOUSE Update 2015

Dr. Curry providing hydroponic knowledge to his class, Hydroponic Food Crop Production, Horticulture 331.

by **PETE LAWLOR, Greenhouse Manager**

My pesticide storage room is slowly emptying of inventory as it ages. In our Horticulture greenhouses, and within other University grow facilities, we have switched to bio-controls for common pests associated with plant production in controlled environments. Over the past 18 months we have achieved excellent results. For example, we use a hybrid fungus, *Trichoderma* that protects the roots from *Pythium*, *Fusarium* and *Rhizoctonia*. It's a drench that shields the roots from these damaging fungi for up to 12 weeks. It actually releases enzymes that dissolve the cell wall of many fungal pathogens. We have used this product for the Horticulture Club and the greenhouse production poinsettia. We also use a similar product, *Streptomyces*, for control of powdery mildew in hydroponic lettuce and cucumber production. Again a shield effect is employed. It is applied weekly. Both products are listed as acceptable in organic production systems.

The four common greenhouse pests, spider mites, thrip, whitefly and aphids can be readily controlled with planning and diligence with the introduction of 'good bugs'. My arsenal now includes miniature native wasps reared in Canada, predatory mites originally from Eurasia and nematodes that are produced in Britain. We use

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Dr. Cochran's hop plants with one of the 'good bugs' slow release sachets of mites that help control thrips.



Students tending to the hydroponic crops in the Department of Horticulture's greenhouse.



Hydroponic cucumbers with a hanging card of miniature wasp pupae that hatch over time to search for whitefly. The sprinkles of vermiculite on the leaves is a carrier for application of protective mites.

Greenhouse Update, 2015
(continued)

banker and catch crops also to assist in control. White fly prefer eggplant over poinsettia. Common beans are thrip magnets. So we create a snack bar of sorts for the prey and predators.

Hops and Hydroponics are interesting features in the greenhouse this fall. Horticulture 331 developed by Dr. Currey, is popular with students and much knowledge is gained using Nutrient Film Technique, Dutch buckets, coconut fiber and floating bed food production methods in a biocontrol setting.

Dr. Cochran has initiated a hops research program and her plants currently occupy space in one of our Research bays, they will eventually be vernalized and then cuttings will be taken after regrowth begins to increase her stock for eventual



Banker/catch crop eggplant in the foreground that help protect the horticulture clubs poinsettia crop.

locations around the state. The micro-brew phenomenon has been a driving force in this new market possibility.

If you find yourself in Ames, stop by for a tour of the interesting particulars at the Department's 21st century greenhouses. It would be my pleasure!



ISU Horticulture Research Station

2015

A new project at the station was the installation of a hops yard. Directed by Dr. Diana Cochran, this new planting will look at plant nutrition and training systems necessary for hops production.

by **NICK HOWELL, Superintendent**

The ISU Horticulture Research Station had another successful season. Coordinated by ISU Research and Demonstration Farms of the College of Agriculture and Life Sciences, the station continues its teaching, research, and extension functions.

STUDENTS

The Horticulture Station is an important part of our horticulture students' academic experience at Iowa State. This season two students completed internships while working at the station. Lindsay Meylor, horticulture junior, developed a management plan for grape research vineyards. Lillian Pride, horticulture senior,

developed a Good Agriculture Practices (GAP) plan for the Horticulture Research Station.

A student-developed website, called Horticulture Research Station Community Produce, offers produce grown by the station and Student Organic Farm to the university community. Students, faculty, and staff can look at weekly offerings, place an order, and pick up their order at a designated location on Fridays. In addition, the site offers recipes and information for the products offered as well as information about the Horticulture Station. This website, now in its second year of operation, has proven successful with a loyal

and increasing customer base on the university campus. This marketing concept may become a useful model for local growers.

The Horticulture Station is recruiting two new graduate students into assistantships to begin spring 2016. These assistantships offer the opportunity for horticulture students to get their advanced degrees in exchange for full time work at the station during the summer months.

All the students working at the station did an exceptional job. The Horticulture Station staff is proud of them and their accomplishments. It is our hope they will have continued success in their college careers.

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Newly seeded Sports Turf Research Complex at the Horticulture Research Station.

RESEARCH

The Horticulture Station's main function continues to be research. With more than 80 projects and 20 faculty members involved, the range of projects is quite diverse. Apples, strawberries, grapes, hops, tomatoes, peppers, potatoes, sweet potatoes, and melons were grown for research. Ornamental crops, such as turfgrass, shade trees, and flowering crab trees, were used for research purposes also. In addition to the horticultural crops, projects using prairie plants and soybeans were also conducted. Projects involving turtles, bees, wasps, and tree swallows added more diversity.

One significant new project at the station in 2015 was the installation of a hops yard. Directed by Dr. Diana Cochran, this new planting will look at plant nutrition and training systems necessary for hops production. The one-acre field with its 18-foot tall trellis system is an impressive new addition to the station. Dr. Ajay Nair, also from horticulture continued with extensive vegetable research projects

at the Horticulture Station. With an emphasis on vegetable production using cover crops, Dr. Nair grew potatoes, garlic, and cauliflower. In addition, he looked at the effects of cover crops on the prevention of *Listeria* contamination on cantaloupe. He also looked at the effects of colored plastic mulch on sweet potatoes and high tunnel production of grafted tomato. Dr. Jesse Randall, NREM, constructed gravel production beds to look at systems of improving rooting of bare-root nursery stock.

Another major improvement in 2015 was a new sports turfgrass field research complex led by research associate Dan Strey. This complex consists of an area divided into the three football fields. Each field has a different method of construction. The first is a soil-based system. The second is a sand-based system. And the third is soil-based that will be top-dressed. Each field is zoned and irrigated with in-ground irrigation that creates an ideal setup for replicated research.

LANDSCAPE AND INFRASTRUCTURE

A major addition was made to the farm landscape in 2015. Ten acres of prairie was seeded below the dam of Horticulture Lake. This area with its remnant oak/hickory savanna was cleared of non-native and invasive woody plants three years ago. The herbaceous vegetation was killed during the summer and the area was seeded to a diverse prairie seed mix in fall 2015. This project is a part of a Monarch butterfly habitat improvement project.



The ISU Research and Demonstration Farms established plots of milkweed from seedlings to determine the best growing conditions. The plant is essential to monarch reproduction because the butterflies lay eggs only on that plant, which the larvae then feed on.

In anticipation of the station's 50th anniversary in 2017, a garden featuring plant varieties developed by the ISU Horticulture department is planned. This garden will feature plants ranging from apples to roses to strawberries and will be a unique addition to the farm landscape.

Improvements in the farm irrigation system continued in 2015. An addition was made connecting the mainline in the northwest corner of the farm to the mainline in the middle of the farm. This increased the system capacity providing the opportunity to add three new laterals. These improvements have added 11 acres that can be overhead and trickle irrigated.

A new high tunnel is under construction in the fall 2015. This structure measuring 42 feet wide by 96 feet long is larger than the other high tunnels on the station. When completed in the spring of 2016 it will be used for a peach production research project.

INDUSTRY AND THE PUBLIC

The research station hosted 9 field days focusing on irrigation, vegetable and fruit production, turfgrass, forestry, and general home gardening. One notable field day was a visit from the Mid-American Collegiate Horticulture Society (MACHS). This group of horticulture students from all over the Midwest visited the

station for tours and a cookout meal. In addition to the field days, the farm hosted 20 tours and 6 other events and meetings for the public. At the end of the season, over 1,300 people visited the station.

With the student activities, extensive research projects, farm improvements, industry and public functions, the Horticulture Research Station was extremely busy in 2015. The station continues to improve and expand its operations with the goal of moving it to the next level of research and teaching capabilities. The Horticulture Station will continue to be vital to students, faculty, and staff at Iowa State University.

2015 ISU Fruit and Vegetable Field Day

by **DR. AJAY NAIR**

The Department of Horticulture in partnership with Iowa Fruit and Vegetable Growers Association (IFVGA), Practical Farmers of Iowa (PFI) and the Leopold Center for Sustainable Agriculture organized the 2015 Fruit and Vegetable Field Day at the Horticulture Research Station, Ames IA on 10 August, 2015. The event was coordinated by Dr. Ajay Nair, Assistant Professor in the Department of Horticulture. Other researchers who assisted include Drs. Diana Cochran, Gail Nonnecke, Mark Gleason and Amy Toth. The field day attracted 145 participants that included growers, extension personnel, county horticulturists, post docs, and graduate students. The field day provided research-based information on a variety of topics including high tunnel tomato grafting, honey bee health and behavior, organic pepper and broccoli production, sweet potato production, and establishment of hops orchard.



Dr. Diana Cochran discussing research at the recently planted hops orchard.

The event started at 1:30pm with a welcome note from Dr. Donald Lewis and Mr. Nick Howell (Farm Superintendent). Dr. Lewis introduced staff members and researchers at the Plant and Insect Diagnostic Clinic at Iowa State University. Darrell Geisler (President, IFVGA), Ms. Liz Kolbe (PFI), and Ms. Linda Naeve (USDA-SARE representative) also attended the field day and interacted with growers. There were displays and booths set up for USDA SARE and PFI to educate about ongoing programs and assist growers with their questions.

The Field day gave growers an opportunity for a real time assessment of new, innovative, and sustainable research initiatives in the area of fruit and vegetable production. The first stop was the high tunnel tomato grafting project. Kristine Neu, graduate student in sustainable agriculture and horticulture, highlighted the benefits of grafting in tomato production. Grafting has the potential to provide disease tolerance and enhance crop productivity, especially under high tunnel growing conditions. Several aspects such as cost, construction, maintenance,

(continued)

2015 ISU Fruit and Vegetable Field Day (continued)



John Krzton-Presson at the strip tillage melon production study.

and production methodologies in high tunnel crop production were discussed.

Ajay Nair reiterated the importance of cover crops on soil quality and health. A demonstration was set up to highlight the effect of rain event on soil erosion. This demonstration gave growers a real time assessment of how rainfall can contribute to soil erosion in soils that are left bare/ without a cover. Amy Toth's bee research lab showcased various ongoing research projects on understanding the effect of nutrition on bee health and behavior. Such studies are critical in understanding the cause behind the devastating colony collapse disorder in bees. Dana Jokela, a graduate student in sustainable agriculture and horticulture, showed the organic broccoli and pepper plot. The study focused on effects of tillage and fertility management in organic vegetable production. Mark Gleason spoke on innovative techniques to manage cucumber beetles using perimeter trap cropping in melon production. The approach is to plant the perimeter of

the field with crops such as butternut or Hubbard squash, which are more attractive to cucumber beetles, and only spray those crops to manage beetles.

Diana Cochran showcased the recently planted hops orchard. She provided an overview of hop production suited for Iowa. She also discussed ongoing research on irrigation and fertility management in hops production. Participants also visited the blackberry plot in which Brandon Carpenter demonstrated the rotating trellis system to efficiently overwinter blackberry plants in Iowa. Ajay Nair demonstrated how plastic mulches could be utilized to manage weeds, increase soil temperature and be effectively used to grow non-traditional crops such as sweet potato.

John Krzton-Presson, a graduate student in sustainable agriculture and horticulture, discussed his research on utilizing cereal rye cover crop for strip tillage planting of melons and potential use of rolled and crimped cereal rye residue to reduce food

borne pathogens on melon fruit. Ray Kruse, graduate student in Horticulture, showed how fall planted cover crops could affect subsequent year's potato yield and quality. The field day provided graduate students an opportunity to actively participate and engage growers in their research projects. The afternoon session of the field day was followed by dinner at the farm. After the dinner growers mingled with farm staff, researchers and graduate students and had discussions on needs and challenges for the fruit and vegetable industry in Iowa.



Amy Toth discussing importance of bee health and its effects on their ability to pollinate.

TURF Field Day



Dr. Nick Christians led a tour of turfgrass research plots.

by DR. NICK CHRISTIANS

The Iowa State turfgrass team (Drs. Nick Christians and Shui-zhang Fei, co-Chairs and Mr. Ryan Adams) hosted this year's annual meeting for the North Central Extension Research Activities 221 (NCERA221) turfgrass group from June 9-11, 2015. The meeting was held in the Reiman Gardens in Ames, and the Horticulture Research station near Gilbert, IA. Turfgrass researchers, extension specialists and graduate students from the University of Illinois-Urbana/Champaign, Purdue University, Kansas State University, Michigan State University, University of Missouri-Columbia, University of Nebraska-Lincoln, North Dakota State University, Ohio State University,

University of Wisconsin-Madison, the Chicago District Golf Association and Bayer Crop Science attended the meeting. Dr. Joe Colletti, Senior Associate Dean of the College of Agriculture and Life Sciences and Associate Director, Experiment Station, and Dr. Jeff Iles, Chair, Department of Horticulture gave welcome speeches to the group.

Participants from each institute reported recent turfgrass-related activities on teaching, research and extension and exchanged ideas on sharing institutional resources and forming multi-institutional collaborative teams to address research questions important to the Midwest regions.



Meeting participants are discussing collaborative efforts in research, teaching and extension at the Speer room, Reiman Gardens.



Nick Howell, superintendent of the Horticulture Research Station led a tour showcasing important horticulture research activities occurring at the station.



Our summer treehouse display featured organic and whimsical style treehouses.

REIMAN GARDENS

by **MARIA TEPLY**

In 2015, Reiman Gardens celebrated its 20th anniversary with a party in June attended by the Reiman family and other members and supporters of Reiman Gardens. To coincide with our anniversary, our theme for 2015 was inspired by celebrations. From April 25 to October 25 guests could explore and walk through amazing life-size, interactive, custom-built tree houses. Aligning with the celebration theme, each tree house was inspired by some type of festivity. The treehouses proved to be a popular exhibit.

Reiman Gardens welcomed four new staff members in 2015 including: Edward Lyon, director; Rita Gilbertson, funds development manager; Joy Stroud, administrative specialist; and Jacqueline Venner Senske, education assistant.

The Gardens' master site plan is nearing completion, which reworks and reinvents many of the outdoor

garden spaces and includes a new visitors' center. Once the master site plan is finished, Reiman Gardens will start fundraising to turn the 20 year site plan into a reality.

Reiman Gardens also installed an indoor garden railway custom built by Applied Imagination, an internationally recognized company whose train displays are made entirely from natural materials. Included will be a replica of Iowa State University's historic Dinkey train, several historically significant local bridges, and scaled recreations of Iowa State University's Morrill Hall, Beardshear Hall, Campanile, and the Hub. The Campanile will play carillon music. The train display will return every year over the holiday season.

