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URBAN AGRICULTURAL EDUCATION

Looking Back to Move Forward

By Harry N. Boone, Jr.

The decade is the 1910s. The United States is entering the final stages of World War I. Big open-g geared gas tractors were introduced in areas of extensive farming. By the end of the decade enclosed gears had been developed for the tractor. Farmers make up 31% of the labor force and 138 acres was the average size of a farm (United States Department of Agriculture (USDA), 2005.).

Let's jump forward to the last decade of the twentieth century. Farmers make up 2.6% of the labor force. Information technology and precision planting has increased in the United States. Biotech crops are available commercially. Agricultural exports account for 9.5% of all United States exports. Farm families make up less than 10% of the rural population. In 2000 the United States Department of Agriculture unveils standards for organic products (United States Department of Agriculture (USDA), 2005.).

In 1917 the Smith-Hughes Vocational Education Act was passed to encourage the expansion of agricultural education in high schools. One of the targets of the legislation was persons over fourteen years of age who have entered upon or who are preparing to enter upon the work of the farm or the farm home. The results were the expansion of vocational agriculture programs in the United States and the organization of the Future Farmers of America in 1928.

Based on the facts presented in the first two paragraphs, agricultural education programs should have joined the dinosaurs and dodo birds on the list of extinct species. As the readers are well aware, that has not happened. Agricultural education is

alive and functioning in over 7,500 high schools (based on 7, 498 FFA Chapters) across the United States, Puerto Rico and the Virgin Islands (National FFA Organization, n.d.).

Agricultural education has remained a vibrant organization by adapting to the changes in the agricultural industry. The farm population dropped from 31% of the workforce to 2.6%. Agricultural education leaders realized that while the number of farmers was decreasing, the number of employees who required knowledge of the agriculture industry was increasing. The solution was to expand the mission of vocational agriculture to embrace these individuals.

In 1988 the authors of *Understanding Agriculture: New Directions for Education* (National Research Council, 1988) called for increasing the number of urban agricultural education programs. This challenge has been embraced by the profession and we have a number of urban programs in the United States. While there have been numerous success stories, there is still a tremendous untapped potential for the expansion of urban agricultural education programs.

This issue under the direction of Theme Editor, Nicholas Brown explores the success of the urban agricultural education program. You will have the opportunity to read about a number of successful programs and learn what aspects of their programs have led to their success. I hope that you enjoy the efforts of these individuals willing to share the secrets of their successes.

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Change of Address

The November December Theme Editor, Dr. Amy Smith has a new address. If you are interested in writing an article for the “**Keeping the Home Fires Burning**” issue please contact Dr. Smith at the following:

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Articles and photographs should be submitted to the Editor or Theme Editor. Items to be considered for publication should be submitted at least 90 days prior to the publication date of the intended issue. All submissions will be acknowledged by the Theme Editor and/or the Editor. No items are returned unless accompanied by a written request. Articles should be approximately four double spaced pages in length (1500 words). Information about the author(s) should be included at the end of the article. Photos and/or drawings appropriate for the “theme issue” are welcomed. Photos/drawings should be submitted in an electronic format (jpg or tiff format preferred – minimum 300 dpi). Do not imbed photos/drawings in the Word document. A recent photograph (jpg or tiff format preferred– minimum 300 dpi) of all authors should accompany the article unless photographs are on file with the Editor. Articles in the *Magazine* may be reproduced without permission but should be acknowledged.

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Bridge Builders Needed!

by Nicholas R. Brown

I spent the first 14 years of my life on a small family wheat and cattle operation. During elementary school, I dreamed of one day being old enough to be an *Ag Boy* and wear one of those cool FFA jackets. Well, to make a long story short, my country-boy dream was derailed by a

structuring the small program. During my tenure at Jenks High School, the program doubled in enrollment and a second teacher was added. Courses like agricultural mechanics were replaced with a modified power and technology course, locally titled *Home Improvement*, and FFA chapter activities were designed to reflect daily interests of my urban students.

familiar with agricultural education, envisioned creating science courses focused on horticulture and urban gardening and possibly creating a student club to reinforce the courses. Sound familiar? Sounds like school-based agricultural education to me. An administrator at the district level, who happened to be a former agricultural education instructor, became aware of the plans and quickly guided stakeholders to consider launching a new agricultural education program. This bridge builder was a key contributor to the successful creation of a new program. In fact, it is reasonable to assume the agricultural education program would not be in place today if the bridge builder had not provided the link needed to connect interested stakeholders with our program. I believe urban America is the next frontier for school-based agricultural education. I challenge you to be a bridge builder in your state!

Urban America is the next frontier for school-based agricultural education.

family crisis and I eventually found myself enrolled as a junior high student in a large urban school district in the Tulsa, Oklahoma metropolitan area. I thought my dreams of being engaged in agriculture were gone until I discovered my high school had an agricultural education department. Although I was actively involved in the program and had an excellent experience, I could not help but notice my urban program was not that different from rural Oklahoma agricultural education departments. In fact, this bothered me because I understood my new city friends and knew they had different interests than the students I grew up with in rural Oklahoma. Bottom line: The program had modest success, but it could have been much more effective if some traditions were changed and courses were aligned with the interests of urban students.

I eventually graduated from college and went back to my hometown to teach high school agricultural education. It was my goal to focus on the urban community and to start re-

For example, our FFA officers created a skateboard tournament at a local skate park to replace one of the more traditional items on our program of activities.

My experience as both an agricultural education student and teacher has guided my research as a university faculty member. As a result, I am committed to researching urban communities, schools, and students and disseminating information to agricultural educators and school administrators that will help aid the efforts to expand and strengthen agricultural education in urban America. Which brings me to my main point - a colleague and I recently conducted a case study in an effort to discover and report the process that unfolded when a new agricultural education program was added in an urban Oklahoma high school. We found that a *bridge builder* (Brown & Kelsey, 2012) must make urban school administrators aware of agricultural education. In this particular case, community leaders and high school administrators who were not

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Should It Really Matter?

by Marshall A. Baker

A small community in rural Eastern New Mexico is very proud of their local agricultural education program. It was established in 1935, has trained hundreds of local farmers', and is continuing to train those farmers' children today. The current program is closely connected to the local dairy industry, and as such, has been competitive nationally in the Dairy Evaluation Career Development Event (CDE). The Ogallala Aquifer, and the water it provides to the community, has become a huge issue for both the town and the agriculturists. Students are exposed to this valuable resource through conservation curriculum, and a number of students have presented speeches, agri-science fair projects, and agricultural issues presentations to the local civic clubs on these issues.

Two hundred miles west, on the dry side of the Sandia Mountain Range, lies another agricultural education program established in 2009. It serves students in an urban area of New Mexico and is housed in a large, 5 acre, 2,500-student high school. When the school was being designed, the citizens expressed a desire to have a program focused on sustainability, as resources are scarce in this area. The Rio Grande river runs near the school and has been a topic of hot environmental debate. Erosion is rampant as construction floods into the area. The agricultural education program is housed in an "Environmental Academy" and students are active in the wildlife, forestry, and public speaking CDEs. The agricultural education program has partnered with the National Forest Service where they hike the Sandia Mountains, discuss local ecology, and help deal with the new and increased risk of rampant

wildfires. The community is not very familiar with the blue corduroy jackets, but they love what the students wearing them are doing.

These two agricultural education programs, though placed in very different communities, are both successful in advancing the mission of agricultural education. Though it is very important to dedicate time and resources to developing urban agricultural education programs, so long as a program is connected to the local community, and the issues of concern therein, *does the size of the city really matter?*

Place-based education (Sobel, 2004) is the antidote to boring, unconnected, text-book learning that plagues classrooms across the nation. Sobel (2004) defines place-based learning as,

the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum. Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organizations, and environmental resources in the life of the school. (Sobel, 2004)

This definition, though not created by those in agricultural education, seems to fit the aims and purposes of the program very well. Most importantly, this approach does not differentiate between urban and rural areas – it only requires education in the context of a community. Agricultural education is viable in all community settings if designed by this standard.

Place-based education requires a paradigm shift of how agricultural educators view curriculum. First, the instruction must be seen as fundamental to the residents of communities from all social classes and backgrounds. Instructors should ask, "does this topic and our work matter to citizens of this community?" Second, the program should be based on the identification and investigation of problems by residents themselves. Student work should serve as action research that will directly solve community problems and/or questions. Finally, classroom instruction must be included, but be directly related to the local community (Hart, 1997). Why would a program use a textbook that discusses native plants in Ohio when there are New Mexican native plants twenty feet outside the classroom window? "You learn so you can make a difference here and now" (Sobel, 2004, p. 12). Figure 1 provides an example of how place-based education looks in the two agricultural programs described earlier.

Place-based education calls for no two programs to be identical, as no two communities share identical problems and concerns. This approach allows agricultural education to be viable in every single community in America – all that is needed is a school and some problems.