Reiman Gardens would like to thank all of our members, visitors, and stakeholders for their support in 2015.



A scaled replica of the Campanile and Morrill Hall made entirely from natural materials were part of the indoor garden railroad exhibition.



Planting the key-hole garden with Dr. Gail Nonnecke and student interns.



EARTH Education and Resiliency Through Horticulture

SCHOOL GARDEN and SERVICE-LEARNING on ST. JOHN, U.S. VIRGIN ISLANDS

by DR. CINDY HAYNES

Since 2010 Iowa State University (ISU) has partnered with Giffit Hill School (GHS) on St. John, U.S. Virgin Islands to provide a school gardening/service-learning program known as the EARTH Program (Education and Resiliency Through Horticulture).

Each fall, spring, and summer semester students from ISU spend 8-12 weeks on St. John as service learning students. They have the opportunity to integrate and apply all that they have learned while at ISU

to teach horticulture, environmental, and culinary sciences to K-12 classes. Students also help maintain school gardens for use in EARTH lessons and the lunch program, work with local experts to learn more about tropical horticulture and plant ecology, and assist with community development projects on the island.

2015 was a productive year for the EARTH program. Eleven service learners spent a semester at GHS learning more about horticulture while working with youth. In addition,

2 student teachers and a graduate student also contributed to the education of youth at GHS. In January, a strategic planning session was

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Planting the lower garden with Lindsay.



Ms. Dandeneau investigating eggplant flowers with students at GHS.

conducted on St. John to plan the next five years for the EARTH program. Nine staff from ISU and twelve from GHS participated in this process. In October, ISU hosted an EARTH program reunion at Reiman Gardens. The donors, several staff from ISU, two staff from GHS, and 25 out of the 33 former service learners attended the reunion celebrating 5 years of the EARTH program.

Vision for the EARTH Program

The EARTH program is a unique partnership between Iowa State University, Giffit Hill School, and the greater St. John (U.S. Virgin Islands) community that utilizes the art, science, and practice of horticulture

and related disciplines to help foster the development of important life skills and develop an appreciation for self-sufficiency, environmental stewardship, and economic sustainability for both Giffit Hill and Iowa State students.

EARTH Program goals at GHS

While the target grades for the EARTH program have been 6th-8th grades, by the end of 2015 the EARTH program will be integrated in all grades at GHS. The program goals at GHS include:

- Design, install, and manage attractive landscapes at the school that model sustainable food production and landscape design.
- Establish an integrated, hands-on curriculum that includes horticulture and plant-based environmental science.
- Provide healthy, locally grown food to the GHS community.
- Provide Safe and functional outdoor space for students to learn and work.
- Create a positive perception of horticulture with GHS students.
- Integrate ISU and GHS students in classroom, field, service, and networking activities.



Spring service learners and student teacher.

Summary of recent service-learner projects

As a service learner, students coordinate and complete a project during their stay on St. John. These projects serve as a lasting legacy to the EARTH program.

Spring 2015: Four service learners, a student teacher, and graduate student spent much of spring semester on St. John. The service learners were Sarah Walsh, Alyce Johnson, Derick

Perkins, and Lindsay Meylor. Sarah Walsh conducted a rapid appraisal of the agriculture food system on St. John. Alyce Johnson assisted in the development of agriculture business lessons for canning and preserving garden produce. Derick Perkins was responsible for the composting program and enhancements to both the terrace garden and lower school garden. Lindsay Meylor renovated the banana planting to incorporate

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Touring patio gardens at GHS during strategic planning session in January.



Nick Jackosky teaching high schoolers at GHS.

Study Abroad

TRIP TO COSTA RICA...and then a Volcano Happened!
HORTICULTURE 496

by **BARB CLAWSON**



Lexi Cook celebrating her birthday in New York City.

MARCH 12

Twenty-one students, Donald Lewis, Jeff Clawson and Barb Clawson left the Des Moines airport on March 12, 2015 headed to Costa Rica to study tropical agriculture during 2015 Spring Break. Excitement and anticipation were high with visions of 80 degrees, sunshine and tropical fruits for dinner. Over 140 Horticulture students and others at ISU have participated in this Study Abroad exchange with the University of Costa Rica since 1999.

The Boeing 777 was set to take off after a 7 ½ hour layover in Newark, New Jersey/New York, with arrival in San Jose, Costa Rica at 9:23 p.m. The plane was loaded ready to head for a warmer climate with an itinerary of muskmelon and pineapple fields; papaya and mango farms; vermiculture research; banana plantations; ocean relaxation, and then the pilot came on the loud speaker with, “Turrialba, a volcano in Costa Rica’s Cartago Province, erupted four times with ash columns reaching a kilometer high. We cannot fly a plane through the ash. The ash particles get into the engine and will damage it. We are awaiting word from Juan Santamaria Airport on the status of the ash in the air.” A few minutes later, the pilot cancelled the flight and 24 members of our group would have an unexpected stop in New York City. It would be two-and-a-half days before our students would reach Costa Rica.



An unexpected layover in New York City.

Ours was not the only flight affected. Erin Hodgson was stuck in Dallas, Texas for 2 days before reaching Costa Rica. Mark Gleason, another group leader, and Richard Gladon, retired greenhouse professor at Iowa State University, took an earlier flight and were able to get to Costa Rica at the scheduled time.

Donald and Barb went to work with ISU’s travel agency partner, Travel and Transport to make hotel reservations and rescheduled flights so the group could continue on the planned trip to Costa Rica.

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STUDY ABROAD (continued)

MARCH 13 and 14

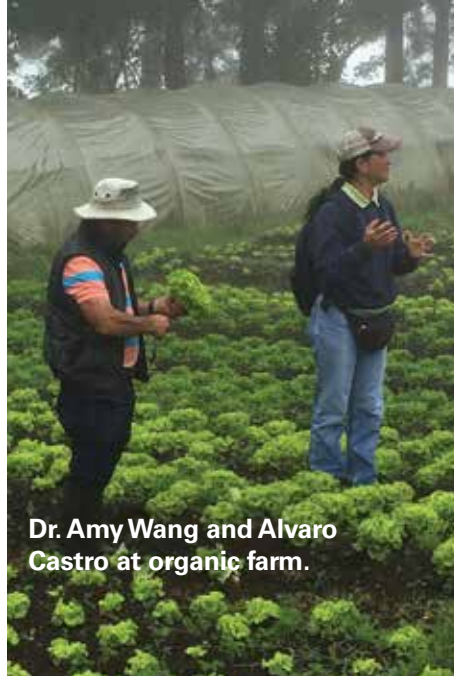
The restructured experience for the students started on March 13 with a bus tour of New York City, eating at the Hard Rock Café, New York City, and walking down Time Square. March 14 brought a tour of the Empire State Building on a cold and windy 43 degree day, Empire Pizza, and an amazing tour of Ground Zero and the National September 11 Memorial and Museum.

MARCH 15

Finally, after to unplanned delay the group left Newark on Sunday March 15 and arrive in Costa Rica, via, Houston, Texas, 3 days later than planned University of Costa Rica exchange partner Dr. Amy Wang, rearranged our study/travel plans on the fly and we had a meaningful experience that covered all the tropical highlights except one: There was no Spring Break day at the beach.

MARCH 16

A tour of Alvaro Castro's organic farm is always a highlight of the trip. Alvaro and his family have a small farm that provides income for



Dr. Amy Wang and Alvaro Castro at organic farm.

12 members. He has the equivalent of about 2.5 acres of vegetables. He puts in about 9000 new plants every week. He believes there are four aspects of production: environmental, cultural, social and economic. He produces 80% of his family's own needs. Alvaro is lobbying politically for farmers in Costa Rica and for the last 18 years has worked to gain knowledge and strength for farmers. He has a biodigester, in which he uses the manure from the hogs, chickens, and cows he raises to provide fuel

for his operation. He sells at the local farmers market and also is a pioneer of the collecting of seeds. Alvaro comments, "A farmer without seeds, is like a barber shop without scissors." Alvaro and another couple purchased 10 acres in which he hopes to build another facility. Alvaro and his family made a delicious home grown lunch for us. Next came a tour of the University of Costa Rica's Insect Museum.

MARCH 16 and 17

March 17 the group set off for InnovaPlant Greenhouses in Sarchi and Jardin Botanico de Sarchi (Else Kientzler) Botanical Garden. InnovaPlant is a very large greenhouse facility started in 1994 at a former coffee plantation in the highlands of Costa Rica by the Kientzler Group. They employ 600- 700 employees in the peak season. The Kientzler's have been producing greenhouse crops for 100 years in Germany. InnovaPlant was founded as a subsidiary of Kientzler and is active in breeding, product development and royalty administration. The greenhouses in Costa Rica sell only rooted cuttings at a rate of about 12 million per month



Dura Flor S.A. bromeliad tour.



Werner Salazar, dracaena farm.

and ships around the world. The Else Kientzler Botanical Garden is part of the Innova Plant site. The group toured the private garden that was made up of about 2000 tropical plants from all parts of the world including gingers, coleus, cacti, anthuriums, orchids, bromeliads and many more. A large selection of fruit trees, palms and other trees native to the Costa Rica. The bus stopped at Dura Flor S.A. and had a wonderful bromeliad tour by Chester Skotak. He and his family have a hybrid bromeliad farm. New varieties are born every day. Werner Salazar, a student at the University of Costa Rica invited the group to a dinner and tour of his Draceana farm. There he and his father raise over 200 varieties of Draceana's. The family also has a furniture business and uses the white wood saw dust from the store as a mulch for dracaena production. It was a beautiful evening, with great food and good conversation at Werner's house.

MARCH 18

March 18 began with a walk through Braulio Carrillo National Park on the Quebrada Gonzalez trail. Braulio Carrillo is a dense rainforest with waterfalls, volcanos and rivers of Costa Rica's second-largest national park. Isaac Castro, a participant of the 2014 University of Costa Rica trip to Iowa, toured us through four pineapple farms, growing Cayenne, Golden Sweet and MD-Z varieties. The company has 42,000 ha of pineapple production. Henry Munoz worked as an agronomist for 36 years on one of Dole's banana's plantations. He has worked with Black sigatoka, fertility and harvesting of bananas. The 5000 acres he oversees belongs to the farmers and then the crop is sold to the Dole Company. We received a wonderful tour of the production facility and also demonstration in the plantation on staking the banana plants, harvesting and taking care of the plants from plants through harvest. The banana bunches are

about 60 lbs. each and 200-300 bunches can be harvested by hand each day. About 50 bunches can be put on the overhead mono-rail system that runs throughout the plantation and is powered by a mule that takes the banana bunches safely to the production and packaging facility.

MARCH 19

March 19 opened with Coope Tarrazu, coffee mill and coffee farm. The goal of this company is to develop the culture of sustainable production, protect and improve the environment, meet the expectation f or the customers, provide a quality product and service and improve the quality of life of their associates and the community. This was favorite stop for most of the group. A day of coffee tasting, touring of the coffee plantation, a look at the mill, and a wonderful education presentation on the development of coffee from the bean to the cup. This was the first coffee cooperative to have a research and development center. This plantation uses a few Poro trees for shade coffee, but castor beans are also being used for shade. The castor beans and be harvested and sold in the form of castor oil. What a fabulous day of coffee to end our very exciting week of travel. In the words of Donald Lewis, 'Life without coffee is like a broken pencil.pointless!

A big THANK YOU to Amy Wang and the professors, staff, undergraduate and graduate students at the University of Costa Rica. Because of our detour in New York City, the entire itinerary had to be reworked on short notice. Every day was perfectly planned, and every meal was a taste bud delight. The students had a course not only in Costa Rican agriculture, but history, sites, and sounds of New York City, and a lot of time to practice patience.

HORT Club



by **JACOB LAMKEY**

Club members posing in a greenhouse.

This year the ISU Horticulture Club hosted the 2015 Mid American Collegiate Horticulture Society (MACHS) conference and competition. The MACHS competition was held at Reiman Gardens, followed by a tour of Jack Trice Stadium and a three-way rotation of Bessey Hall, Horticulture Hall, and central campus. Friday evening rounded up with a tour of the Horticulture Research Station and dinner there. Saturday began with a tour of the Plant Introduction Station followed by a general migration to Des Moines for the Iowa Arboretum (with tree climbing) and the Des Moines Botanical Garden. Our award ceremony took place at Sukup Hall on campus.

The Horticulture Club participated in five community service events this year which included planting over 2,000 tulip, daffodils, and hyacinths bulbs by Curtiss Hall, sponsoring an award for the 4-H judging competition at the Iowa State Fair, designing a green area for Agronomy Hall, the United Way Clean Up Donation, and a design and installation of plants outside of Harl Commons in Curtiss Hall.

To start off the spring term, the Horticulture Club begins with the Rose Sale in February before Valentine's Day. The Rose Sale is an event we hold in the Memorial Union and sell roses and arrangements to students and faculty. Cyclone Market is the next sale in March, where over

30 student organizations participate to either promote their club or sell an item they have prepared. The Horticulture Club sold succulents in miniature clay pots. To wrap up the spring term with sales, this year we sold hanging baskets and geraniums in conjunction with Remain Gardens and other local organizations. Remain Gardens hosted the event on Mother's Day and graduation weekend. The fall term begins with the Fall Sales, held on central campus during the Local Food Fest Sale Event. The club sold Honeycrisp apples and Carmel dip with apple slices. The Poinsettia Sale is our final event held in December. The poinsettias are grown in the greenhouse from cuttings until they are ready to be sold.

For the spring break trip, we traveled down to Arkansas to visit the hot springs. We toured botanical gardens, arboretums, University of Arkansas, and Horticulture Club Alumni. Other events include the North American Colleges and Teachers of Agriculture Competition in Moline, Illinois.



Club members posing after bulb planting.



Club members preparing arrangements for the rose sale.



Club members getting ready to tree climb.



Club members posing with the geraniums for spring sale.



Landscape Club

by **JORDAN RAUSCH**

The Landscape Club has been busy with fundraising projects and other various activities throughout this fall semester. The fundraising is for an annual trip to NCLC, formerly known as PLANET Student Career Days.

The National Collegiate Landscape Competition brings in students from universities and tech schools all around the nation to compete in hands on landscape competitions of all categories. A team of 8 students and our advisor Ann Marie Vanderzanden made the trip to N.C. State in Raleigh, North Carolina in March 2015.

The team did very well with some top ten finishes in events, as well as overall individual placements. Adam Van Egmond finished 21st overall, and Jordan Rausch was closely behind at 28th out of 750 participants.