So there you have it – we have collectively solved all the challenges

Component of Agricultural Education Program	Rural New Mexico	Urban New Mexico
Classroom Instruction	Instruction is tied to: <ul style="list-style-type: none"> • the dairy industry and current water pollution issue. • Processes of the dairy foods processing plant. • Alfalfa, peanut, wheat, cotton, corn, and sorghum production. • Beef processing debate at local Excel Processing Center. • Welding skills for local irrigation needs. 	Instruction is tied to: <ul style="list-style-type: none"> • Polluting of the Rio Grande River. • Erosion of arid land around the Albuquerque region. • Ecosystem degradation of the Bosque caused by urbanization. • Local farmers market production, marketing and safety. • Forestry disease and fire threat issues.
Supervised Agricultural Experience Programs	Dairy Production Meat Processing Placement Ag. Mechanics Placement Agricultural production of local crops Local fertilizer dealer placement Dairy foods plant placement Beef Production Forage Production	Placement with local water authority Environmental Science and Natural Resources Outdoor Recreation Landscape Management Forest Management and Products Wildlife Production and Management
FFA Activities	Star Farmer Public Speaking – Human Slaughtering Practices Dairy Evaluation CDE Milk Quality and Products CDE Beef Evaluation CDE Agricultural Issues CDE – Ogallala water resources Agricultural Mechanics CDE	Star in Agriscience Public Speaking – Bosque Ecosystem Concerns Agriscience Fair – Water Quality Wildlife CDE Forestry CDE Entomology CDE Nursery Landscape CDE
Community Outreach	Actively working with local dairy processing plant, beef processing facility, dairy producers, farmers, and water ecologists to engage in action research of local problems.	Actively working with National Forest Service, local environmentalists, farmer market producers and consumers, and area housing developers bound by arid landscaping covenants.

Figure 1: Agricultural Education Programs in Rural and Urban Settings

associated with starting urban agricultural education programs through place-based education! Not quite. Though this approach provides an answer to the question, “Is agricultural education appropriate for all communities?,” there remains a few key challenges.

Challenge Number One: The dog actually has to wag the tail.

Place-based education requires that the context of the community determine the curriculum, not a common curriculum or teacher expertise. So many times, the focus of an agricultural education program depends upon the expertise and preference of the teacher, as well as the traditional focus and programming of a state. This “tail wagging the dog” approach causes an urban program to be irrelevant to the community and stakeholders. As an agricultural educator it is important to ask, “Am I creating a program that fits the community, or one that fits myself?” This has important implications for teacher education as well. Are we training teachers that can fit a number of contexts or producing a fairly homogenous army of agricultural educators built for rural communities?

Challenge Number Two: And the winner is...

As an agricultural educator, I always dreamed of winning the “sweepstakes” award. That would solidify my place among the great agricultural educators. However, I quickly found that students in my urban program were simply not interested in, and in fact laughed at, the livestock evaluation CDE. It hit me – I would never win a sweepstakes award if I remained true to the needs of my community and students. As an educator, I knew a great deal about giving livestock reasons, but I knew little about forestry. I had to step out

of my comfort zone, seek other expert teachers, connect with the National Forest Service, and learn those concepts and skills *because my community demanded that skill set to solve local problems.*

Further, we as an organization must ensure that our award structures support a relevant, place-based, community centered program. For example, after teaching students about the “premier” awards offered by the National FFA Organization, one student asked, “When can I fill out an award application for that award? Do you think I could ever win that?” Though I let the student know anything is possible, I knew the truth was that the student’s back yard gardening project would never advance past the state level because it had inadequate “size and scope.” If the American Star Farmer award was truly based on knowledge gained, hard work and effort, and contribution to the community, this student would have had a chance. Bottom line that award is built for those in a more rural setting. Is that adequate and what message does that send?

Challenge Number Three: Are we really willing?

Agricultural education, nationally, remains rooted in the traditions enacted by 33 farm boys in a hotel in Kansas City. As a teacher in downtown Indianapolis, IN, I asked my students if they wanted to visit the National FFA Convention that was being held five minutes from our school. I received a resounding, “No!” It did not fit their culture, clothing style, interests, community problems, or social structure. Paulo Freire (1970) shared that, “to affirm that men and women are persons and as persons should be free, and yet to do nothing tangible to make this affirmation a reality, is a farce” (p. 50). So many in agricultural education discuss the

need to diversify, but have we taken action to really open our program to all? At first glance this sounds easy, but think deeper. Are we willing to change some of the traditions, rooted in rural sociocultural norms, that we hold dear to truly include, not accommodate, students in non-traditional, urban settings? Are we willing to rethink official dress, genres of music showcased at our conventions, award rubrics that favor wealthy rural farm owners? I love this organization and only share this to push us to think. It is my hope that we are not a farce, as Freire described!

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Teaching the Science and Technology of Agriculture and Its Resources to Urban Students

by Jerry L. Peters and B. Allen Talbert

Cows, plows, and sows? Cells, Dells, and gels? Beakers, bytes, and broccoli? Does Agricultural Education fulfill a need for urban secondary students?

Twenty-five years ago *Understanding Agriculture: New Directions for Education* (National Research Council, 1988) called for increasing the number of urban agricultural education programs. In 1991, *Understanding Our Food, Agricultural and Natural Resources System: The Strategic Agricultural Education Plan for the State of Indiana* (Agricultural Education Strategic Planning Committee, 1991) called for magnet schools in agricultural education. In Fall 1994, Indiana answered those calls with the first class of students in the Indianapolis-based STAR Academy (Science and Technology of Agriculture and Its Resources).

As an Indianapolis Public Schools Agricultural Magnet the STAR Academy was created to prepare inner-city youth for a new agriculture -- an industry of new technologies and emerging job opportunities. The program, housed in a comprehensive high school, was designed to provide real-life application for academic subjects, establish high expectations for all students, and provide for a global understanding of agriculture. Based on a magnet-school model, students applied to be a part of STAR Academy, had to be in the upper 50% of their class, and be recommended by a teacher or counselor. The STAR students took their

academic courses together, which allowed teachers in the core subjects such as English and math to base their assignments around agricultural topics. Various FFA events, such as public speaking, could also be integrated into non-agriculture courses. A key collaboration involved a science teacher who was so excited about agricultural education and FFA that he became involved in advising FFA and

the scenes” as the researchers, developers, brokers, and major decision-makers of the future of the agricultural industry to assist with:

- assessing employment potential and possible support from related businesses and industries,
- determining the major focus of the magnet program, and

Agricultural education does fill a need for urban secondary students.

summer SAE activities. Collaborative relationships with outside groups included a park within walking distance of the school that provided for instruction in horticulture, landscape management, and natural resources. Another was with the Indiana State Fairgrounds. Over its almost 20 year history, STAR Academy has provided urban students with a variety of agricultural opportunities.

Several lessons regarding urban agricultural education were learned from the early years of STAR Academy. It is key to involve all stakeholders in planning, funding, and advising the program. The local school district and local school administrators must be supportive of this effort. They control the day-to-day operations, facilities, student recruitment, and curriculum decisions. Without their support, programs struggle to reach their full potential. A second key stakeholder is local influential agricultural leaders in business and industry. Leaders from this group should focus “behind

- identifying members to form an on-going advisory committee.

They must be supportive of the impact the agricultural education program will have on the community. They must realize that agricultural education can provide a trained workforce either upon high school graduation or after post-secondary education.

A functioning advisory committee to assist with designing the instructional program, identifying student and teacher internships and mentoring experiences, designing appropriate laboratories, identifying appropriate resources, such as equipment, materials, staff on loan, designing curriculum, acquiring sponsors for student college scholarships, seeking external funds and resources is critical for the long term success of a program. The advisory committee cannot be just on paper. They must be given a mission and charge and utilized to aid in program effectiveness.

Finally, state government agencies and agricultural university(ies) can provide advice, support, training, and funding. These services are critical to help provide trained staff to work in an urban environment.

Construction of new facilities allowed the program to expand its offerings and emphases. Aquaculture tanks, greenhouse space, and a food science lab enhanced the curriculum and allowed STAR students to see even more of the opportunities in agriculture. Again, local business and industry played a role as they provided surplus equipment, funding for curricular materials and participation in leadership experiences and opportunities for student SAEs. The city codes of Indianapolis allow chickens, goats, and rabbits to be raised within city limits. So, one of the STAR agriculture teachers introduced goat production as a way to bring production agriculture into the urban environment. Students actually enjoyed raising and caring for the animals. Another project was coordinated with Global Peace Initiatives of Indianapolis (2010) for raising chickens. Along with learning about sustainable agriculture, STAR teamed with Global Peace Initiatives to host several public discussions about urban farming (L. Proffitt, Personal Communication, November 27, 2012).