This year's upcoming event will be held at Mississippi State University, March 16-19. This semesters fund-

Some members from the ISU Landscape Club completing the Micalone Installation.

raising projects will help provide for travel, hotel expenses, and some meals. The club also receives generous donations from interested companies and investors by students sending soliciting letters to these companies.

This semester started with a busy schedule for club activities. Our first project was done on campus at Curtiss Hall. Dean Acker from the College of Ag. and Life Sciences paid the club to design, install and now maintain two planters found on the east side entrance. The next project was for a residence in the Ames community. The club designed and installed a low maintenance landscape bed for Mr. Micalone. This project raised about \$500 in a couple of afternoons for the club.

The Landscape Club also raises money by maintaining the BioCentury Research Farm's front landscape beds. The club duties include spring cleanup, weeding through out the



Adam Van Egmond (left) and Jordan Rausch (right) placed 2nd in the Wood Construction competition out of 60 teams.



One of the two planters outside Curtiss Hall. There are signs in the planters to recognize the club for our work.

summer, and fall cleanup. The money received from this also helps fund the annual trip. Other activities include INLA Day of Service, Horticulture Hall cleanup, Curtiss Hall bulb planting, and United Way service project.

TURF Club

by **CONRAD PANNKUK,**
ISU Turf Club President

The turf club has been busy this fall raising money for our trips to the GCSAA and STMA conferences in the spring semester. A big chunk of our fundraising comes from applying fertilizers/herbicides to the grounds of Reiman Gardens. We will be traveling to San Diego, California for both trips. This is a great opportunity for our members to network with industry professionals and build connections with various turf companies. We will also participate in student challenges while we are at the conference. We are very determined to win the competitions this year and are studying diligently. Also, this fall we donated a yard clean up for a United Way auction and will be raking leaves for an Iowa State faculty member. This is a good way for us to contribute to the community and get to know club members.



Turf Club group photo at Reiman Gardens.



Turf students applying fertilizer at Reiman Gardens.

Horticulture Students Gain Valuable Construction Experience



A stunning fall has provided the perfect backdrop for a project currently being constructed by the Hort 444 Landscape Construction and Management class. With a focus towards hands-on construction experience, we are privileged to rebuild two limestone retaining walls at Reiman Gardens behind the Children's Garden corn crib. With much guidance from Jim Mason of Country Landscapes, plus support from Reiman Gardens' staff, we hope to complete both walls in six three-hour labs.

We wish to thank Jim Mason and Joe Jenkins from Country Landscapes in Ames for their time and expertise, plus Sharon Rink and Sarah Rummery from Reiman Gardens for providing tools and assistance on site. We also wish to thank Ed Lyon, Reiman Gardens' director and Aaron Steil, Reiman Gardens' assistant director for allowing us to tear up the beautiful gardens momentarily in order to give our students invaluable experience.



Hort 444 students help rebuild retaining walls at Reiman Gardens.



PLANET Student Career Days

by **DR. ANN MARIE VANDERZANDEN**

This year eight students from the Iowa State University Department of Horticulture competed at the national Professional Landcare (PLANET) Student Career Days at North Carolina State University. Students were led by Ann Marie VanDerZanden Professor in the Department of Horticulture, and student Landscape Club advisor.

National and regional landscape industry companies sponsor this annual event, and this year it brought together 757 students from 64 colleges and universities. The event provides students the opportunity to test their horticulture and landscape skills against their peers and to network with industry leaders through the large career fair and numerous workshop sessions. Industry representatives attend this event in an effort to recruit some of the best horticulture students in the nation.

This year we had time for a quick field trip to Duke University before the competition got started.

(continued)

Iowa State University PLANET Student Team after the final event.

Of the 28 different competitions, ISU students participated in 18 events including:

Event	Participants
Annual and perennial plant identification	Claire Anderson
Business management	Claire Anderson
Compact excavator operation	Adam Van Egmond
Computer Aided Design	Andrew Foy
Construction cost estimating	Andrew Foy
Interior landscape design	Anna Snyder
Interior plant ID	Erin Bohlin and Kara Orr
Irrigation assembly	Khyle Cox and Taylor Goetzinger
Landscape plant installation	Andrew Foy, Kara Orr and Jordan Rausch
Plant problem diagnosis	Erin Bohlin and Dana Diers
Sales presentation	Anna Snyder
Skid steer operation	Jordan Rausch
Small engine repair	Adam Van Egmond
Truck and trailer operation	Jordan Rausch and Adam Van Egmond
Turf and weed identification	Dana Diers
Wood construction	Jordan Rausch and Adam Van Egmond
Woody plant identification	Dana Diers and Kara Orr
3D Exterior Design	Andrew Foy





Computer aided design competition.



Anna giving sales presentation.

EVENT HIGHLIGHTS

Overall

As an individual competitor, Adam Van Edmond placed 21st out of 757 students.

Individual Events

Most competitions had 60 to 80 competitors. Iowa State's top finishers included:

- Jordan Rausch and Adam Van Egmond placed 2nd in wood construction
- Adam Van Egmond placed 5th in small engine repair
- Jordan Rausch and Adam Van Egmond placed 12th in truck and trailer operation
- Anna Snyder placed 12th in sales presentation
- Andrew Foy placed 12th in construction cost estimating
- Dana Diers placed 21st in turf and weed identification



Andrew, Kara, and Jordan ((left to right) in landscape installation.



Adam (left) and Jordan (right) participating in wood construction competition.

Our participation in PLANET was made possible by the generous support of our 2014 sponsors:

- CHS Foundation
- End-o-Way Farm
- Hunter/Ewing
- Iowa Nursery and Landscape Association
- James Martin Associates, Inc.
- Oakwood Nursery
- Roof-top Sedums
- Vermeer Charitable Foundation



Research in India

ANNA FISHER, summer GRS internship

This summer I had the amazing opportunity to intern at the International Crop Research Institute of the Semi-Arid Tropics (ICRISAT) located in Patancheru, India. ICRISAT is a non-profit organization that conducts agricultural research for development in Asia and sub-Saharan Africa.

For three months I worked as a student intern in the Knowledge, Sharing, and Innovation (KSI) department. The KSI department of ICRISAT has implemented Information Communication Technologies (ICT) programs to enhance farmer's knowledge and cultivation practices. One program, *Krishi Vani* is a mobile system crafted by ICRISAT making use of ICT for disseminating correct information at the right time via mobile phones. Participating farmers have a "green SIM" which enrolls their mobile phones

in the program. Through this, voice messages of 6 categories are delivered in multiple languages as free messages. This program distributes timely educational messages to rural farmers on issues such as farming techniques, weather forecasts, fertilizer availability, health initiatives and government schemes.

My job as an intern was to identify an issue impacting the village I was assigned, research and conduct a baseline survey with local farmers to better understand this topic, and then write messages to be sent out through the *Krishi Vani* system that educates farmers on the issue and prevention strategies.

I was assigned the Ayyavaripalli Village of the Andhra Pradesh state, centrally located in South India. Because all farmers in this village

cultivate groundnut (or peanut) I focused my research on aflatoxin contamination. Aflatoxins are a result of a commonly found fungus (*Aspergillus flavus*) affecting groundnut and contributing to detrimental illnesses such as jaundice, cirrhosis, or cancer. The goal of this study is to better understand groundnut farmer's awareness of aflatoxin contamination, prevention practices, and farmer's perceptions on human health effects of consuming aflatoxin, if any. I had two extended visits to the Ayyavaripalli Village with a translator to collect data through focus group discussions and a baseline survey from over 70 groundnut farmers. After data collection, the results were analysed to better understand the farmer's awareness levels of aflatoxin contamination. Using these results, I wrote twenty short messages that were translated into the local language (Telugu) and sent out through the *Krishi Vani* system to all participating farmers. The farmers educated farmers on about aflatoxin contamination, its detrimental health effects, and practices to prevent the contamination in their crop.

Through this internship I gained a greater understanding of the process that goes into conducting research; from hypothesizing stages, writing effective surveys, to analysing and writing a research report. I gained hands on agricultural knowledge from living and working on an agricultural research station for three months as well as a more in depth understanding of groundnut crop and aflatoxin contamination. But the cultural aspect of living in India is what really made this an unforgettable internship. I was able to experience rural farming villages as well as larger cities such as Hyderabad and Delhi. Weekend adventures allowed me to experience all the history and rich culture India has to offer.



Amy Fouty and
Georgie Heitshusen
at Spartan Stadium.

Working on Field Crew for Michigan State

GEORGIE HEITSHUSEN, summer HORT internship

This past summer I had the pleasure of being an intern for Amy Fouty on the field crew at Michigan State University in East Lansing, Michigan. In the last couple of years, MSU football has gone to both the Rose Bowl and Cotton Bowl, with this year looking just as promising. While at Michigan State, I had the privilege of working on all of their practice and varsity natural/synthetic fields, along with the Fox Green at the far south end of MSU's campus.

For the past year and a half now I have worked on the grounds crew at Jack Trice Stadium for Iowa State University, but I have not yet been able to go through a summer working at a collegiate level facility. This allowed me to take in all aspects of the turf growing season and participate in many of the school's athletic functions such as camps and the

start of football and soccer training. I mainly worked at Old College Field which holds all of MSU's soccer fields, softball and baseball fields, and training facilities. With that, I was able to experience many sides of the sports turf industry while also being mindful and improving on my eye to detail that I see Michigan State as being well

known for. I loved getting to see all of the small and large improvements we made as the summer went on and knowing that mine and my coworkers' hard work went into it all.

In the beginning of the summer, it was a lot of landscaping upkeep and making sure everything was in top shape for the upcoming MHSAA high school softball and baseball state tournaments, and also girls' soccer tournaments. During the tournaments, we had to work four games a day for both softball and baseball, and two games a day for soccer while also battling partially flooded fields. It was a hectic couple of days, but the feeling of accomplishment was great after we had successfully pulled off the tournaments! As the season went on we then faced many high school soccer, softball, baseball, football camps, and even a wedding that required all fields being in use. It was amazing how well we were able to handle it all and it taught me that sometimes the unexpected will happen, such as weather or mechanical problems, and that you need to roll with the punches and never count anything out. One must always be prepared in this profession. At the end of the year I was also present for the beginning of a field heating project on both the softball and baseball field. MSU is the first college to have heated ribbon infield systems in

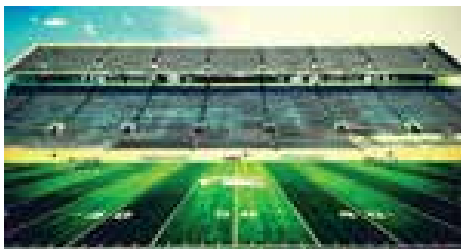


New field heating system on softball field.

their fields. It was amazing how much got done in just a couple of weeks and the attention to detail that was put forward.

I found that there were so many advantages with this internship from being off on my own in a different state, to finally putting many of the things I learned in school to real use. I also learned so much more with being a part of a project, having a hand in many other aspects of the job, and being willing and enthusiastic to complete all tasks given to me. I enjoyed that the things I did every day differed in some way. I've never been one for repetitive tasks, and I am pleased to say that I was able to do something new almost every day.

Overall, I wouldn't trade the experiences I had this summer for anything, and I benefitted from it all immensely. I came away with being a part of great opportunities, gained vast amounts of knowledge, and was able to meet many new contacts and amazing people. I would like to encourage any students who would like to gain more work experience and who would like to deal with more real-world situations to take part in as many internships as possible while they are able, and if possible, especially out of state. It's amazing what can happen when you leave your comfort zone and the amount of possibilities that are at your fingertips.



Game paint on Spartan Stadium.



This greenhouse grows the same tomato plants for 10 months out of the year. The consume 216,000 liters of water a day to keep the plants alive.

Hydroponics in Serbia

JOSEPH KERNER, summer HORT internship

This last summer I was awarded the opportunity to work in Serbia for the summer after I expressed interest in pursuing interest in learning about hydroponics. After arriving at Grow Rasad (the place I worked at) I found out the internship was going to be so much more. I did learn about hydroponics, both rock wool, ebb and flood, and NFT (nutrient film technique). Grow Rasad had 144 tables that all contained four trenches that were 50 meters long. These were used to grow several varieties of lettuce. The lettuce grown at Grow Rasad was harvested and sent to market with roots still attached. This was to give the product longer shelf life. A special product also produced by the company was to sell three varieties of lettuce in one package. This 'mixed' salad was grown and packaged the same way as described before. Grow Rasad also has three industrial sized greenhouses with supporting infrastructure available. This is where the Rasad, which translates into something close to little plant, becomes more relevant. The company uses this space in the summer to take seeds that are germinated in house and grow them into suitable sized plugs for field production. The plugs produced are typically tomatoes, cabbage, peppers, and leeks. In the off seasons such as later summer flowers are produced, and in winter lettuce is produced indoors using a flood and ebb system.

Dr. Anđelko Misković, director of Grow Rasad, extended his contacts to me. That allowed me to experience fantastic other growing facilities. I was able to see a commercial tomato production. The biggest difference I saw immediately was the fact all tomatoes harvested in the large plastic houses were picked red. Here, in the US, almost all tomatoes are harvested past the breaking point and allowed to redden [to become more red] on the way to the final consumer. The tomato plants are also grown for 10 months out of the year. They are grown hydroponically in a rock wool media. The plants are close to 20 meters plus meters tall at the end of the growing season.

Through the other greenhouse managers I was able to work with a rose breeding company. Though we were there to provide plant protection the exposure to the breeding techniques was unbelievably useful. The fact we were protecting more sensitive crops and using organic pesticides gave that extra challenge.



Cherry tomatoes were grown hydroponically.



Exploring Costa Rica

NICHOLAUS JACKOSKY, CATIE (GRS) internship

I completed my Global Resource Systems internship at CATIE (Centro Agronomico Tropical de Investigacion y Ensenanza), an agroforestry research center and graduate school located in Turrialba, Costa Rica. While initially hesitant to embark on my journey due to the presence of a recently active volcano a few kilometers from where I'd be working, during the duration of my stay I almost forgot it was there due to the beautiful scenery, friendly people and assurances that if anything did happen CATIE would be the place to be. I was assigned to assist a researcher working on a two part workshop taking place in mountain-forest communities in Costa Rica and Colombia (see proposal here <http://ocsdnet.org/wp-content/uploads/2015/04/be7738892915bfe58c2dbfdc559d2a7b.pdf>). I mainly contributed through the creation of PowerPoints on various environmental topics (i.e. planetary boundaries <http://www.stockholmresilience.org/21/research/research-programmes/planetary-boundaries.html>), sorting through videos of apps designed in a NASA competition (assist with finding and mapping clean water supplies, monitoring forest fires/deforestation to alert local authorities, and various useful weather, climate, pest, and disease information for farmers) and choosing 5-10 that the community members might find useful, and creating a game based off of climate change research I did on trends taking place around the world and regionally in Latin America.