The most recent change was forced upon STAR Academy due to its host school's underperformance in state high-stakes tests. The Indianapolis Public Schools moved STAR Academy in 2012 to a new home at Arsenal Tech High School. The management company contracted to takeover Manual High School, STAR Academy's first home, decided to keep agricultural education and start a new program for the students remaining at Manual High School. STAR Academy at Arsenal Tech High School has the opportunity to

team up with the New Tech High program, which may open additional opportunities for students. New Tech High at Arsenal Tech is a member of the national New Tech High network and most of the STAR students that moved from Manual take their core classes there. The New Tech High model pairs courses together in a block schedule and STAR is looking at pairing Freshman Fundamentals with Biology and potentially other combinations.

A new school brings new administrative focus, new business and industry partners, and the opportunity to recruit students attending the new school. For example, with community support and guidance from Global Peace Initiatives of Indianapolis (2010) STAR Academy is working to emphasize urban gardening, which can help with food security and healthy eating. These efforts are educational, agricultural, and entrepreneurial. School gardens, raised beds, and the greenhouse are used for vegetable production, which is then sold at a school-based farmers market. Plans for future years are to utilize vacant lots in the neighborhoods around the school for urban gardens.

Let's revisit the initial questions. Cows, plows and sows? For the STAR Academy production agriculture is not traditional, large-scale enterprises found in rural agriculture. Instead it introduces urban students to agricultural production that can be done in an urban environment such as greenhouse, aquaculture, "urban animals," and urban gardening production. Cells, Dells, and gels? Throughout its history STAR Academy has been fortunate that its corporate partners have donated or provided funding for computers and related technology. It has also maintained a science-focus incorporating biology, chemistry, and genetics into its curriculum. Beakers,

bytes, and broccoli? Yes, agricultural education does fill a need for urban secondary students! Learning agricultural science aided by technology using a context urban students can relate to is working at STAR Academy.

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First Year Urban Agriculture Teacher's Program Philosophies

by Michael Martin

I remember my anxiety during the first week of class at Urbana High School. I was a rural kid fresh out of college starting a new program in an urban area. I would be teaching students that knew very little about conventional agriculture. Half of the students had a different skin color than me. I did not have a grand vision for the program. I knew that the learning curve would be huge. I feared failing. The first year at Urbana was long and tiresome, yet ultimately, it was one of the best of my life.

Once the students bought into my program, they would not let me fail. The students and I built a program of over 100 students and had a very active FFA chapter. Our accomplishments included becoming a three-star FFA chapter and every agriculture student was a FFA member (FFA membership was not mandatory). I am proud to say that agriculture education and the FFA can and does work in urban communities.

Teaching agriculture in an urban area can be a daunting challenge for those of us accustomed to rural communities. Working with students that are culturally diverse is challenging. Despite these cultural differences, an agriculture teacher raised in rural community can have great success in an urban agriculture program. My success stemmed from a few basic philosophies about students. They included: engaging my students as much as possible, building the program around students, and giving them my time. I know that these student-centered philosophies helped

my students, program, and chapter achieve great things. My philosophies for teaching urban agriculture are best explained by telling some of the stories from my first year.

Do Not Bore Students, Engage Them

I asked two questions of lessons I developed. Will the lesson engage students? Does the lesson bore me as the teacher? I never thought of myself as an entertainer; learning must come first. However, I wanted to excite my students to learn. I believe that active and engaged students will naturally be more excited about learning. I learned this lesson the hard way during my first semester.

My first semester of *Introduction to Agricultural Mechanics* had to be in the classroom for an extended period of time because of broken shop equipment. I attempted to teach agricultural mechanics like I had experienced it in my home agriculture program. Students took notes, read from the book, and went through PowerPoint presentations. Students had to remain seated during the class period. I described shop time as a privilege of being a good student in my class. My students hated it and they started to take it out on me. All of us were counting down the weeks until the course would end. Thankfully the course was only a semester long. When the students finally got into the shop they were still not engaged. I decided that this course had to be drastically different in the spring semester.

The fall semester finally ended and a new group of students were enrolled for the same course in the

spring. I changed the curriculum drastically. The students spent as little time sitting in the classroom as possible. Even the safety instruction occurred in the shop with hands-on instruction. I did not have them read from textbooks when they could just as easily learn it by doing. Seat time was utilized to talk about daily expectations and illustrating examples of tasks students would be doing that day. Shop time became the right of being enrolled in the class. I incorporated students' ideas into the curriculum. They were encouraged to talk and work in groups on projects. I also experienced sore feet at the end of the day, but it was worth it!

The results seem obvious now; students were engaged and enjoyed the class. They became like worker bees in a beehive. My discipline problems in the second semester shrank from ten referrals to just one. We all wished the class would last an entire year and not just a semester. I adopted these same types of activities in my other classes. I am a firm believer of student-centered strategies and that they are important to an agriculture program of diverse students (Banks & Banks, 2010).

Build The Program Around Students

Our FFA chapter had a hard time attracting members that fall. The chapter only had five members by the end of October and I had run out of sales pitches. My before school FFA meetings with free donuts and juice had flopped. No one seemed interested.

I decided to do something out-of-the-box. I asked students in my

classes what they considered a fun activity. Almost all of the students talked about playing sports and video games. I took that suggestion back to my five FFA members and we planned a Madden Football tournament to be played on a PS3. The first Urbana FFA fun night was a huge success. Ten students joined the FFA for that event alone.

The FFA chapter gained momentum and confidence. The fun nights developed an identity for our chapter. The Urbana FFA hosted monthly fun nights for the next few years, which included Mario Kart, Wii Bowling, Call of Duty, softball, chess, bowling, and volleyball. The fun nights were always the most attended FFA events. The fun nights became a corner stone of our program of activities. Most importantly, students valued fun nights. The members that regularly came to fun nights were members that usually did not participate in Career Development Events nor had a leadership position in the chapter. They needed experiences that aligned to what they valued (Vang, 2010). The FFA chapter found success by building FFA activities around students' own interests.

Your Time Is What Students Value The Most

I had an open door policy for students. If I was in my room working, they could be there working as well. By December students started showing-up in my room in the morning. At first it felt like I was collecting stray students. They would just sit in a desk as I worked. I felt like this was a waste of our time. They were here for a reason, I wanted to make this time productive. The students started to work on shop projects and FFA activities. I learned how to eat my lunch, prepare for class in the morning, and relax while working in the shop with small groups of students.

The students needed this time. My room became a haven for them. This is how I met Samantha in March.

Samantha was not enrolled in an agriculture class. She heard from her friends about this teacher that let students hangout with him before school. Samantha walked in the room unaware of what students did in the program. She sat down and watched us work. After a week of being a guest in our classroom I began to recruit her. We talked about her interests and I realized that Samantha had amazing abilities and an interest in agriculture. Samantha had been part of a minority program at the University of Illinois that gave her the chance to work with faculty from the Veterinary College. She loved small animals. I talked to her about the opportunities in my class and the FFA. She took to agriculture and the FFA immediately. She volunteered to help with our last few FFA activities of that year. We worked out a plan for her to become enrolled in the program for the next year. I wondered why no other club advisor at school had scooped her up.

Fast-forward two years and Samantha had become a vice-president of the FFA chapter. She won a section proficiency award, placed in Career Development Events, and earned a trip to Washington D.C. for her work in our chapter cooperative. My open door policy for students allowed Samantha to literally walk into our program. Most students need someone to care about them (Ladson-Billings, 1994) and Samantha just wanted someone's time.

Final Thoughts

Teachers from rural backgrounds can become good urban agriculture instructors and FFA advisors, though there are still limitations (Marx, 2008). I did not become culturally competent by teaching diverse stu-

dents and I still struggle with my own culturally identity. Culturally relevant instruction is a continual challenge for teachers in diverse classrooms. I always lobby for agriculture teachers to think like their students, design programs around students, and believe in the unlimited possibilities of agricultural education. Agricultural teachers should not back away from this challenge. Students in urban communities need agricultural education.

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Interview With An Urban Agriculture Educator

by Chaney Mosley and Kay Lawrence

Twelve years ago, as I graduated from college and searched for an agriculture teaching position, my mom was very skeptical of my desire to move to and teach in an urban area. I remember her comments when I mentioned Atlanta or Miami as possible cities to where I might move. “You’ll deal with drug problems and you’ll get shot!” she told me, and then asked, “Do they even teach agriculture in big cities?” Now, as the CTE Director for the Metropolitan Nashville Public School (MNPS) system, I can say, “Yes, mom, they do teach agriculture in big cities, as they should!”

MNPS is the 41st largest system in the country and three of our high schools have an agriculture program. This article highlights the agriculture program at John Overton High School (JOHS) in Nashville, TN. JOHS is home to around 1,700 diverse students. In this one high school, student birth records represent 64 different countries and 39 different primary languages are spoken. The top five primary languages at JOHS are English, Spanish, Kurdish, Nepali,

and Arabic. The program at JOHS has an Urban Agriculture pathway where students explore principles of agriculture applicable to urban settings including horticulture, gardening, hydroponics, and sustainable agriculture. Through an interview with the agriculture teacher at JOHS, Mrs. Kay Lawrence, we address challenges and opportunities associated with urban agriculture education.