Aside from assisting in the workshop I was also given the opportunity to work in the field on a separate project involving the planting of Gmelina trees, which I believe in English are Beechwoods. Costa Rica, even more so than Iowa, is renowned for its use of alternative energy with an explicit government goal to become the first carbon neutral country by around 2020. As a nation Costa Rica already gets most of its power from hydroelectricity but being a very

A few of the goals of these workshops was to get an idea of what these community members, whose livelihoods mainly relied on agriculture, knew about climate change and how it might affect them, provide them technical knowledge and support in the creation of low-cost weather stations, and facilitate brainstorming for adapting to climate change while providing a little bit of funding to implement those adaptations. As a novice Spanish speaker I was not very useful in communicating with the communities in Costa Rica but nonetheless I was able to visit the future site of the workshop and meet the kind hosts, along with their newly born granddaughter. The village where they lived, Villa mills, was by far the coldest and one of the most beautiful places I visited, surrounded by hundreds of trees and chalked full of unique mushroom and lichen species everywhere you turned.

Aside from assisting in the workshop I was also given the opportunity to work in the field on a separate project involving the planting of Gmelina trees, which I believe in English are Beechwoods. Costa Rica, even more so than Iowa, is renowned for its use of alternative energy with an explicit government goal to become the first carbon neutral country by around 2020. As a nation Costa Rica already gets most of its power from hydroelectricity but being a very



Nickolaus met with workshop hosts in Villa Mills.

environmentally conscious country it is seeking to diversify its energy supply to meet that goal. The work was extremely labor intensive with sweltering heat, unforgiving soils and very basic equipment, but the CATIE employee I worked with, Leo, would always find a way to make me laugh and enjoy the work, shouting with enthusiasm “Pura Vida Mae!”, which translates to something like “Pure Life Dude.” Despite not speaking any English, Leo and I became fast friends and he invited me to play soccer with him and pretty much every other male CATIE employee over the age of 25 (mostly over 45) 3 times a week—one of the biggest treats of my entire stay. As a unit they reminded me of the kids in the movie Sandlot though much older and with mustaches and games were intense. I was terrible but every day on campus whether it be the garbage man, the librarian, the auto-shop worker, the professor—they always asked me if I’d be at the next game and that really meant the world to me.

After my internship concluded I set off on a two week expedition of sorts with another intern from the Netherlands to see the rest of what Costa Rica had to offer. In short, it didn’t disappoint. The activities included whitewater rafting, hiking up a dormant volcano and swimming in the rainwater lake that had formed inside, going on a wildlife night hike where we saw everything from a Hercules beetle to a three-toed sloth, zip lining over tree canopies and trying our hand at surfing (worse than soccer) in the Pacific Ocean. It was incredible.

Finally, it was time to say goodbye, which was really difficult for me, especially with all the awesome people I lived with at CATIE that were first year graduate students. My last 3 nights were amazing, consisting of salsa dancing, two home cooked meals in my honor and the most

hilarious track and field day I have ever been a part of. It is safe to say that after this experience I could likely visit every country in Central America and continue down the Western coast of South America and have a place to stay. The friends I made here taught me what it really means to have community and I will never forget the kindness and love that was so graciously showered on

me time and time again. I am so grateful to Iowa State, the GLOBE Program and College of Agriculture, Dean Ackert and Dean Colletti, Dr. Gail Nonnecke, Dr. Ted MacDonald, Shelley Taylor and most of all the donors, Mrs. Manatt and the Kolschowskys for making this experience possible for me. It was life changing in so many ways—I am humbled to have gone.



Brandon Miller performs routine water garden maintenance by removing unwanted water lily foliage.

Better Homes and Gardens

BRANDON MILLER, summer HORT internship

The Better Homes and Gardens Test Garden Internship is based at the Meredith Corporation’s campus in Des Moines, Iowa. The Test Garden, located on Locust Street is utilized as an outdoor photo studio for the Better Homes and Gardens Magazine, a source of inspiration for gardeners in the Midwest and a location to trial new plant introductions. The summer intern is given an opportunity to acquaint themselves with new plant selections, practice practical gardening skills in a unique garden setting as well as learn more about the Meredith Corporation’s various magazines. Interns are also granted the opportunity to learn and practice the skills required to maintain a water garden.

Threshing rice at a local farm visit in Kamuli.



Global Experiences

RYLEE MCDERMOTT, summer GRS internship

My name is Rylee McDermott, I am a junior in Global Resource Systems and Nutritional Sciences, and I must say, I have had a pretty amazing summer. I took advantage of two opportunities from Iowa State University, which led me around the world. In May, I spent a month in Rome for the Dean's Global Agriculture of Food Leadership Program and immediately continued to six weeks of the Uganda service-learning program. As you can imagine, these are two very different experiences.

ISU has a great relationship with the Food and Agriculture Organization (FAO) of the United Nations headquarters in Rome, allowing students like myself and 10 others to work with their faculty on research projects related to their upcoming publications. My group specifically researched food waste in developed countries (specifically the U.S. and the EU) by analyzing municipality case studies and then went on to

recommend a model for municipalities to adopt and alter around the world to reduce their footprint of food waste. As we learned the majority of developed nations have food waste coming from the consumers of the food system, the emphasis on the municipal level was essential.

Each of our three groups worked with both FAO and ISU staff to reach the desired outcome through our research. We met regularly to present to our FAO colleagues and presented our final product during the last week with a written report. The process was a lot of hard work, but the finished product was well received.

Through the long hours spent researching in the studio, we were able to find time to enough the city of Rome and parts of Tuscany as well. We visited farms, went site seeing, stayed in the beautiful country side, and ate more food than any one man ever should. After a fantastic month, I left Europe for a different level of culture shock: Uganda.

The Uganda service learning program set up by Iowa State in conjuncture with Makerere University in Uganda has been going strong for 10 years now. The program now encompasses six weeks of hard school garden work, teaching P5 and P6 (the equivalent of 5th and 6th grade elementary students), and other independent schools projects. All of these things are done in bi-national teams. Makerere and ISU work hand-in-hand at two primary schools, and then additionally (less on the ISU-student side) at 3 other schools.

Often times we consider school gardens to be rather small, or at least I do, and this was not the case at these established gardens in Kamuli. The ISU Uganda Program (ISU-UP) has been working to grow these gardens at the schools to help instill school lunches for the children. Their 10 years of hard work shows through, as we have a full schedule working to maintain and add to these schools. Monday, Wednesday, and Friday we would teach classes and work in the gardens. Tuesday and Thursdays were reserved for working on our projects and local farm visits. One of the best things about the way everything is broken up is that no two ISU students can possibly have the same experience, as we all have different combinations of projects and classes. I taught P5 and P6 science with another ISU and Makerere student, specifically sanitation and the envi-



Our last day at Namasagali with some of my students.



Cutting up vegetables for the daily school lunch.

ronment. I also worked with several bright Makerere students on the school feeding and nutrition project, in which we worked to help prepare the daily lunch, provide more sanitary conditions for the students at lunch, and surveyed the children about their overall daily intake.

Side-by-side we would work with Makerere students in the fields and at the farms, as well as some local farmers and the primary students. We spent our time learning as much from each other as we possibly could, occasionally finding more similarities than we ever would have expected. All of us created very strong friendships after 6 weeks together in this community, with memories and stories that I can certainly say will never be forgotten.

Though my times in Italy and Uganda were nearly polar opposites, both were irreplaceable segments of my life that I hope develop and my efforts from my time there are worth while. Iowa State has provided me with more opportunities than I could ever imagine, and for that I will be forever grateful. While I know I'm very lucky, I hope to never stop taking advantage of these adventures. As I try to describe these times and what they meant to me, I find it difficult for words, and it is precisely that type of summer I hope to live my entire life and I hope for others as well.



Startup Ireland

CLAYTON MOONEY, summer GRS internship

I received my BA in English, with a minor in technical communication, from Iowa State in 2012.

Upon graduation, I accepted an offer from DISH Network as a marketing writer at their Denver office. My love for traveling and little starting vacation time amounted to applying for Visas to European destinations. After 1 year with DISH Network, I moved to Dublin, Ireland. I played and coached online and live poker throughout Western Europe, while blogging about my travels and life at ClaytonMooney.com. While networking with individuals from many locations and walks of life, I discovered a passion for the startup world.

I returned to Ames in fall of 2014, and I'm now pursuing a BS in Global Resource Systems, part-time, while working on a handful of my own startups and projects. I was fortunate enough to have the opportunity

to make it back to Ireland over this summer, where I volunteered with Startup Ireland. It's an initiative by Eoin Costello that will put Ireland on the map of competitive global startup hubs, by 2020. I learned invaluable information on startup ecosystems, early to late stage startup growth, and made a few more Irish friends along the way.

Below is my blog post I wrote about my time with Startup Ireland.

In this short 6 weeks back to Ireland, I've managed to meet dozens of people involved with the Irish startup community. My opportunity started with a Tweet.

When I reached out to Eoin Costello, the CEO of Startup Ireland, I wasn't sure if I'd receive a response. After all, how often do you answer Tweets from a random person, some 4,000 miles away? Thankfully Eoin did.

(Continued)



Clayton Mooney
(continued)

Just under 1 year ago, I discovered a passion for and jumped into the startup world. My life is now focused on building and launching startups in Iowa & Ireland.

Why Iowa and Ireland?

I'm from Iowa. There is an incredible amount of talented and honest people throughout the state. I want to see the startup community grow, and I have home field advantage in the wonderful city of Ames, with Iowa State University.

As for Ireland, when I moved here in 2013, I fell in love with Dublin. I was fortunate enough to meet an amazing bunch that made my 1-year holiday incredible and full of adventure. The people here are reason enough to continue coming back.

I arrived back in Dublin on a Tuesday in May, immediately met up and visited with friends, and made sure to take in the town, after being gone for 10 months. That Friday morning, I would venture into the Startup Ireland workspace and meet 2 of the 3 members that keep the day-to-day, week-to-week, together--Alison Kerr and Michael Guerin.

Alison is a very worldly person, having traveled and lived abroad for over a dozen years. She's the National Events Manager for Startup Ireland. Alison is someone I'd want in my corner, any day the office would be slow or hectic, because she's quick to adapt and continue forward. And I'm 100% sure she can sing and belt some tunes.

Michael is someone with more insight into the world of startups than most, especially for his age. National Operations Manager at Startup Ireland is his title, but Michael's logic and critical thinking skills help every plan come together more efficiently. And I'm 100% sure that he knows how to reach hundreds of thousands of people on social media platforms, while still having time to find the best lunch spots in Dublin.

Eoin is a man that has a vision for Ireland so big that once it comes to life, the startup landscape will forever be changed for the better. Eoin has a wonderful history of creating and growing companies, along with studying startup ecosystems around the world. He understands the sacrifices that are needed to accomplish something great.

The Steve Martin quote, "Be so good they can't ignore you," fits well for these 3 amazing people. Their momentum is growing every day. Their success in October for the Startup Gathering will turn heads throughout the world, because they're all passionate, self-starters. This team will make Ireland a global startup hub. I'm just happy that I was able to volunteer a couple hundred hours, in order to obtain knowledge to apply to my own ventures, such as KinoSol.

At this moment, I'm working on seven startup projects that I'm founding or have Co Founded. I'm also consulting on 2 other startups, preparing to host a startup bootcamp early next year in Ames, and I've had a few friends ask me to get involved with their startups. I'm only able to stay this productive and happy, because of constant contact with others that are more productive than I am.

This opportunity with Startup Ireland has inspired me to work even harder at everything I want to accomplish. While most of my notes and stories are being stored for later blogs and projects (a book could be written about just a few nights out), here are a few thoughts I want to share, from my time back in and around Dublin.

- Do what you can, to deserve and gain friends all over the world. Introduce yourself and carry a passionate conversation.
- Do what you can, to help people advance their vision, but also never lose sight of yours.
- If doing what you can isn't enough, do what you must.
- No excuses, full days, long nights, little unwarranted rest, a motivated drive.
- All your problems are only puzzles, and ALL puzzles are solvable.



PGA Tournament

CONRAD PANNUK, summer HORT internship

This summer I had the opportunity to intern at Whistling Straits in Kohler, Wisconsin. Whistling Straits was the host of the 2015 PGA Championship, the years final major golf tournament. It was a great experience being able to see everything that needs to be done to host a major tournament. I had a great summer working here and I learned a lot.



Oregon Coast

DERICK PERKINS, summer HORT internship

On May 2nd 2015, I packed up my car with everything I needed to survive and I was off to Oregon for the summer to intern with Bailey Nurseries West Coast Division. What an adventure it has been! Some people thought that I was crazy to go all the way out to Oregon for a summer internship, but I had only heard good things about Bailey Nurseries and their internship program. Looking back, I couldn't

have asked for a better place to spend the summer. I was surrounded by the great employees at BNI as well as a fantastic group of interns from all over the world. Interns from British Columbia, Brazil, Oregon and Iowa made up the group.

Throughout the summer I was able to work on just about every crew that Bailey Nurseries has during the summer growing season. I started out in the container department spacing

pots, working on the potting line and pruning. Then I worked with the container shipping department pulling orders. The next week we were working in bare root field production limbing, topping, staking, taping and budding. We were then in the propagation department for the remainder of the summer taking cuttings, dipping cuttings, sticking cuttings, dividing, pruning as well as greenhouse preparation and maintenance.

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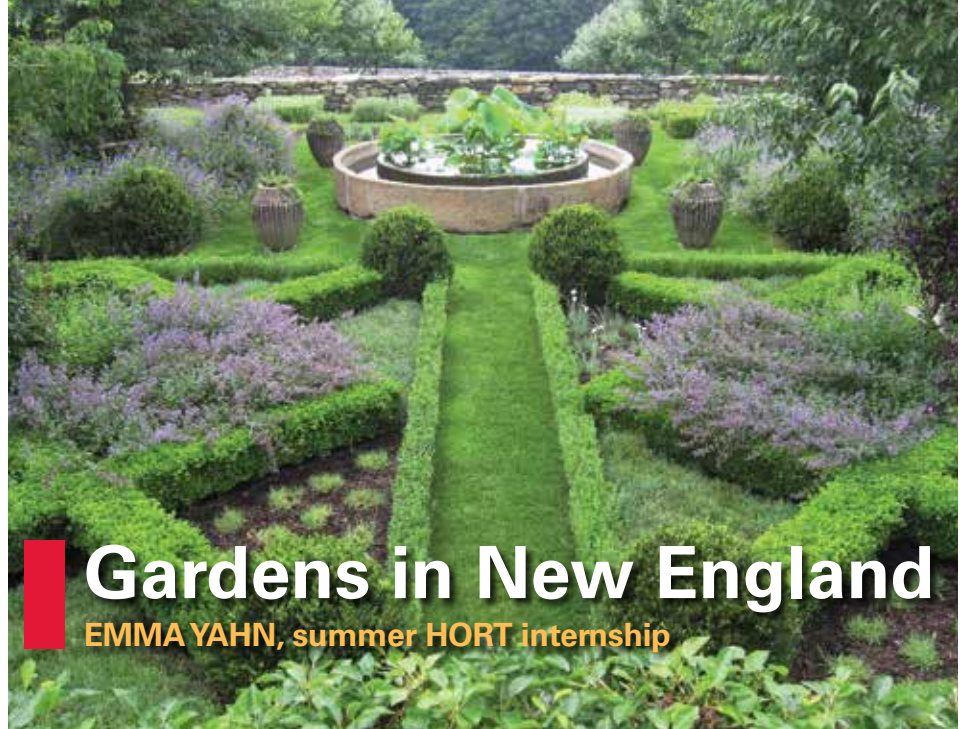


Derick Perkins
(continued)

As you can see I was able to bounce around the company doing many different jobs gaining many skills along the way. Once a week throughout the summer we did either a tour or a job shadow. In total we did 8 job shadows and 8 tours. The job shadows encompassed a wide variety of employees doing anything from inventory to the field production manager. I gained a wealth of valuable information about how the company operates and the communication that occurs between the different locations and departments within the company. We toured many different nurseries who all specialize in something different as well as a public garden and the North Willamette Research and Extension Center. The tours were very valuable because it allowed us to see how different companies operate.

There was also plenty of time on the weekends for the other interns and I to explore Oregon, Washington and northern California. Some highlights were the Oregon Coast, Mt Hood, Crater Lake, Redwood National Park, San Francisco, Olympic National Park and many more.

Overall the program was phenomenal! I learned a tremendous amount this summer; more than I could have ever imagined. I would highly recommend this experience to any of my classmates who are interested in the nursery industry. It was truly a great experience and I have made countless memories that I will treasure forever.



Gardens in New England

EMMA YAHN, summer HORT internship

New England contains many luxurious private estates, but not many can boast a landscape maintained quite as immaculately as the gardens of Rock Cobble Farm. This summer I had the pleasure of helping maintain the grounds of Rock Cobble and, while doing so, got a good idea of the amount of labor required to keep a landscape looking its best. The estate is home to formal and woodland gardens, as well as an orchard, greenhouses, and vegetable gardens. I was able to spend two weeks or more in each area, learning how to maintain them to the highest standards possible.

Working at the main house in the formal gardens was my favorite part of the summer. I was taught the correct pruning techniques needed to keep each plant looking its best, as well as the importance of dead-heading in order to keep the garden looking clean and neat. I also trained clematis, climbing roses, and grapes to grow up a variety of surfaces. Weeding and watering was also a constant task to be done, as it is in any garden.

I took this internship in order to better understand the labor required to maintain landscapes. I have never really had a landscape of my own to keep up, and feel that I won't be able to design great, long-lasting landscapes until I understand what it takes to keep them maintained. This internship gave me a great deal of knowledge about what needs to be done in a landscape throughout the summer. I feel that now I can more accurately design landscapes based on the amount of upkeep requested by my clients.

My summer was not only hard work, but also full of adventures around New England. I had never been to that area of the country before and wanted to make the most of the time I had there. I visited a few gardens that were part of the Garden Conservancy 'Open Days,' including the garden of Bunny Williams. I also visited the High-Line, Central Park, New York Botanical Garden, and Longwood Gardens during the summer, along with a few hiking trips here and there. I could not have asked for a better experience this summer and feel recharged and ready to start my last year of school here at Iowa State.

Horticulture Students Showcase Skills at Brunnier's 40th



By CAMERON JODIOWSKI,
CALs Communication Service

Iowa State University Horticulture students, staff and alumni transformed the Brunnier Art Museum for the museum's 40th Anniversary celebration.

Eight students teamed up with alum Dan Brabec ('02 horticulture), owner of Coe's Flower Shop and Barb Clawson, horticulture program coordinator, to provide floral pieces for the September 19 event.

With the assistance of Clawson, Brabec and Jeff Iles, chair of the Department of Horticulture, students worked in teams to construct 20 structures and table centerpieces covered in flowers.

Horticulture students gain experience in floral creations for the University Museums 40th anniversary event held at the Brunnier Art Museum, September 19, 2015.



Undergraduate Degrees

FALL 2014

Global Resource Systems

Josephine Elizabeth Ayala*
Fort Dodge, Iowa

Moriah Rose Morgan
Corydon, Iowa

Horticulture

Craig J. Connell
Harlan, Iowa

Andrew Michael Doyle
Rock Island, Illinois

Nicholas Julian Flax
Evanston, Illinois

Cody Lee Fox
Carroll, Iowa

Jonathan David Mahoney
Des Moines, Iowa

Kyle P. Mc Greevy
Palatine, Illinois

Spencer William Nelson
Denison, Iowa

Russell William Nupnau
Skokie, Illinois

Christina Kay Riessen**
Schleswig, Iowa

Nathan Anthony Robinson
Atlantic, Iowa

Mariah Marie Romano
Waukee, Iowa

Jared Robert Watters
Fort Dodge, Iowa

SPRING 2015

Global Resource Systems

Jordyn Kaye Algreen
Earlham, Iowa

Morgan Bobb** †
Denmark, Iowa

Rachel Anastasia Camille Brosh
Plainfield, Illinois

Rebecca Robyn Chamberlin*
Windsor Heights, Iowa

Carolina Leanne Covington
Corydon, Iowa

Nathan W. Davis
Sioux City, Iowa

Cameron Frederic Hall
Nashua, Iowa

Andrea Fay Matthews
North Liberty, Iowa

Haley Jessica Newberry**
Edina, Minnesota

Kimberly Wendy Pantzlaff
West Des Moines, Iowa

Rachel Anne Pierce
Columbus Junction, Iowa

Alisa Salesevic
West Des Moines, Iowa

Mitchell Earl Steimel
Cedar Rapids, Iowa

Connor Charles Stein
Naperville, Illinois

Genna Renee Tesdall** †
Ames, Iowa

Stephen Anthony Today** †
Ames, Iowa

Stephanie Vanthy Tran**
Sioux City, Iowa

Lincoln Craig Wells**
Storm Lake, Iowa

Horticulture

Ramsay Kaneaukai Ah Sam
Bellevue, Nebraska

Claire Elizabeth Anderson
Glenview, Illinois

Alexander Aviles
Brookfield, Illinois

Jordan L. Bakkum
Hantontown, Iowa

Erin Nicole Bohlin
Dubuque, Iowa

Brandon Jon Bousema
Sheldon, Iowa

Morgan Elizabeth Bradley
Ames, Iowa

Dana Danille Diers*
Brighton, Iowa

Andrew Raymond Foy*
Waverly, Iowa

Cory Benjamin Gamble
Winterset, Iowa

Jacob Daniel Graber
Kelley, Iowa

Sarah Ruth Kaldenberg
Granger, Iowa

Emily Elizabeth Lair
Estherville, Iowa

Bryant Paul Marks
Ames, Iowa

Lane Reed Mathias
Muscatine, Iowa

Colton Riley Metzger
West Des Moines, Iowa

Brandon Michael Miller
Crystal Lake, Iowa

James Vincent Nesbit
Des Moines, Iowa

Mark L. Pfantz
State Center, Iowa

Austin Jay Polson
Johnston, Iowa

Jake Robert Potter
Altoona, Iowa

Cory Alan Rigler
Burlington, Iowa

Michael Edward Seibert
Rockford, Iowa

Anna R. Snyder
Muscatine, Iowa

Matthew John Swanson
Cambridge, Iowa

Maia A. Van Holsteijn
Spencer, Iowa

SUMMER 2015

Global Resource Systems

Neil Bernard Gerstein** †
Ames, Iowa

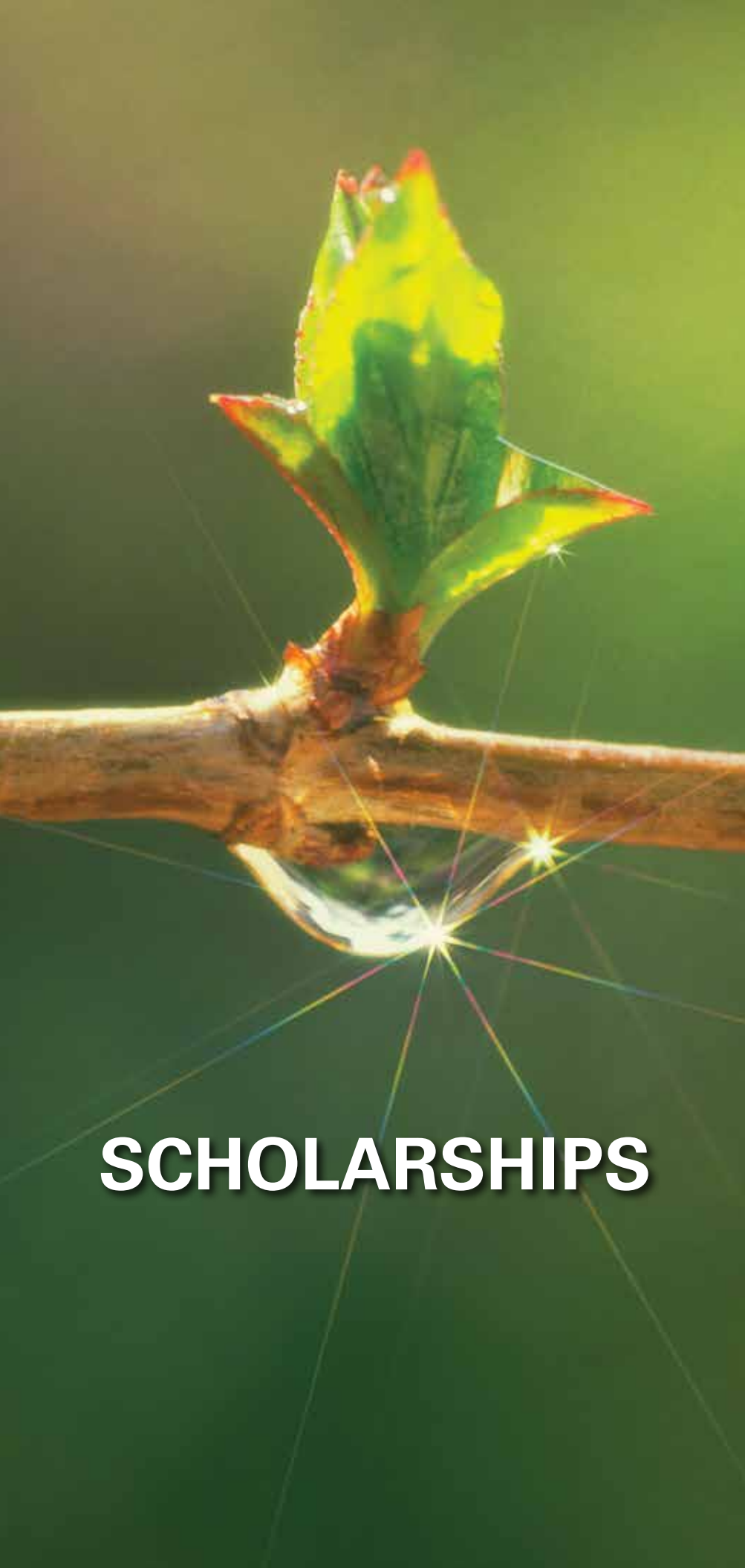
Abigail Bridget Green
West Des Moines, Iowa

Trisha Joy Nielsen
Rock Valley, Iowa

Gerrit Ryan Vanderberg
Gilbert, Iowa

Congratulations!

* Cum Laude
** Magna Cum Laude
*** Summa Cum Laude
† Honors Program



SCHOLARSHIPS

Sterling Ainsworth
Sterling Ainsworth
(in memory of Ray Schulenberg)
Mary E. Amos
Jerry Benning
Boone Garden Club
Newell W. and Dorothy E.
Boughton Scholarship
Mildred D. Bradbury
Nick and Marla Christians
Bob Clark Memorial
Robert M. Clark Memorial
Erwin Memorial
Federated Garden Club
Charles Hall
Department of
Horticulture Graduate
Freyermuth Global Resource
Systems Scholarship
Global Resource Systems
General Scholarships
Horticulture Club
William Hughes
Isabelle M. Isley
Kemper A. Kirkpatrick
Kolschowsky Global Scholarship
Elmer Lundberg
Manatt Global Scholarship
Naomi Maahs
Nau Memorial
Pickett-Volz-Nichols
Edward R. Robinson
J. Frank Schmidt
Joseph Shinoda
Arvil and Elva Stark
Family of Ernie Streicher
Florence and Jack Thomas
Memorial
Hattie Meyer Traviss
West Pottawattamie
Ralph Williams
Zimmerman Memorial

Alumni Spotlight



Erin Bohlin
Kokopelli Landscaping
Mesquite, Nevada
Graduated: Spring 2015

The Iowa State Department of Horticulture gave me the tools to officially introduce myself as a landscape designer, here at Kokopelli Landscaping in Mesquite, Nevada. I was exactly what they were looking for. There are so many things that I can do with a horticulture degree and I found my niche here. I'm at work by 6am every day with a mountain view, eight other office workers, a mechanic, and over 200 landscapers. I spend a good part of my eight hours on a computer—drafting, drinking coffee, and watching for the occasional scorpion

that plays dead on the floor. For the trickier clients, my bosses employ my color and rendering skills as persuasion which means sometimes I get to sit at a window and color for a while (perks!). I make trips across town (sometimes southern Utah, northwestern Arizona, or Las Vegas) and visit with clients at their homes, take lots of pictures, chat, discuss plants, the dog, and nosy neighbors. Small businesses, too! Sometimes they just call in and tell us what they want; County Assessor websites are my best friend. I do inventory for bids on large commercial projects, too.