What do you enjoy most about teaching in an urban program?

The best part of teaching in an urban program is that I can teach students skills in the outdoor setting and provide information that they can take home and use immediately - life application. Some students already have gardens and will ask questions regarding problems they had in the past. Some are thinking of expanding their growing areas and are curious as to what they can add to enhance their already existing garden. What I teach is immediately relevant to many students and they appreciate that.

What are the biggest challenges you face with teaching a diverse student population?

The biggest challenge I face is the language barrier. Thankfully I have many students that are fluent in their native tongue as well as English. Translators are invaluable in our culturally diverse classrooms. I set the tone of the classroom with an up beat positive attitude every day we are together and my attitude reflects the attitude of each

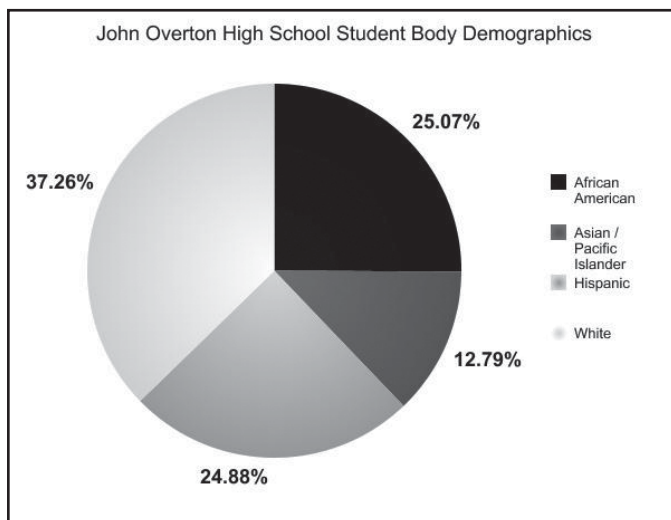
class. Another challenge is helping students gain work-based experiences in agriculture. Problem solving skills are imperative, so I try to recreate business scenarios that will provide students with some degree of experience in related business practices.

What are the biggest challenges associated with teaching a large population of English Language Learners (ELL)?

Beyond the obvious communication barrier, ELL students are frequently not familiar with basic concepts used in class, so extra demonstration is required. This serves as a good opportunity to refresh the memory of other students. While translators provide a lot of assistance, most student projects are team based. Students learn extremely well from their peers, especially our ELL students. To better facilitate project-based learning, my classroom is organized to foster a collaborative environment. There are no straight rows or desks - all students sit in groups of four, which allows for intentional grouping of students.

How does student culture impact what you do in the classroom?

When sharing information in the classroom, I encourage anyone who feels comfortable speaking to share his or her thoughts. I try to keep an open mind and listen to the students when they speak. If I am not familiar with the information they are sharing I ask questions until I am clear on their views. In our school-based community garden and greenhouse, culture drives crop production. Students are encouraged to grow and maintain culturally relevant food plots, which provide students and their families with access to local, affordable, nutri-





from a partnership with the Nashville Beautification and Environment Commission. A partnership with Gardens of Babylon, a local eco-conscious garden landscape

tious food options. This gives all students access to an SAE and creates an opportunity for family engagement.

How do you ensure a respect for diversity in your classroom?

To ensure respect of all students, I do not allow any derogatory comments about anyone. When negative comments surface I remind the students those comments are not acceptable. Learning styles are assessed the first few weeks of school so that I can tailor instruction to meet the individual needs of students. I utilize discovery and inquiry-learning methods so that teaching is student centered. Also, we are currently altering components of the greenhouse to ensure that our facilities meet the accessibility standards for accessible design addressed in the Americans with Disabilities Act.

How is the community engaged with your program?

The community is engaged by providing opportunities for field trips, guest speakers, and job shadowing to my students. Recently the students visited the Opryland Hotel to see the possibilities of interior plantscaping. Students have learned the techniques and benefits of composting

company, allows us to get seeds for our garden. We are beginning a partnership with the Center for Social Justice at Trevecca Nazarene University here in Nashville, using the university's expertise in gardening and aquaponics to assist and advise our high school program.

What are college options for your students?

Presently our students have the benefit of dual credit/dual enrollment through Middle Tennessee State University, which offers Greenhouse Management, or Nashville State Community College, which offers Greenhouse Management and Landscape & Turf Management. These options create a postsecondary education pipeline for students interested in pursuing a two or four year degree. In addition, Tennessee State University here in Nashville offers undergraduate and graduate degrees in agriculture.

Implementing an agriculture program in an urban setting certainly comes with challenges; however, a few practices can ensure success of an urban agriculture education program. System and school level administration must support the pro-

gram, structurally and financially, and want the program to succeed. The coursework offered should be relevant to students, showing immediate application and demonstrating local career options through business partnerships. Postsecondary partnerships are critical as well when creating a college going culture for diverse student populations. Finally, the teacher must be culturally sensitive and culturally aware, as Mrs. Lawrence is, and this sensitivity and awareness should manifest daily through lesson planning, teaching, and teacher-student and teacher-family interactions. When programs are aligned with local industry/business, community, higher education, family, and school goals, students in urban agriculture education programs have a community where they are supported and a network of personal and professional contacts that want them to be successful.



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Kay Lawrence is an Agriculture Teacher at John Overton High School, Nashville, TN.

How Do You Engage Youth in Urban Agriculture Activities?

by Heather Miller

As a formal and informal educator, I find that there are many ways to inspire the youth of today... and they won't even realize they are learning about AGRICULTURE! Even in communities that are surrounded by livestock and row crops our children (and their parents) are often disconnected from the role that agriculture plays in their lives. It is important to engage youth with agricultural education activities because we are no longer an agrarian society and thus, most children are now several generations removed from the valuable lessons learned by living on a farm. However, we as educators can bring agriculture to them through classroom activities, service learning, and field trips! This article will share some urban agriculture activities used successfully with various groups and may be adjusted to fit your needs.

To insure we have a society of knowledgeable citizens regarding food, fuel, fiber and other important aspects relating to agriculture and natural resources, I contend we need to engage youth at an early age—I start locally with children in kindergarten. Children need to be taught that agriculture is more than “sows, cows and plows,” and even more importantly, that there are many viable career opportunities in the agriculture industry. Educators can play a key role in cultivating interest in a particular field of study, and agriculture is no different. We need to help in the development of a viable pipeline of knowledgeable people pursuing agriculture careers (and allied fields).

However, we don't have to do this alone as there are so many wonderful resources that can be utilized both in formal and informal education including technology, local speakers, industry representatives, and other educational organizations.

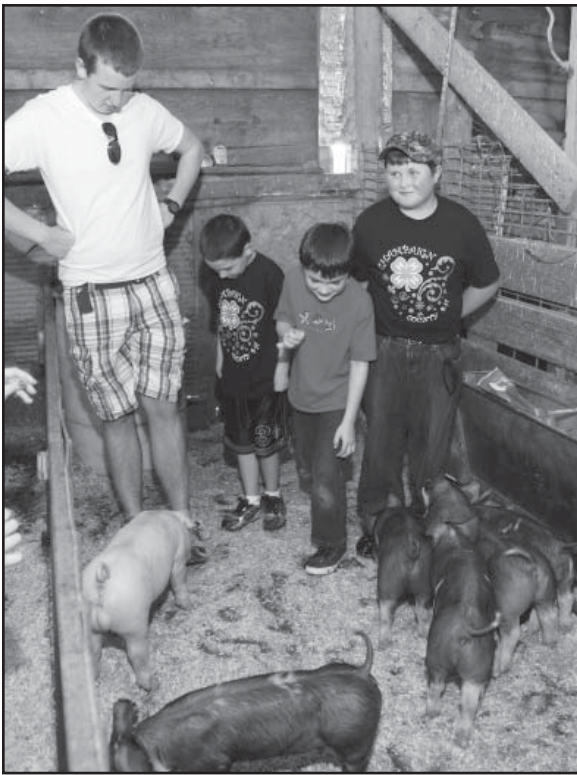
I utilize hands-on activities as much as possible because children learn so well through “doing.” This can be as simple as the growing of a bean or corn seed between two wet paper towels to demonstrate germination and how a plant grows. Two very successful hands-on activities I volunteer to help with at local elementary schools are outdoor “Learning Gardens” and the utilization of *Ag In the Classroom Agriculture Magazines* connected with associated classroom lab activities.