Autumn is our busy season. Here, turf is the accent—it's all rock. Rock base, mounding in colors, boulders, dry riverbeds, and lots of cacti, oleander, and palm trees on “postage stamp” lots. It's completely different, I'm still learning loads, and I'm really enjoying myself despite being able to fry an egg in the parking lot for the last 4 months (I tried once).

Jen Tillman
Sustainable Farms Bicycle Tour
Midwest USA
Graduated: Spring 2015



Jen Tillman and Paul Doffing sporting their recumbent bicycles on the Freedom From Fuel Tour.

During my two-year stint at Iowa State University, working toward my master's degree in Sustainable Agriculture and Horticulture, a lot of people would ask me what I planned to do with my degree. Common question, uncommon answer: I planned to go on a bicycle music tour.

On June 5, 2015, after the pomp and circumstance of graduation had passed, I departed from Ames, Iowa on a bicycle along with my partner, Paul, who is a musician. It's not a new thing for us, actually; we met on Paul's first ever bicycle music

tour when we both happened to be pedaling across Montana in 2012. But this time around, with the two of us working on booking a shows at a wide variety of venues months in advance, we were able to plan a more music-packed tour than previous years. I decided to blend our interests by setting up some of the shows for Paul at farms that have a sustainable and community focus.

Touring farms and chatting with the growers about their practices at least partially satiated my desire to grow food in the summer months, something that's hard to do while

traveling on bicycle. It also ended up being a great way to integrate Paul's music into the sustainable food scene, and it provided a different draw for the growers to attract CSA members, neighbors, friends, and interested folks to their farm to show them the wonderful things they do for their land and their community.

In all, Paul played at eleven farms around the mid-west that focused on everything from vegetables and berries to honey and mead to eggs and pasture-raised meat. I enjoyed snapping pictures of eggplant flowers, palm-tree-esque kale plants,

(Continued)

Jen Tillman (continued)

buzzing pollinators and happy, mud-coated pigs, posting photos and farm profiles on our tour blog: freedomfromfuel.com. We plan to keep touring the world by bicycle for at least another year, venturing to Europe next year. I'm excited to visit farms there and see how different the agricultural scene is.

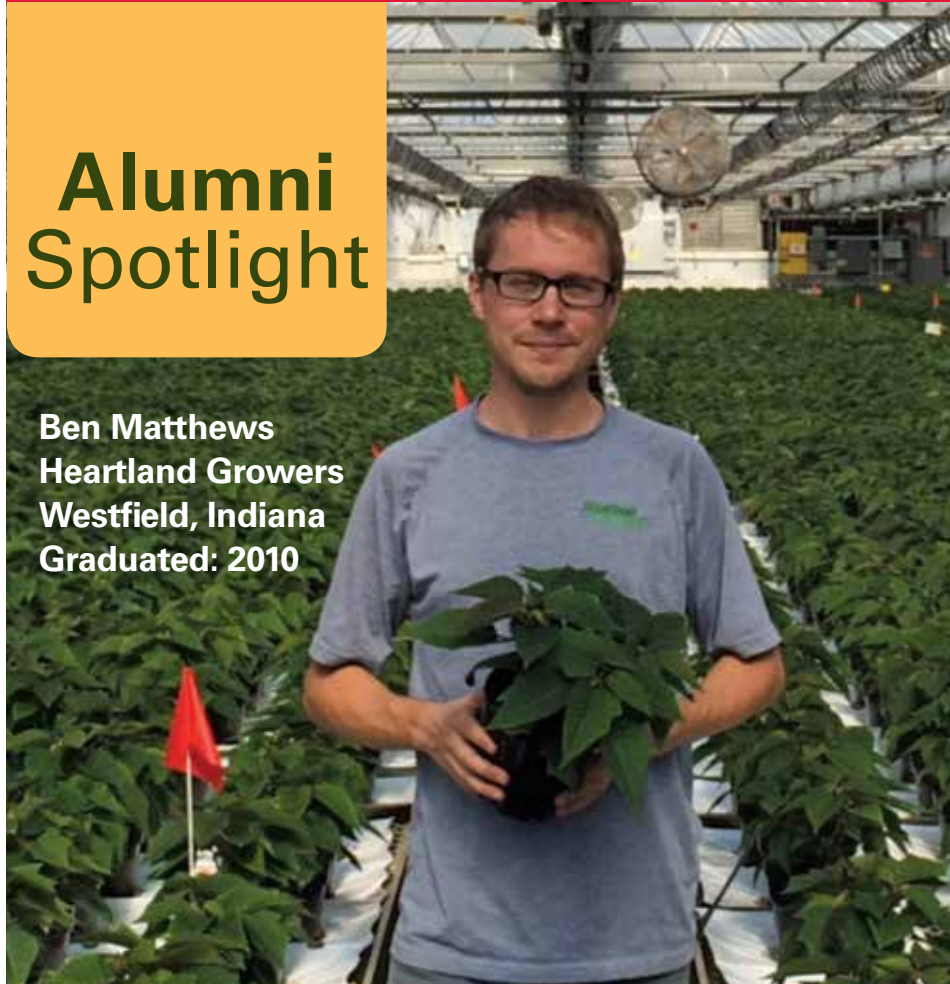
Despite how excited I get when talking to growers about their living mulches and cover crops, I don't think that running a farm is in my future (never say never, though). What I'd love to do with my degree (eventually) is to work for an organization similar to Practical Farmers of Iowa. Connecting growers to resources and each other through field days, publications and research projects seems like a good fit for me, and I like the idea of working for a member-guided organization with a sustainability focus. My experience at Iowa State has prepared me for such a career, and I'm excited to learn about organizations all over the world that share a similar mission of helping growers develop more sustainable practices. Now I just have to see where in world I end up...



Mustard Seed Farm in Ames, Iowa hosting our first show. Thanks to all those who came out to see us off!

Alumni Spotlight

Ben Matthews
Heartland Growers
Westfield, Indiana
Graduated: 2010



I have been with Heartland Growers for over four years now. I'm a grower, specializing in propagation and young plants at the largest greenhouse in Indiana, located just north of Indianapolis. We propagate and grow spring plants, herbs (grown year-round), mums, and poinsettias.

I have so many good memories of my time at Iowa State! I was actively involved with the Horticulture Club which, along with my horticulture classes, provided valuable hands-on experience growing crops. These experiences, along with science-based education, were instrumental in providing me with a strong start to my career in the greenhouse industry. Through hard work and the strong reputation of the horticulture program at Iowa State, I had no problem landing multiple internships, and I accepted a job well before walking the stage at graduation. There are so many paths you can pursue with horticulture, and the great faculty at the Department of Horticulture at ISU are eager to help you along the way! Go Cyclones!

Service Learning, School Garden, and School Nutrition Programs, UGANDA 2015



Training class participants.

by GAIL NONNECKE, MARK RIPPKE, SHARONTUSIIME, KEVIN DUERFELDT, ELLY SUKUP and DOROTHY MASINDE

INTRODUCTION

The service-learning program marked its 10th year of service learning in Uganda, in 2015. A special celebration was held during the annual July 4th event, including former service learners from each of the previous 10 years. Special attendees included faculty from the first year of the program from both Makerere University and Iowa State University.

Thank you to everyone who has contributed to this program over the past 10 years, especially former service learners, for making it a success!

We had another excellent group of students, faculty, and staff who participated in the Service Learning, School Garden Program in 2015. Twenty-five Iowa State University (ISU) and Makerere University (MAK) students assisted teachers

in 5 schools (Namasagali Primary School, Nakanyonyi, Naluwoli, Namasagali College Teachers Staffs Primary School, and Namasagali College) and completed 8 bi-national team projects to benefit the schools. Five former MAK service learners returned to Kamuli to provide leadership; 3 Global Resource Systems interns completed their internship

with Iowa State University-Uganda Program, a non-governmental organization in Kamuli.

In additional service learning program projects, faculty and staff conducted the second annual Youth Entrepreneurship Program (YEP) Workshop, teaching leadership and motivational skills to 30 in-and out-

(Continued)



Mark Rippke building sweet potato mounds.



of-school youth. The service-learning program also completed a base-line survey of the participants in YEP and surveyed past participants of a sack gardening workshop for primary school pupils to determine impact and improve future workshops.

TEACHING

Students taught 5th and 6th grades at four primary schools in groups of ISU and MAK students. Subjects included agriculture, mathematics and integrated science. Specific topics covered included soil formation, germinating and transplanting vegetable seedlings, constructing nursery beds, measuring, integers and fractions, resources in the environment, health and sanitation, and environmental degradation.

Students were challenged to be creative in presenting materials to engage pupils. Song and dance, handmade posters and demonstrations in school gardens were just a few

tactics used to create an interactive and engaging learning environment. Additionally, teaching served as an opportunity for ISU and MAK students to serve as role models and inspire primary school students to continue their education.

SCHOOL GARDENS AND NUTRITION

School gardens serve as outdoor learning laboratories for classes, providing hands-on learning experiences for pupils as well as service learners. Most importantly, the gardens support the school lunch program; produce is incorporated into the lunches and cash crops are sold to purchase additional ingredients.

Previously, schools served a maize porridge, containing about 50 kilocalories per serving to only some pupils on certain days of the week. The school lunch programs have moved from porridge to nyoyo, a mixture of corn, vegetables, salt, and

vegetable oil. Nyoyo provides 800 kilocalories per serving and more vitamins and minerals than maize porridge. Currently, nyoyo is served five days a week to every student at Namasagali Primary School, and school feeding programs are growing at the other 4 schools. The school lunch programs are improving attendance and pupils' ability focus in the classroom, directly impacting pupils' education.

ISU and MAK students tended gardens approximately 7.5 acres in area. Crops included collards, onions, eggplants, amaranth, eggplants, tomatoes, bananas and sweet potato cuttings. Students learned about sustainable production practices in the tropics, including nitrogen fixing cover crops, as they constructed nursery beds, heaped soil into sweet potato mounds, cleared plots, and harvested grain amaranth. ISU students were shocked by the amount of work required to produce a crop, particularly without access to the same equipment we have in Iowa. Primary school pupils worked in the gardens with ISU and MAK students in their free time, usually outworking them despite their poor nutritional status.



Michaela Hoffelmeyer working with students in the field.



BI-NATIONAL TEAM PROJECTS

Teams of ISU and MAK students developed and implemented projects in agroforestry, beekeeping, composting, grain storage, health and sanitation, irrigation, poultry, and nutrition and school feeding. These projects develop infrastructure and programs to benefit the schools and pupils in Kamuli.

To prevent residents from encroaching on school property and losing produce to livestock, the agroforestry team constructed over 800 feet of barbed wire fencing planted with euphorbia to become a living fence. Living fences are made like typical barbed wire fences and trees are planted to hold up the wire when termites destroy the posts. The agroforestry team also expanded and maintained mango and banana orchards.

The beekeeping team they constructed an apiary shelter to protect beehives from extended

moisture exposure and termites. Structure poles were greased to deter termites away from hives. Rotted hives were replaced with four new palm hives and two new woven hives. Demonstrations showed hive construction and discussed the market potential of bee products.

Composting was a new project this past summer. Team members implemented a three-step pit composting process to recycle green waste from two schools and amend the school gardens' soil. This will build organic matter in the highly weathered school garden soils.

Grain weevils are a constant threat to crops in Uganda. Two schools have hermetically sealed bins, which suffocate weevils and reduce post harvest grain loss. To ensure that grains are handled and stored properly, the grain storage team held educational sessions and posted instructions on postharvest handling and storage. Pallets were also

constructed to keep bins off of the floor and away from rodents and other pests.

The health and sanitation team constructed and improved tip-tap hand washing stations at two schools. These hand-washing stations will improve sanitation and pupil health, while improved drainage will prevent water from pooling on school grounds. The team also constructed a dish drying rack to store lunch dishes off the ground after they are washed and made sanitary pads for female pupils.

Irrigation is vital to maintaining crops year-round, due to Uganda's dry seasons. Two schools have cisterns that store water for irrigation, but getting water to the gardens is labor intensive and involves pupils carrying watering cans back and forth to the cisterns. The team constructed a treadle pump-operated sprinkler system that can be used at both schools. A gravity-powered drip

(Continued)



Students building foundation for a chicken house.



Fourth of July celebration.



UGANDA 2015 (Continued)

irrigation system for nursery beds was also installed using a 55-gallon barrel and a drip line.

The poultry team refurbished an old poultry house at one school and dug a foundation for a new poultry house at another. Termite mounds were removed and new chicks were purchased. Pupils learned the importance of vaccinating and using proper feed while starting a new laying flock.

The school feeding and nutrition team improved the lunch process by creating a dishwashing station with a 55-gallon rain barrel. The rain barrel will improve sanitation near the lunch area. Finally, benches were constructed to provide seating for students at lunchtime and keep them and their food off of the ground.

FARM VISITS

Students also had the opportunity to observe and assist with local agricultural systems by visiting small-scale farmers in the Kamuli District. Farm visits included bean and rice threshing, brush clearing, banana pruning, and passion fruit pruning and training.

YEP (YOUTH ENTREPRENEURSHIP PROGRAM)

In 2013, Iowa State University's education programs of the Center for Sustainable Rural Livelihoods initiated the Youth Entrepreneurship Program

(YEP) at Namasagali College (a rural high school) in Kamuli District, Uganda as a way of engaging the youth who are currently involved in informal employment activities. The YEP targets both in and out-of-school youth between the ages of 13-35, with 74 percent age 25 or younger, and has grown to a registered membership of 156 youth. Activities and trainings currently include leadership, maize and vegetable production, poultry keeping, and beekeeping for income generation.

In the summer of 2015, a baseline survey was completed to determine YEP participants' main economic activities, their economic aspirations, what they need in order to achieve their goals, and how their personal lives have changed since participating in YEP.

Preliminary results show 92% of all YEP participants rely on farming as their main income-generating activity. The majority of participants aspire to be profitable farmers, and those who strive to be successful businessmen want to engage as agricultural traders and middlemen. However, in order to achieve their goals, the majority of participants require more capital, followed by additional education and training. Participants identified program's largest impact to be the provision of additional knowledge and skills to its members, particularly in poultry, business planning, and

improved farming practices. In the future, YEP plans to continue training in crop and livestock production, business planning, and microfinance.