The “Learning Gardens” are something that the entire school can get involved in! I first started helping at my son's elementary school where they had two courtyard areas that were in desperate need of some care. My background and connections in the crop and horticultural industries led me to partner with the local Extension

Master Gardener organization and a local developer to help get these gardens going through a small financial grant and volunteer manpower. The goal was to improve them so they could be utilized as part of the curriculum. I spoke with teachers at each grade level about the science activities they cover to determine a design for the garden to generate optimum use upon completion. For example, the kindergarten teachers are required to teach about “The Farm” as part of the Illinois learning standards—this was an easy one! We put in an area to grow vegetables within one of the courtyards and called it the “KINDER-GARDEN.” The children plant lettuce, radishes, carrots and tomatoes and help take care of the garden and watch it grow. They harvest it and taste what they have grown by making a salad they can eat. Not only does this show them how their food grows and teaches them responsibility of caring for a garden, but also



The Learning Gardens have staked description labels next to all the plants (just like one would do at an arboretum) and included the name of the plant, color and habit of the plant and height.



Educators can bring agriculture to youth through classroom activities, service learning, and field trips!

teaches them healthy eating habits. Natural resources is also part of the K-5 curriculum in Illinois so we have a native prairie plant area in one of the courtyards for the third grade curriculum on “Illinois Prairie Plants.” This includes a pond that provides support to native Illinois wildlife (a painted turtle, several box turtles, toads, etc.). Also included in many areas of the courtyards are perennials, bulbs, and flowering shrubs for the 2nd and 5th graders that study varying aspects of plant growth and development. I tell the students that gardening is simply miniature farming!

“Learning Gardens” can be as large or small as your organization/school can support both financially and through manpower. Often times you can partner with other organizations in support of such a worthy cause from a local garden center to a high school volunteer group that needs some community service hours.

The key to proper utilization of the gardens is working directly with teachers even beyond traditional agriculture on how it can be used. Even the art teacher got involved after the gardens were improved and taught students how to free-hand draw flowers. The school literacy coordinators also use the gardens as ways to get children that have learning disabilities to read. We put staked description labels next to all the plants (just like one would do at an arboretum) and included the name of the plant, color and habit of the plant and height. Children would willingly go from plant to plant learning about the plant itself and how it was used (thus learning horticulture) and not even notice they were practicing reading. These gardens have so

many ways to get youth interested in nature, agriculture, horticulture, and wildlife while also working on other skills such as reading, math, art, etc.

Those of you looking for some excellent teacher resources should look to the Ag In the Classroom Organization (<http://www.agclassroom.org>). Each state has a state level unit as part of this national program run through the U.S. Department of Agriculture. As an example, the Illinois Ag in the Classroom unit has created many *Ag Mags* that I utilize frequently for in-classroom activities with K-8 age groups. These *Ag Mags* have been created to correspond to the Illinois learning standards so that teachers can utilize them as part of a standardized curriculum. I often volunteer to give presentations to classrooms using the pumpkin *Ag Mag* in the fall, the Tree *Ag Mag* on Arbor Day or Earth Day, and the Pizza

Ag Mag during National Agriculture Week (<http://www.agday.org>). Students are always curious about what an “Agriculture Pizza” is! Each of these agriculture magazines have interesting facts, good explanations of the topic, great photos and activities built into them that teachers could easily use in an urban community. Additionally, many classrooms today are connected to technology including smartboards—many of these agriculture magazines are easily downloadable (and many in print form as well) to use interactively on a smartboard! Youth today want “entertainment” so the interactive capabilities of these types of resources really keeps children engaged on the agricultural topic.

Recently, I spoke to a group of eighty high school students from an urban community during an event intended to introduce them to agriculture industry and agriculture sciences. As one of the guest speakers, I presented a lab that is typically conducted as part of the Introduction to Horticulture course at the University of Illinois. I selected this lab specifically because it is a hands-on activity that would get them actively engaged with an agricultural crop in which they are already familiar. I have found this method to be highly successful in bridging the gap with urban audiences. This activity is affectionately called the “Apple Lab” and is a favorite of students at the University of Illinois (taught by Dr. Robert Skirvin). The “Apple Lab” consists of telling the history of the apple as an agricultural crop, breeding, growth and development and production. Students then are given a worksheet where they are provided with the names of all the apples available for the lab for tasting. They taste samples of each apple cultivar, rank them on taste, color, texture and desirability. Students then discuss the different

cultivars including why they liked or disliked a particular apple. While this may sound simplistic, most students would never have the opportunity to try 20 different cultivars of apples all in one spot. After this lab they are a much more knowledgeable food consumer. They may be more likely to select an apple as a healthy snack if they have a favorite cultivar identified. They also learn about an important agricultural crop.

Lastly, as an Extension 4-H club leader, I also encourage the implementation of informal agriculture education opportunities as part of regular club activities. As a leader of a club in an urban community, exposure to traditional agriculture is limited for most of the members so I arrange for field trips to local farms and agri-businesses to learn about different aspects of agriculture. Service learning activities are also popular with 4-H clubs and can be connected easily to an agricultural education application. The members of my club this year voted to grow a “hunger garden” as a community service activity. The members chose to take on this long-term project so they could make an impact on hunger in our community by growing food for the local homeless shelter/soup kitchen. We received a small grant from a local agribusiness and rented a garden plot through the city park district garden program and the garden was planted by members and their families as a group activity. Each week throughout the growing season a different 4-H member and their family volunteered to care for the garden, weigh, clean

and deliver the produce to the homeless shelter. The club “hunger garden” generated approximately 366 pounds of vegetables comprised of tomatoes, zucchini, green peppers, radishes and cucumbers. While the homeless shelter benefitted directly from the crop grown, each 4-H member gained significant knowledge about crop production and care, and learned the importance of responsibility and helping those in need—all through an urban agriculture application.

Urban youth appreciate fun and interactive ways to learn, especially about topics in which they are unfamiliar such as agriculture. They won’t gain an accurate picture about agriculture through online games like “Farmville,” but thankfully educators have many resources at their disposal to help share the agriculture story. Because we must work doubly hard to create curiosity in the agriculture sciences to an audience disconnected from the land, a quote by Clay Bedford frequently cited by educators rings very true when teaching agriculture topics in urban communities: “You can teach a student a lesson for a day; but if you can teach him to learn by **creating curiosity**, he will continue the learning process as long as he lives.” How will you get urban students to appreciate agriculture?



The “Apple Lab” consists of telling the history of the apple as an agricultural crop, breeding, growth and development and production.



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Education is the most powerful weapon which you can use to change the world. Nelson Mandela

Eating Our Way to the Farm: How Food Can Teach Agricultural Literacy

by *Bethany Pratt*

Everybody eats; it may be the one universal among all people, no matter your age, height, ethnicity, gender, sexual preference, religion or hair color. However, not everybody knows where their food comes from. I often receive the response of, “it comes from the store,” when I ask my students where a particular food came from. The fact that whatever they are eating probably began outside, either in the dirt or walking on

easily be adapted to a school-based setting.

To give you some background, my students are all underserved inner-city youth who come to this afterschool program for a free meal and safe place before their parents head home from work. As a part of these services, teaching the students meal preparation has become a critical part of the programming. While we do not have the time or capacity for the kids to make the entire meal, they do prepare a snack for themselves one day

Currently, we are in the “cooking only” portion of our program, which is great because after eight months of cooking with all these foods, the kids will get excited about going outside and planting so they can eat some more.

With the help of the students, we have been planning our weekly menu. They provide us with ideas for foods to make, things like; pizza, chips (which we turned into kale chips) and pies have come up in conversation most recently. As instructors, we then take these ideas and figure out how to make them (or a close version) using local ingredients. This coming week, we will be making pumpkin pie from scratch using fresh pumpkin from the local farmers market.

The goal of each meal, is to take familiar foods (like pumpkin pie) and help debunk that myth that pie “comes from the store” while teaching basic cooking skills. With the pie lesson, the kids learned about different spices and measurements. We did an introduction of the spices by smell and then they had the chance to dare each other to eat some unseasoned pumpkin. It’s always fun—especially with the middle and high schoolers—to see who eats what! For our youngest kids (grades 1-5), they focused on the measurements, because the pumpkin knives were bigger than them. Instead, their pie was made with already prepared pumpkin puree (which they measured out) and in pairs added their particular spice into the mixture. We put the filling in a pre-made pie shell and had an oven safety lesson as the kids watched us put the pie into the oven. While the younger kids’ pie was cooking, they got to

The educational opportunities found within a kitchen are limitless and provide a wonderful setting for teaching agricultural topics.

top of it is beyond the scope of these inner-city kids’ imaginations, but we are working on that, by eating and cooking together.