SACK GARDENING

Iowa State University faculty and students completed a sack gardening workshop in summer 2013. Sixth grade pupils at Namasagali Primary School attended a field day where they were instructed on how to construct and care for sack gardens. Sack gardens are a practical, economical, and sustainable method of producing food using vertical space and for benefiting food security and livelihoods. In 2015 participants were surveyed to evaluate the long-term effectiveness of the field day and instruction. All pupils surveyed remembered the field day and how to build a sack garden. Eighty-six percent thought their sack garden was successful and most of them consumed and/or sold the vegetables the produced. From this survey we determined future programs could include working with schools to get small plots for boarding students to have sack gardens and how to reinvest money from selling vegetables to continue their garden activities.

TOMATO SEED MANAGEMENT PRACTICES

This summer, Sharon Tusiime, a graduate student in the Department of Horticulture conducted a survey



Key-hole garden.



Students visit passion fruit orchard.



Drainage under hand-washing station.



Students thrashing beans on farm visit.

to find out the current tomato seed management practices among in- and out-of-school Youth that are part of the Iowa State University's Youth Entrepreneurship Program (YEP) in Kamuli, Uganda. In the study, Surveys were administered to 60 in- and out-of-school youth, who have grown tomatoes.

Preliminary results indicated that 35% of youth saved seed, while 65% did not. Most youth tomato growers received extension assistance about seed saving from fellow farmers.

Of youth saving seed, most did not track which tomato cultivars they saved. Among those who could identify cultivars, Rio-grande was the most common cultivar saved. Saved seeds were stored in plastic containers and kept in the main house where youth lived. They controlled for seed borne disease primarily with kitchen ash and did not use protective clothing or gear when applying fungicides. Youth farmers agreed with the statement that they can save money

and reproduce a desired cultivar with seed, but had inadequate knowledge about seed-saving techniques, which also was the most common reason for not saving seeds.

YEP participants as youth farmers need better training and assistance to initiate and employ proper seed saving techniques. The quality of available seed at affordable prices in the Kamuli market should be improved to benefit youth farmers currently not saving seed.



ISU Extension and Outreach Master Gardener program hosts 2015 International Master Gardener Conference



Lisa Orgler presenting landscape design workshop.



Dr. Cindy Haynes handing out conference packets.

by **Susan DeBlieck**

Photographs by Susan DeBlieck

The Iowa State University Extension and Outreach Master Gardener program, which is housed in the Horticulture Department, in partnership with University of Nebraska–Lincoln Extension Master Gardeners, hosted the 2015 International Master Gardener Conference (IMGC) Sept. 22–25 in Omaha. IMGC is hosted biennially to provide an opportunity for the sharing of research-based information meant to nourish the work of Extension Master Gardeners and program staff. The conference theme “Horticultural Horizons in the Heartland” included a keynote presentation focused on increasing access to fresh produce. Over 750 gardeners from across North America and South Korea came together to share best practices and learn how to be volunteer leaders that create change in their communities.

The conference included presentations from Horticulture Departmental faculty and staff members Susan DeBlieck, Cindy Haynes, Lisa Orgler, and Denny Schrock. In addition, Iowa Master Gardeners Susan Applegat Hurst and Gary Whittenbaugh, and Master Gardener coordinators Laura Klavitter and Laurie Taylor were among the 70 presenters who conducted 85 class sessions at the event which drew 750 garden enthusiasts from 39 states and 2 foreign countries.

“USDA’s Economic Research Service estimates that 23.5 million people live in food deserts,” said Margaret Murphy, horticulture educator and regional foods coordinator for the ISU Extension and Outreach Lyon County office in Rock Rapids, Iowa. “Food gardening has the potential to strengthen individual, household and community food security by helping people get easier access to healthy, fresh foods.

Iowa Master Gardeners are contributing to the effort to increase access of fresh produce. Mills County Master Gardeners in southwest Iowa created Glenwood’s Giving Garden, a one-acre community garden. In 2014, over 7,600 pounds of food were harvested and donated to local food pantries. “In fact, this award-winning garden in Glenwood was highlighted during an international conference tour in September,” said Susan DeBlieck, Iowa Master Gardener program assistant.



Kalynn Doebel at tradeshow.



Bryn Takle delivering supplies.



LETTERS from ALUMNI

My husband, Clem (landscape architect ISU 1981) and I still reside in the St. Croix River valley countryside north of Hastings, MN. We have five acres of gardens that have become our second career! Just last week, we were one of several on a garden tour. It's always fun and gratifying to share what we've created with others. Our dozen or so Barred Rock chickens were a favorite, too. If anyone is in the area, stop by and we'd love to take a walk with you.

I, very much, work fulltime for Bailey Nurseries in the sales department. We're constantly working on new markets and new genetics. With the purchase of PII (Plant Introductions, Inc), a company formerly owned by Dr. Michael Dirr, we have another means of producing and finding the next best plant! Who knew that one of the most well known horticulture authors and author of my most studied textbook, would be someone I'd not only meet, but get to know on a personal level. Of course, I had him sign my ISU textbook from the late 70's!

One of my fondest memories at ISU was working in the greenhouse for Dr. Jack Weigle and being next to Dr. Buck's rose greenhouse. How many of you can remember him whistling the classics? Little did I understand that he was creating a whole new generation of shrub roses, which paved the way for many, many other fantastic new shrub roses! I recently returned from a trip out to Oregon and touring Kordes farm (German company specializing in hybrid T roses). It's interesting how the hybrid T growers are hybridizing more of the hardy shrub rose characteristics into their roses and the shrub rose breeders are trying to get the T rose colors/ fragrance/bud size. It's definitely the two worlds joining into the perfect combination that the consumer craves.

I have two children; my son Kevin who is married and lives in Wyoming, MN. My daughter Kelly lives in West Saint Paul. My one and only grandson, Luca, is of course, the highlight of our lives!

When we aren't in the garden or working, we're in our kayaks...taming the St. Croix River mostly, but venture out to other bodies of water... there really are 10,000 lakes in Minnesota!!

JoAnn Kern

Hello from Kansas City,

I have been a paralegal for the last 24 years in child support enforcement. The governor of Kansas has privatized some of child support services, and we have gone through some big changes including losing half of our office staff. I am just hoping to keep my job for at least 3 1/2 more years.

I have been married to my husband, Terry, for 32 years. Terry has worked at YRC for 32 years. Terry has been a working safety trainer in addition to his current job. We have two children. Our son, Nick, is 26 years old. He graduated from KU and is a PICC nurse at Children's Mercy Hospital. Our daughter, Natalie, is 22 and will graduate from Washburn University next May in nursing.

My children and I visited Ireland a year ago with my brother and sister and their spouses. We arrived in Dublin and toured, then traveled to the south and then west leaving out of Shannon, Ireland. Nick and Natalie visited Jameson Whiskey and Guinness beer distilleries while I went to see castles and cathedrals: St. Patrick's and Christ

(continued)

Lisa Flaucher (continued)

Church and Dublin Castle. We then went to Wicklow, Kilkenney Castle, and Glendalough. Natalie and Lisa went on the ring of Kerry tour. I loved Killarney National Park. We all saw the Cliffs of Moher and the Blarney Castle. Nick and I kissed the Blarney stone while the others declined. Ireland is beautiful and green, but they get lots of rain. On the one sunny day, we went to the beach, but so did half of Ireland. The people were very friendly.

I still enjoy gardening in my free time. I grow the flowers and my husband grows the vegetables. Kansas has enjoyed plentiful rain this year (kind of like Ireland) and everything is growing well. I also volunteer at a local historical site, for the Girl Scouts, and with CERT-Community Emergency Response Team.

**Lisa Flaucher
Horticulture class of 1983**

Dear Hort. Class of 1960,

Fifty-five years ago we started looking for interesting work with plants and people. I know that I had no idea that I'd be breeding sweet cherries on 2 continents at age 77. My first graduate student that worked with me at Michigan State is now my employer. His company, International Fruit Genetics, LLC, located in Bakersfield, CA, has been so successful doing private breeding of seedless table grapes that it can afford to hire me as a consultant to their other primary crop, cherries. Chile is often said to be the "Southern Hemisphere California." We work there too — to develop new varieties of both cherries and grapes.

Warm regards,

**Bob Andersen
B.S. 1960**

Things are going great here in Monroe, Wisconsin. Mr. Landscape has recently celebrated its "First Birthday" as of July 1st! I am very busy at the moment (as I was writing to you) putting estimates together and completing jobs. This past year has been very exciting and stressful at the same time. We have a long list of jobs that keeps growing. In order to keep up with demand I have been sub-contracting jobs to independent workers/landscapers. While tackling many jobs myself. We also provide lawn care and maintenance services, which have

been going strong thanks to all the continued rain. In the past year, I have made substantial investments into my business including a CAT skid loader, new truck and a new lawn mower. I have also added many small tools and equipment.

I deeply miss Iowa State but really enjoy my job every day! I look forward to seeing you all in November! I hope all is well in Ames and have heard about the destruction (I mean construction) on campus. Again can't wait to see you all.

Sincerely,

Cody Rufer

Thank you for sending me the newsletters that updates me on the news and changes of the department where I graduated in 90's.

Hongyi Zhang

Since Graduating in 2010, I have been employed at Country Landscapes, Inc. in Ames, IA. I oversee the maintenance department, which now employs 10 people. I do some designing, estimating, manage crews, as well as installing landscapes. I recently became a certified arborist and continue to obtain many other certifications.

This last year Country Landscapes had the opportunity to landscape the Des Moines Botanical Gardens, which allowed me to work with many other alums, and now colleagues. It's been great communicating with so many people that have the same passion for the green industry especially knowing they graduated from ISU.

My wife, Kristen and I recently celebrated our third anniversary by taking a trip to Punta Cana in the Dominican Republic. We have a small acreage just SW of Ames and love the country life, which includes a fairly large garden and poultry.

**Ben Hershey
Class of 2010**

Lee Beck here. Horticulture/Food Science double major, class of 2009. Dr. Nonnecke was my horticulture major professor.

Every year I intend to write and give a brief update and I am finally getting around to it! I am so proud of my Hort degree from ISU and have felt fully prepared to contribute to the global horticulture industry and more importantly to continue to learn as my career has progressed.

This coming northern hemisphere wine grape harvest season will be my tenth vintage that I have been a part of in the wine industry. Six have been in California, three in the southern hemisphere (New Zealand, Australia, and Chile), and this coming vintage will be in Willamette Valley, Oregon. I have seen and contributed to both the viticulture and enology sides of the industry and I learn something new every day!

I owe so many thanks to the ISU horticulture department for encouraging me to do what felt very much like going out on a limb by cold-calling wineries in California my last few months leading up to graduation and getting my foot in the door to the west coast wine industry. I haven't had an ounce of regret and it was a great way to see the world and learn along the way. Also, my experience working with research at the extension farm remains on my resume and I still bring it up in job interviews!

Thank you so much for your part in establishing the foundation that I have built my career on. I look forward to being in a financial position where my gratitude can take the form of a monetary contribution to the department.

Please continue to encourage students with keen interests in the wine industry to take the plunge and feel free to put them in contact with me for any industry connections! It is definitely a "small world" feel and just getting a foot in the door can make all the difference.

Lee Beck

Since the last newsletter was published there is scarcely anything new for me to report. My wife and I are in our mid 80's at this point and fortunately for us we are in excellent health for people at our stage of life. I no longer drive; my wife does it all!

My horticulture interest at this point is limited to houseplants – and in that I take much interest. Some things are kept outside our apartment around the entryway.

At our point in life, our interest is largely focused on our wonderful grandchildren – and ours are wonderful, to say the least. As you will understand, that is a "prejudiced" opinion.

It will, of course, be fine to receive the newsletter when published, and read about the activities of many other alumni.

My very best wishes go to you and your entire staff. I wish it were possible for us to attend the Alumni Dinner but that simply is not possible. I trust you will understand.

Donald Muller

I went to Guatemala this summer to volunteer as the Site Design Intern for the Project Somos Children's Village. The Village was located in a rural, Mayan village in the mountains (about a 20 minute drive from the nearest town of Tecpan [Population 25,000]) so it was definitely a much different, more isolated and rugged style of living than I'd gotten used to after 4 years of living in dorms/fraternity houses/apartments!

A little more about Project Somos. Somos is a non-profit organization that takes in single mothers who are at-risk of losing their children due to poverty, violent/difficult living situation, etc. and works to rehabilitate & re-integrate them into their communities by providing them with a safe home, healthy food, weekly parenting and counseling sessions, and teaching them entrepreneurial & craftsman skills that they can use once their 2-year stay at Somos is up. (Wow, that was very official sounds... maybe I should be their PR person!).

Second in importance to moms and kiddos at Somos, though, is their commitment to using extremely eco-minded practices to construct and operate the village. (Co-founder, project manager, and previous organic farm owner – Greg Kemp – is much to thank for that). The village constructs all of their buildings using EarthBags – basically long, durable sandbags that are more resistant to the frequent earthquakes the site receives – and uses Eco-bricks – plastic bottles stuffed with plastic bags, chip bags, and any other plastic trash – as insulation to line building walls. Also, the village possesses a few acres of agricultural fields (on which they grew beans, beats, and quinoa while I was there), organic gardens near the family homes for the mom's to use, and an intensive vermicomposting system that makes use of all kitchen scraps and green waste and recycles it back into the fields and organic gardens about 4-5 weeks.

(continued)



Andrew leading activities with Somos moms and children.

Andrew Foy (continued)



Children's Village.

With only 2 out of the planned 7 family houses completed and many more miscellaneous buildings around the Somos site still planned to be constructed, my main job this summer was helping Greg to create an overall site plan to designate spaces for future buildings. In addition to the site plan, another large portion of my time there was spent working on a SketchUp model for the “Visitor Area” of Project Somos – which encompasses the intern dorms, community hall, and visitor cabanas. It’s Greg’s vision that in the future, this area (the community hall especially) will function partially as an events center/revenue generating area capable of hosting birthdays, quincineras, reunions, weddings, yoga retreats, etc. In its current form, however, the community hall is far from “event center-ready” so my task with the SketchUp model was to give it some much needed “sprucing up.”