Connecting food with farming is a crucial step towards decreasing the agricultural literacy gap in today’s youth. However, the logistical challenges of fitting farming, cooking, and eating into one school day that is already packed can be quite challenging; not to mention that the academic calendar opposes peak growing season. In an effort to combat all of these challenges, I teach an afterschool table to farm program two days a week for a local nonprofit. While this table to farm model is supported through a community organization, it could

a week and garden on the other days when the weather is warm enough for growing. Because the school year starts at the end of the growing season, we start off with cooking, which is a fantastic way to introduce kids to all those awesome vegetables (like tomatoes, eggplant, peppers, and swiss chard) without having to labor away in the hot sun with no rewards. For many of these urban children, cooking fresh produce is their first real endeavor into agriculture. Their interactions with the produce as it moves from garden to table raises their agricultural literacy as the kids have the chance to experience, on a small scale, the movement that all food takes from farm to table.

help prepare pumpkins for the older group by scooping out all the seeds and “slime” from inside the whole pie pumpkins. When it was time for the older kids, they used their knife skills to dice the fresh pumpkins into chunks to be boiled. Once ready, the kids separated the meat from the skin of the pumpkin and placed the meat in a food processor to create pumpkin puree. Then, like with the younger kids, they divided up into groups, were introduced to all the spices, and measured them for the recipe. For the sake of time, both groups got to eat the first pie at the end of the day and the second one was left for the next day’s program. As the kids ate their pie, we had a ton of positive reactions; knowing that the same pumpkin we carve at Halloween can be consumed was such an eye-opener and we got many questions about what else can we do with pumpkin. This may lead to the next lesson!

The fun and learning that we all share is something that I treasure more than anything else! The kids walk out of cooking club feeling empowered and inspired by what they can do. Many of them have even become more aware of their own diets; it’s very common now to hear things like, “vegetables are sexy” coming from the dinner table as the high school girls all discuss the meal they are provided. The week we had an “Iron Chef Smoothie Competition.” The spinach and kale disappeared into the smoothies in large quantities as the high schoolers battled to win the contest. Watching and hearing all of these small rewards as well as laughing with kids when pumpkin slime and yogurt go flying makes the planning part of these kinds of activities worthwhile.

My co-instructors and I spend quite a bit of time in conference planning foods, stations and activities to

keep everyone engaged at an appropriate level. It’s not for the faint of heart, and quite honestly, doing this kind of intensive program is exhausting, but the rewards are numerous. If this is something that you think sounds like fun for your school (before, during or after), here are some basic guidelines I would suggest to get the program started:

- **Find a core group of interested kids.** Interview the children; make the club/group an honor to join. Do not be afraid to pull in those kids with energy—they do well with all the activity associated with cooking.
- **Establish your meeting time and length of program.** Our program is 2.5 hours from set-up to tear down and we do the majority of the prep work before anyone arrives. I recommend 45 minutes to an hour of cooking time for each group plus time to teach the kids how to set up and clean-up help—which are great life skills!
- **Work with the kids to establish ground rules for the kitchen.** Basic skills like knife, stove, and oven safety are super important!
- **Have the kids give food ideas.** They are much more likely to participate and eat it!
- **Start simple.** Use foods that teach basic skills and then build on them to more complex things. For example, we made applesauce as a way to teach basic knife skills & stove safety.
- **Stations!!!!** If you are equipment limited, like we are, breaking things into stations allows everyone to experience the entire process in small steps.

- **Have fun!** Silly things happen, things get messy and flour and liquids always end up all over everyone—it’s part of the process, so embrace it. We are all washable.
- **EAT WHAT YOU MAKE THAT DAY!** And if it’s something that takes too much time to bake, make sure you bring an already prepared one in so that everyone gets to taste the fruits of their labor—it keeps them coming back!

Exposure to the agri-food system through cooking can positively change a young person’s attitude about agriculture. Seeing children who previously had little knowledge of fresh produce explain the ingredients in the snacks they created as well as where and what each vegetable looked like in a garden, raises their agricultural literacy. The educational opportunities found within a kitchen are limitless and provide a wonderful setting for teaching agricultural topics as well as a safe space for social learning and development. Happy Cooking!



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Pre-Service Practicality in Urban Agricultural Education

by Kassey Steele

Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid. — Albert Einstein

On the surface, urban agriculture seems a contradiction in terms. Agriculture: “the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products” (*Merriam-Webster’s Collegiate Dictionary*, 2005). Urban: “of, relating to, characteristic of, or constituting a city” (*Merriam-Webster’s Collegiate Dictionary*, 2005). When you consid-

Zeeuw, van Veenhuizen, 2010). Agriculture production is based on the population’s wants and needs. As the population grows, agriculturalists must produce more food. If the population diet shifts to 90% chicken, 10% beef, pork, and specialty meats, agriculturalists must increase poultry production. We adapt to the wants and needs of consumers. With this being said, if the urban population increases to 90% or more then city dwellers will practically make all the decisions about what food is consumed in this country. So what if this 90% doesn’t understand agriculture? That makes urban agriculture not sound so crazy anymore, does it not?

educator if he or she is teaching in a *typical* agricultural education program. If the teacher is teaching in an urban area, students have different needs, subject interests and agricultural interpretation.

Put simply, if students live in an urban area, urban agriculture is the primary agriculture these students know. Barns inside city limits, roof top gardens, agri-science fairs, floriculture, alternative energy, veterinary science and greenhouses are what they have learned to know. Rabbits and chickens may be the primary focus of their livestock knowledge. These situations can provide challenging but extremely rewarding and diversifying experiences for pre-service agricultural education teachers.

Educate Intentionality

When educating urban agriculture students know they are in the program for a purpose. Most likely in an urban high school, students had many other opportunities but chose agricultural education. Keep information relevant, purposeful and worthwhile to the student. Students made some type of sacrifice for this program and expect to reap the benefits. Magnet agriculture programs require application, costly fees and can be extremely time consuming. Make their sacrifice worthwhile, fun and worth the extra time. If not, retention rates can decline and, even worse, students’ interests will decline.

Be Innovative for the Fast Paced Learners

Students in urban environments attend larger schools, so material is up to date, technologies are newer and students are used to faster learn-

We must embrace urban differences and make it a priority to explain how our industry works.

er the definitions, urban agriculture does seem an odd concept. Producing crops, cultivating soil and raising livestock appear to be odd components in city life. Although making the connection can be challenging, it can be done.

Agriculture is what our country was built upon and that still holds true but not in the middle of a populated city, right? The 2010 U.S. Census reported almost 80% percent of the United States lives in urban areas (Dubbeling, de Zeeuw, van Veenhuizen, 2010). What is even more interesting is that the urban population is growing every year (Dubbeling, de

Across the country, university agricultural education programs are preparing pre-service teachers to be effective in their future careers in a variety of ways. Whether it is through learning breeds of cattle, preparing students for speech contests, propagating mums, or the use of practical to theoretical topics, most everything is discussed. After 3.5 years of education, state examinations and a strenuous four weeks before leaving the university for cooperating centers, student teachers confidently go into the workforce as highly prepared student teachers. All of these areas contribute to a well-rounded agricultural

ing. They expect product, and they expect it fast. My students often didn't understand why they had to write papers saying, "we have lap tops which are faster." If I was paid a quarter the amount of times I asked a question and the answer started with "well Google says," I would have been wealthy by the end of the first month of student teaching. If the high school offers access to iPads, learn how they work. Learn the technologies students use and use those tools to enhance your students' experience.

Be Relatable

Make material relevant to a student's life. If your class loves rap music, make their floral design similar to their favorite rap song (rhythm, scheme, harmony etc.). When news involving agriculture such as *pink slime*, *e-coli outbreaks* or the *swine flu* make headlines, talk to students about it. Let them speak and listen. They will share what you teach them with other students who look to them as agriculture experts on campus. Build rapport as the person they can come to regardless of the question. Most likely, as a pre-service teacher you appear as someone younger and with whom they can more easily relate.

Science Driven

Students earn science, speech, art and other credits towards their high school graduation. Basically, this means they could be learning science in another classroom, but they chose yours. Standards have to be met with the high school in addition to your agriculture program. However, you are

at an advantage. Students can apply this practical knowledge in unique and exciting ways. What a great advantage you have as an agriculture educator! This is a great opportunity to introduce science in agriculture and teach about the importance of agriculture. No other department has this opportunity.

Authenticity and Patience

Most importantly, please understand this statement: agriculture students in urban areas are not stupid; they are just, many times, unaware. One specific instance I remember was the day I had planned on educating my students on genetically modified organisms. After I had students share crops they thought could be genetically modified, a student proclaimed that the potato I was displaying looked dirty, like it had been grown underground or something. I was stunned. I looked around that classroom of 35, junior and senior level students and not one of them was certain if a potato was grown above or under the ground. No one had ever taught them. These students knew a potato was a tuber, how to cross breed different types, the genetic contents and what nutritional value it had, but they didn't know where or how it was grown. Shocking. I encourage you to be patient, embrace those opportunities to explain the basics of agriculture. If you do not, who will?