Probably the biggest surprise (and takeaway) though, from my experience this summer was the amount of time I spent with the Somos kids and moms. Each weekday afternoon (and actually many of the weekend afternoons that I wasn’t traveling), I spent about 2-3 hours leading activities with the kids. These activities ranged from mushroom hunting, nature hiking, avocado planting, houseplant activities, playing soccer, stuffing Eco-Bricks, teaching English, playing more soccer, etc. and ended up being something that I actually started to look forward to more than doing the site designing and SketchUp modeling! Additionally, towards the end of the internship (when I was a bit more proficient in my Spanish), I began to get more comfortable hanging out with the Somos moms and actually ended up doing English lessons with one of them a few times a week. It was through these types of experiences that I realized that maybe a career that involved gardening, designing, and teaching would be a bit more fulfilling for me than simply a designer/estimator position with a traditional landscape design company. So, with that in mind, I’m actually in the process of looking into “Garden Educator” jobs with elementary schools for my next “move” in the professional life and am excited to see where it takes me!

Andrew Foy

I hope this letter finds you well! It’s been a fast 8 months since I graduated from Iowa State with my Master’s Degree in December 2014. It’s really hard to believe. I have been working for the University of Illinois Extension as an Extension Horticulture Educator since January 2015. I love it here in Dixon, Illinois. The people in the counties I serve are so friendly and willing to help out. With Carroll, Lee, and Whiteside counties being rural, it is very similar to living in Iowa, but not the same.

Iowa State and the Department of Horticulture will always be my second home and the place where I discovered who I am and who I could be. I wish to thank the department for its kind, nurturing environment, but also the faculty and staff for challenging me to always reach for my potential.

Bruce Black

It has been a long 60 since I graduated in Horticulture from Iowa State in 1955. I have fond memories of my four years there: Harvesting Dr. Denison’s strawberry trials, recording data, and tasseling sweet corn on hot humid summer mornings.

After leaving Iowa State and serving a short stint in the Army at Fort Sill, Oklahoma, I returned to my family’s citrus ranch in Redlands, California and continued growing



I replaced front lawn with California native drought tolerant landscaping.

oranges and grapefruit for the next 50 years. I also worked for the US Department of Agriculture, Natural Resource Conservation Service, from which I retired in 2002.

As you know, California is experiencing a severe drought and the community in which I live has been required to cut back irrigation and domestic water use by 32%. Two years ago, I replaced the front yard lawn with California Native Drought Tolerant Landscaping.

Bob Best
Class of 1955

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To my fellow ISU Horticulture alums – greetings from central Iowa! I am approaching my 18th year working at Stine Seed Company in Adel, Iowa! I continue my work in the soybean breeding/new variety development division of Stine (Midwest Oilseeds, Inc.). I am always drawn to the college experience and education I received at ISU, and as the years go by, I appreciate that more and more! My wife Sheila and I live in Des Moines and when you combine my two daughters and son with Sheila's two daughters, it makes for lively holiday get togethers! Coupled with 7 grandkids, our lives are busy AND rewarding!

Congratulations to ISU department of Horticulture, celebrating their 90th year Annual Alumni newsletter! I am honored to be a part of this milestone achievement in Iowa State University history!

Joe Boesen
Class of 1977

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It is an honor to be part of the Dept. of Hort family. The April 1, 2015 celebration of "A Day of Recognition of Dr. Arvil and Elva Acklam Stark" is a wonderful tribute to my Dad and Mom! They met at the ISU Library when my mom's supervisor said, "Only your best friend could read my Dad's signature!"

It is a privilege and honor to carry on my Dad and Mom's legacy by attending the spring Hort scholarship award banquets! Students show me their research, and invite me to their seminars!!

My Mom's good health has been inherited by me! I live about 40 miles south of Ames in Clive, a western suburb of Des Moines. Everyday I exercise at Walnut Ridge PHS Senior Community Center where I live.

Environmental advocacy and caring for creation are very important to me. After 20 years serving as an Iowa Civil Servant, I retired from Iowa DNR in 2002. I served on the



Craig Stark presented to Laura Sullivan the diploma and certificate for Arvil Stark.

Des Moines Mayor's task force for energy efficiency and the environment!

Currently I serve on the City of Clive Tree Committee; I am a member of Clive Lions Club; and attend many Brenton Arboretum events! Also, I am involved with St. Timothy Episcopal Church's Faith and Grace Garden in West Des Moines.

The ISU Hort Dept. has changed significantly since 1959 when it was only 18 male students plus the first woman student! In 1959 Iowa State College became Iowa State University!

One thing that has not changed is the very close teacher-student relationships and bonds! This existed in the late 1950's and is still very vibrant in 2015! Go CyHorts and ISU!!

Craig Stark
Class of 1959

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My biggest news is that I am retired and don't have to go to work every day. My son Chris worked with me in the family nursery, growing B and B shade and ornamental trees, for about 10 years and decided that the life of a nurseryman was not for him. By that time my arthritis was getting worse, and I was getting sick of having employees so it seemed like a good time to quit. Shortly after that I was hired as a consultant for a new nursery in the area to help them get started growing, which was a great thing to help me transition out of the business.

(continued)

Warren Brewer (continued)

I rented my buildings to a winery and keep as busy as I want doing maintenance and mowing. I also enjoy fishing in Canada as much as possible, flying the small airplane that I own with a partner, and playing bass fiddle in a bluegrass band called Stinkbait. I am also pleased to have two brand new grandchildren ages 2 and 2 ½. My son Chris and his wife were fortunate enough to adopt two sweet little children after foster parenting them for some time. Grandchildren are a lot more fun when you have more time to be with them and no job to get in the way.

I enjoy reading the Horticulture newsletter to keep up with what is happening in Ames, and with my former classmates. Keep up the good work.

Warren Brewer Horticulture 1964

I am working at Country Landscapes in Ames as an assistant crew leader. I have been at Country Landscapes for a little over a year now and really enjoy it. I greatly enjoy working on an installation crew and being able to work outside. Our crew focuses on paver patios, stone retaining walls, and flagstone walkways and patios. We also install softscapes along with most every hardscape. I am also learning to install nighttime and architectural lighting in the landscapes.

Two of my favorite projects so far this year have been working at both of my Alma Maters. I had the pleasure of installing a paver patio in the “Welcome Plaza” at my high school in Jewell, Iowa and also installing a paver patio at the Hub on the ISU campus. It was a great experience to give back to two of the institutions that have gotten me to where I am today.



In my free time I enjoy rock climbing, hiking, camping, running, and practicing yoga. And of course spending my winters in Ecuador!

Morgan Wright

Ever since I was a child I have had a passion for gardening, and so majoring in horticulture at Iowa State was a logical choice for me. My husband, Cliff, is a “plant” person, too, having been a botany (plant physiology) professor at Iowa State for many years.

For the past 19 years we have lived in St. Louis in a house very near the Missouri Botanical Garden, and though our back yard is small, I have gardened it intensively. This year the St. Louis Post-Dispatch called for entries to its Great Garden Contest for gardens in the entire metropolitan region. I almost didn't enter, knowing the competition would be stiff. But I did enter and was surprised and thrilled to learn that my garden was the first place winner





in the vignette (small garden) category. I've attached three of my favorite photos of the garden. It's been an interesting journey in a back yard starting out with nothing but weeds, broken-up concrete and a redbud tree. Cliff and I love our little oasis as it is now with its ever-changing views and constant flow of birds and butterflies through the season.

My thanks to the Horticulture Department for the training and encouragement received all those years ago.

Judy Appenzeller LaMotte
Hort 1965

Since graduating from Iowa State in May 2015, I've worked for Dr. Diana Cochran for the summer. I enjoyed helping put in the hop yard at the ISU Horticulture Research Station and learning about grape diseases with Dr. Nonnecke. This fall, I will return to the CGIAR International Potato Center in Lima, Peru to work in their gene bank. Then, in the fall, I will begin studies for a master's degree at Penn State in Plant Pathology and International Agricultural Development. Iowa State got me off to a wonderful start in my career, and I'm happy to keep in touch with my fellow Iowa Staters!

Genna Tesdall

It is amazing that this is the 90th Annual Alumni newsletter, and I have been blessed to receive 48 of them. They become more interesting the older I become.

There is not much new around here. I have been retired since 2009 and am looking forward to my wife's retirement next August, which will allow us more flexibility in traveling and doing things together. However, she is now signed up to a program at Boston University to become an accredited translator and possibly interpreter for Portuguese/English.

I continue to take an active role in adult education classes at OLLI UConn, and work in a volunteer vegetable growing activity for food banks and food kitchens being dubbed the "science officer." I see that Iowa State University also has an OLLI program, and I would encourage all friends of Horticulture to investigate this continuing education opportunity in your local area, as there are over 120 universities with such a program in the US.

I find pleasure in being a mentor for a young man coming from a single mother home environment and serve as a representative payee for another gentleman in a Bible study class we mutually attend.

My family continues to expand with my eldest son moving toward a permanent relationship with a young lady with two lovely, young children. Both sons are gainfully employed in their respective fields of interest, which is a real blessing these days.

I am seriously considering returning to ISU for the reunion in November.

John Westcott

Hops Farming Growing with Iowa Craft Beer Scene



by GRAYSON SCHMIDT

Iowa's craft beer scene is getting stronger, and has grown exponentially within the past five years. This surge of craft beer has subsequently brought an increase in hop farming as well.

North of Ames in the Iowa State Horticultural Research Station, ISU assistant professor and extension fruit specialist Diana Cochran is currently conducting research on growing hops in Iowa. The 1-acre farm consists of Cascade and Chinook hops, which

Cochran said have seen the highest success rate in Iowa.

According to Cochran, there are around 10 to 20 commercial farms in Iowa, and apart from Buck Creek Hops in Solon (25 acres), almost all of them are small-scale at 1 acre. The research being conducted by ISU entails nutrient requirements and sustainable irrigation, which has never really been done in Iowa.

Cochran said that one of the key differences between growing in Iowa as opposed to the Northwest is the nitrogen levels in the soil, which she said is suggested at anywhere from 75 pounds to 250 pounds per acre depending on the part of the country.

"Growing hops is one part, but it's the processing, the making sure you have the market, and working with local brewers to make sure they have what they need," she said. "It's more

of looking at the quality of the hop, which is what I want to focus on."

The research could provide not only the information needed for how to properly grow hops in Iowa, but which types are the easiest to grow, and which can become specific to the state. That way, local brewers can produce specific types of beer that Iowa can claim as its own, which can take a while to discover.

"Some breeders are trying to work on developing regional hops with a unique taste," Cochran said. "There could be some hops that are around that when they grow here, they have a different taste that the brewers work, and even those take years to figure out."

As long as the demand for craft beer grows, and more breweries keep popping up, more hop yards will begin to pop up as well.

2015 Shade Tree Short Course



FEBRUARY 24-25, 2015

The Work Never Stops...
and Neither Can We!

59th Annual Iowa State University Shade Tree Short Course and Iowa Nursery & Landscape Association Conference and Trade Show
Scheman Building, Scheman Building
Iowa State University
Ames, Iowa

IOWA STATE UNIVERSITY
Business and Outreach



The 59th annual Iowa State University Shade Tree Short Course and Iowa Nursery & Landscape Association Conference and Trade Show was held February 24-25, 2015 at the Scheman Building at Iowa State University.

The theme was "The Work Never Stops...and Neither Do We!" Donald Lewis, Iowa State University, welcomed the attendees.

The first session was "State of the Green Industry." Dr. Charles Hall was the keynote presenter. He provided a near-term economic forecast for the industry and highlighted what that means for growers and landscape and tree care service providers.

"Don't Just Plant More Trees...Plant Better Trees!" was presented by Dr. John Ball from South Dakota State University. He described as emerald ash borer spreads and begins causing widespread ash mortality, increased attention needs to be paid to replacing thousands of trees. Plant material choices made without concern for adaptability, longevity, long-term structural integrity, and/or invasive nuisance potential will cause problems.

"Using Your Brain and Smartphone to Diagnose Tree Problems" session was presented by Dr. Cliff Sadof. He demonstrated how to systematically diagnose common tree disorders using symptoms, patterns, and signs. He displayed over 1000 images in the Purdue Tree Doctor smartphone app to make a quick and accurate diagnosis and obtain research-based management recommendations.

Memorials

The Master of Agroecology Remembered



We deeply regret the passing of the friend and teacher. Once in a lifetime one has the good fortune to know exceptional people. Definitely, Alvaro is one of those people.

Alvaro dedicated his life to fighting for his beliefs with a tireless passion. He always welcomed us to his beautiful farm, disposed to share with students and friends his profound knowledge of life and the soil. And as if that was not enough, he traveled the roads, participating actively in the National Organic Movement, and in the committees to improve his community (sports, roads, water). He always had something to fight for! Teaching organic agriculture will never be the same without Alvaro.

Entomology/Horticulture/Plant Pathology 511, Tropical Crops Course to Costa Rica, has been in existence since 1999. Alvaro visited Iowa in 2006 with a group of farmers and agronomists from Costa Rica. Alvaro has been part of the student tours in Costa Rica since 2007. We were deeply saddened to hear of Alvaro's passing and wish to honor his memory. The 2015 Ent/Hort/Pl P 511 class had the opportunity to hear Alvaro's philosophy of agriculture, farming, and food preservation for the last time on March 16, 2015. He and his family made a wonderful meal from the produce of his Farm, and hosted the group in his processing facility. We cannot express enough, the gratitude we share for that experience

In memory of William Vinson

Sorry to announce the sad news of the passing of William Vinson on June 4, 2015. He was an Iowa State University graduate of 1979. Bill put his horticultural training to good use and was a loyal Cyclone for most of his life.

He worked in green houses and during his free time over the years, he was into beekeeping. He had a large vegetable garden and fruit nursery. Bill was known for his homemade sauerkaut. He was an ISU employee at Agronomy and riley Food Services from 1986 to 2015.

Reception for Craig Stark

On April 1, 2015, a reception for **Craig Stark** was held to recognize his donation of personal affects from his parents to Special Collections at the Parks Library. These two paper items were brought to us by Dr. Arvil Stark's son – Craig Stark.

The following were given to the Special Collections at Iowa State:

- PhD diploma of Arvil Lane Stark (March 20, 1939)
- United States Department of Agriculture Award for Superior Service certificate to Dr. Arvil L. Stark (May 1967).

The diploma and USDA certificate have had a lot of meaning to Craig and the Department of Horticulture is pleased the articles can be preserved in the Special Collections of the Parks Library. Laura Sullivan, Archivist, Special Collections, University Library was present to accept the donation.



Craig Stark presented to Laura Sullivan the diploma and certificate for Arvil Stark.

Sticks Atrium Tree Addition



GIFT/PLEDGE FORM

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OUTRIGHT CONTRIBUTION

- Check enclosed (*payable to ISU Foundation*)
- Charge this gift to my/our credit card (**signature required*) MasterCard Visa Discover
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- Signature _____ Date _____

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Greetings Alumni