Choose to Make the Difference

Agricultural educators have a tremendous opportunity to reach out to the population of our country that is making the choices of how our mar-

ket is developed. Urban populations need to understand how agriculture works. With the collaboration of university pre-service teacher programs and adaptability of these pre-service teachers, we have an opportunity to make a huge impact. If, as agricultural educators, we embrace these urban differences and make it a priority to explain how our industry works, it creates a cohesive environment of understanding that impacts generations to come. The next generation of professionals will know how their food is grown, how to develop technologies for advancements, and how to communicate the story of agriculture effectively. They will be educated citizens; all thanks to you.

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[Kids] don't remember what you try to teach them. They remember what you are. Jim Henson

Filling the Void

by Matt Spindler

Agricultural education is alive and growing in the Big Apple. In addition to existing secondary programs like the one at John Bowne High School in Queens, organizations focused on urban agriculture often have educational initiatives that support youth and adult learning. As urban agriculture has grown in New

York City (NYC) so have the opportunities to learn about farming and food production. In fact, many urban agricultural organizations work to extend the capacity of spaces in the city to produce fresh crops while they also provide agriculturally based learning opportunities.

Agricultural education professionals need to make connections to people involved in urban agriculture.

York City (NYC) so have the opportunities to learn about farming and food production. In fact, many urban agricultural organizations work to extend the capacity of spaces in the city to produce fresh crops while they also provide agriculturally based learning opportunities.

While there are viable commercial agricultural operations in NYC such as Gotham Greens and Brooklyn Grange, there are also more than a few non-profit entities that are making a difference in lives of everyday citizens. Organizations like Grow NYC, City Growers, and Just Food support agricultural production and education by creating connections between consumers, neighborhood groups, urban farms, and local government. All of the organizations operate based on the idea that it is critical for NYC residents to know about and have access to spaces for food

production and locally grown healthy foods.

For me, the most intriguing aspect of urban agriculture in NYC is related to the potential it creates to dramatically increase the overall impact of agricultural education on the lives of urbanites. For the most part, the educational initiatives supported by non-profit and for profit organizations surrounding urban agricul-

ture provide authentic experiences that engage people in an experiential learning process. Just Food has established Farm School NYC, a two year educational program that trains citizens to be experts in the field of urban agriculture through place-based instruction. Farm School NYC also serves as a resource to support NYC food growers, encourages cities to recognize urban agriculture, and is sustained by the Beginning Farmer and Rancher Development Program of the National Institute of Agriculture housed within the USDA.

Part of my intrigue regarding urban agriculture relates to how traditional agricultural education will interface with the people and organizations that are currently driving it forward. For example, is there even a recognition by people already engage in urban agriculture that agricultural education as a field of study exists? As agricultural education profession-

als we may need to take the initiative in order to make connections to people and organizations already deeply involved in urban agriculture. And once connected to people and organizations already engaged in urban agriculture we will need to listen to what they have to say so that we can figure out how we may be of service to them and agricultural education. For example, according to Five Borough Farm: Seeding the Future of Urban Agriculture, a report by the Design Trust for Public Space and their partner Added Value, there is a lack of skilled labor which will hinder the expansion of urban agriculture and the services that related organizations can provide to citizens. To me, the aforementioned challenge represents a perfect opportunity for traditional agricultural education to build a bridge to people and organizations on the cutting edge of urban agriculture.

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<http://www.grownyc.org/>

<http://www.brooklyngrangefarm.com/>

<http://www.justfood.org/>

<http://gothamgreens.com/>



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Linking Holistic and Reductionistic Approaches: Teaching of the Undergraduate Subject Introduction to Ecological Agriculture

by Anantanarayanan Raman

Learning about sustainable agriculture and its holistic ecological management is the principal focus of the 3-year full-time transdisciplinary course *Bachelor of Ecological Agriculture* (BEcoAg) (*Bachelor of Ecological Agricultural Systems* from 2010) offered at Charles Sturt University ([CSU], Orange campus, NSW, Australia). In 1998–1999, when the Orange university campus was a part of the University of

ity Portfolio (Cochrane et al., 2002), wherein learners relate their learning achieved, while studying 24 subjects over three years, with the seven graduate capabilities (Stephenson & Weil, 1992). In the portfolio learners document their learning in a journal, from what they perceived at the start to what they achieved at the end of the course, in the wise management of agriculture set within a Nature–human relations context (Kahn, 1999; Bourdeau, 2004). In such a reflective learning environment, learners contextualize their academic learning

the rocks and the minerals. All things have their own will and their own way and their own purpose; this is what is to be respected. Such a respect is not a feeling or an attitude only. It's a way of life. Such respect means that we never stop realizing and never neglect to carry out our obligation to ourselves and our environment: to work together to make life good for all of us, all who live upon this Mother Earth. (p. 52)

The focus of *IEA* was to enable learners to gain an understanding of agricultural practice in the context of ecological theory.

Sydney, major efforts were made to convince biological and empirical ecologists (members of the Academic Senate) on the vitality and vibrancy of BEcoAg. In 2000, BEcoAg was approved and launched in the Orange campus. Arguments presented in its defence have been published (Raman et al., 2004; Cochrane et al., 2007).

BEcoAg achieves its transdisciplinary focus by teaching subjects from both hard and soft sciences in addition to sociological subjects such as *Human Ecology* marshalling on systems approach. The course is reinforced through the Capabil-

ity Portfolio, which the industry deems vital for graduates for employment. [Note: The Capability Portfolio in CSU's undergraduate courses in Orange is under review presently.]

The Principle

Debates on the values of holistic and reductionistic approaches have dominated human minds for long, especially from the start of 20th century (Anderson, 2002). The paradigm shift enshrined in BEcoAg is echoed in Boyd (1974):

... that understanding begins ... with respect for ... all the creatures and the plants and even

The driving principle of BEcoAg is valuing holism as a comprehensive worldview that encompasses both ontological and epistemological perspectives. Nonetheless, during conceptualization, we could not dispense with reductionistic worldview, because BEcoAg is a management-based course, and therefore mandatorily relies on science and scientific processes. An effective fusion of the two apparently conflicting worldviews was considered vital. Stimulation of holistic thinking embedded within measured doses of reductionistic practice was determined as the way forward. The subject *Introduction to Ecological Agriculture* (*IEA*: AGR 141) was developed as the first core subject seated within the above framework.

IEA pedagogy

The foundation was that the learner experience in *IEA* should be an intellectual experiential journey. The focus of that learning journey was to enable learners to gain an understanding of agricultural practice in the context of ecological theory. The

flag posts were ecological concepts and learning to apply them appropriately in agricultural management in the ambience of ethically driven arguments. *IEA* was developed in such a way that the learners, while undertaking their journey, would recognize and accommodate their emotions and respond to moral sensitivity by conducting a comparative historical and experiential exploration of various forms of agriculture practiced throughout the world. This exploration includes a serious consideration of the obvious divergence in the Western and Eastern practices. The journey is to enable learners to gain a first-hand experience of a variety of agricultural practices, as available locally: learners not only observe, but also experience contrasting patterns of land use in agriculture. Their journey, from that point, would move in a direction exploring the history of agriculture and environmental issues that have arisen because of industrialized agriculture underpinning the conceptual clarity of ecocentric and technocentric paradigms (O’Riordon, 1981). Learners develop their personal stance on the theme of sustainability in agriculture and its ecological management. A component added recently in the teaching schedule, based on student feedback, is the exploration of relationships between agriculture and society in the framework of environmental economics.

Online-forum debates challenge learners on the limits of sustainability and sustainable agriculture. Pointers posed in the forum provoke learners to reflect on and debate the issue of anthropocentricity that craftily controls sustainability and sustainable agriculture, at the same time valuing the economically driven environmental benefits provided by sustainable practices. The influence of anthropocentricity on sustainability is discussed at length although learners are

encouraged to reach individual conclusions.

IEA aims at validating the original position of *Homo sapiens* within the larger context of Nature and its relationship with the remainder: the living and non-living. The reason for this aim is that we, humans, work instinctively towards achieving 'natural productivity' (Savulescu & Bostrom, 2009). The other aim of *IEA* is to highlight the position of the human species in the overall scheme of nature and its complex processes. While validating the criticality of agriculture as a process for the survival of human race, the dominating position of the human will be the fulcrum for discussions.

Because *IEA* is a ‘Year 1—Semester 1’ subject, expected prior knowledge of either ecology or agriculture is nil, except what would have been learnt as part of high-school science. However, a key expectation is that learners should be familiar with the current environmental, ecological, agricultural, and related social issues of the region they come from and be generally familiar with similar issues from across the world, by obtaining information through mass media and personal professional contacts. The subject has been modularized to homogenize the depth of context and the breadth of contents. Themes in Module 1 capture the evolution of agricultural phenomenon over time, and how the environmental onslaught commenced in Europe with the Industrial Revolution and its ramifications in agricultural practice; those in Module 2 refer to natural-ecological theory as relevant to agricultural practice; and those in Module 3 lead learners to a different plane enabling them to compare and contrast different philosophical responses to agriculture-triggered environmental problems existing in contemporary

society and to explore themes that pertain to Nature–human relations.

Assessment tasks have been constructively aligned (Biggs, 1996) with these modules, enabling learners to learn in a phased manner and demonstrate their learning through their periodic reflections on both in-farm and out-of-farm experiences. The final assessment task requires that each learner independently evaluates the merits of ecocentric contrasted against technocentric perspectives relevant to agriculture in general and sustainable agriculture in particular. The vital dimension in the last assessment task is that each learner would articulate his/her personal reflective statement (2-3 pages) of his/her intellectual journey through *IEA* in the context of ecocentric—technocentric paradigms.

Reductionism—holism linkage: the novelty

Design of *IEA* flexibly enables learners to dive at different depths and swim at different breadths in achieving their learning. To realize that level of different depths and breadths, a connection between principles of empirical science (reductionistic discipline) and abstract philosophy (holistic discipline) has been integrated aiming at nurturing both logical and free thinking in learners.

The novelty of linking reductionistic and holistic approaches rests on the premise that learning natural-ecological theory is critical to manage agriculture sustainably (e.g., themes in Module 2). Learners gain an understanding of the way in which species, populations, communities, ecosystems, and landscapes operate, by drawing evidence from local-case studies and empirical verifications. Reductionistic themes get magnified especially when learners examine different agricultural practices

and evaluate their performance efficiencies measured in terms of either energy or dollars. Learning focus in Module 3 dramatically shifts to a holistic plane by alerting learners about different philosophies related to the land, including its sacredness and sanctity as perceived by people of ancient cultures of the world (Haverkort & Hiemstra, 1999). Contemporary trail-blazing Nature-based agricultural management themes discussed by Masanobu Fukuoka and Bill Mollison are used as stimuli. Books by Jared Diamond, Vandana Shiva, and David Suzuki are used to develop a conceptual understanding of holistic-ecological thinking and themes of sustainability.

Reductionism—holism linkage has been demonstrated in agricultural marketing (Fleming, 1990) and extension (Angstreitch & Zinnah, 2007), but not in developing a teaching program.

Conclusion

This paper describes the enabling of systems-based learning in undergraduate students of ecological agriculture. The systems-based learning has been constructed by linking holistic and reductionistic approaches, encouraging learners to bring in a range of empirical questions on the physical world and metaphysical questions on the world beyond physical features. Equipped through several theories, and by reflecting on his/her own work, the learner is challenged to think beyond the scientific framework.

IEA is one subject in BEcoAg. I have referred to IEA, an introductory subject, which I designed and am teaching. I have described the novelty attempted in IEA by linking two apparently conflicting worldviews to achieve the best from the two. This subject is in offering since 2000 and

is well received in each offering. Student feedback has been positive, especially referring to the blend offered and to the dramatic shift from empirical reductionistic science to abstract holistic philosophy.

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Agricultural Development: Selfish Gain or Altruistic Service?

by Josh Walker

America has a substantial role in providing agricultural extension support to developing nations across the world providing more than 1 billion dollars (USAID, 2012). While there can be a persuasive, logical discussion that the nation's moral obligation is to provide support in the norm of extension and education in and about agriculture, there is also an ethical responsibility to not push products and services from large American organizations to these countries for purely profit reasons (Brown, 1981). The American agricultural education and extension service should strive to provide the best solutions that promote long term independence and sustainability to the development of these nations while honoring the indigenous knowledge of the communities alive. The challenge is: how?

Agricultural extension should not be fueled by personal agendas.

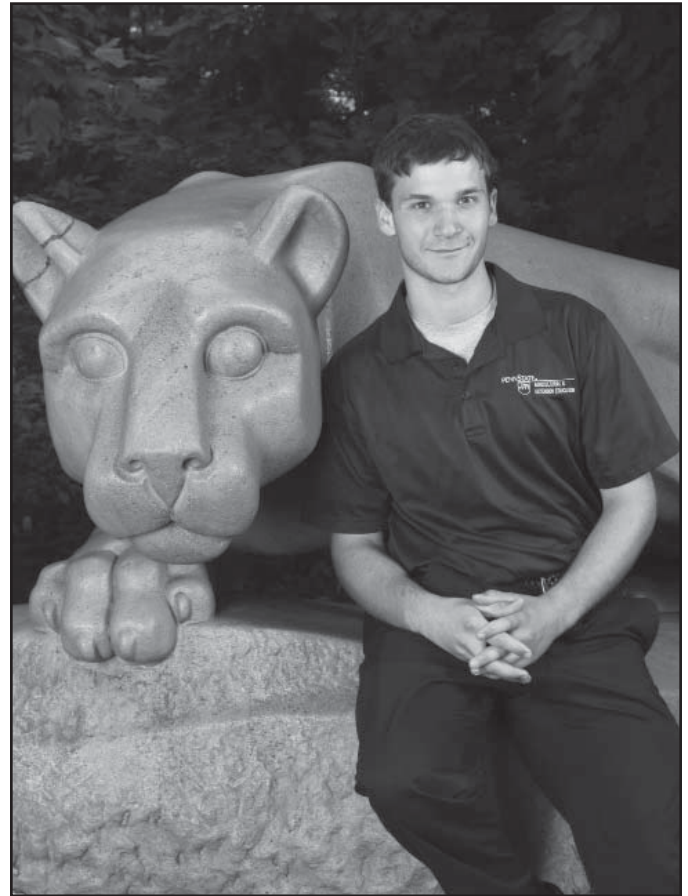
For effective extension in developing countries, America's sincere intention and priority should be on bettering the livelihoods of the communities. As a nation, we cannot let our own agendas and self-interests dictate the support we provide to these countries (Brown, 1981). There is an interesting case study that leads insight to this with Kenya under British control. Before Britain realized the potential Kenya had as a strong tea leaf supplier, Kenya produced a wide variety of native fruits and vegetables that would sustain them throughout the year (Thurow and Kilman, 2009). However, Britain's obsession with tea and the money involved in

the markets forced Kenya to become a major supplier of tea leaves. In exchange for tea leaves, Britain would provide the Kenyan people with a food supply.

The manipulation by the British with Kenya indicated that Britain did not put Kenya's interests first. Britain profited over the trade agreements with other countries for tea leaves and provided Kenya with a scarce, barely sustainable food supply. Kenyans lost their capacity to grow their own food as they were so dependent of Great Britain to provide their nourishment. Over time, the climate in Kenya changed, creating less and less optimal land to grow tea, which lead to a diminishing Great Britain's food support. Currently, thousands of Kenyans do not receive the needed daily caloric intake for survival.

Agricultural extension must be aware of indigenous knowledge

The lesson is that as a nation, we must learn the indigenous knowledge with the area that services are intended to be provided. The goal of any agricultural extension service cannot be to supplant native culture and replace it with American culture.



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As extension service agents, insights into the traditions and customs of a native community and look for ways of improving methods are essential (Brown, 1981).

Agricultural extension services must take a bottom up approach combined with indigenous knowledge to provide the most effective services. Agricultural extension agents who do this will go out into the community and discover the wants and desires of the community they are serv-

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Implementation of Cooperative Extension Programs in Developing Countries

by Rachel White and Teddi Nichols

According to *Science*, even though there has been marked growth in food production “more than one in seven people today still do not have access to sufficient protein and energy from their diet” (Godfray et al., 2010). Furthermore, there will be a need for 70 to 100 percent more food by 2050. Producers are facing greater competition for land, water, and energy than ever before (Godfray et al., 2010). With the rising competition of these resources and the growing amount of people in the world; there will be a greater shortage of food and resources to grow food than ever before. A food shortage will cause dramatic price increases due to the extremely high demand for food around the world. One group of people that will be affected heavily by this will be those people in developing countries. They will not be able to afford food from other countries and with shortage of resources will not be able to produce the food they need themselves.

By creating a program like the California UC Cooperative Extension Service or other similar state and international programs in these developing countries, the countries will be able to use the technology and advanced knowledge needed to produce more food efficiently and equitably (Godfray et al., 2010). Synchronizing these programs globally will help to inform all about new technology, transportation, and ways to reducing losses.

The UC Cooperative Extension Service is a statewide network of University of California researchers

and educators dedicated to the creation, development and application of knowledge in agricultural, natural and human resources (Allen-Diaz, 2012). These researchers and educators team up with local farmers and ranchers to help them implement new technologies in the field of agriculture. This is done by informing farmers and ranchers about new issues to the industry, pest management, research and education programs, and working with farmers in discovering what crop management practices work best in their area (Allen-Diaz, 2012). If this type of program was implemented in developing countries; researchers could help the local farmers in creating their own farms and help them discover what works best for the area they live in. New technologies could also be implemented to help the farmers in providing enough food for their communities. One of the technologies that could be introduced is storage methods of food. According to *Science*; roughly 30-40% of food in both the developed and developing worlds is lost to waste (Godfray et al., 2010). In developing countries, waste is often the result of a lack of transport infrastructure (Godfray et



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al., 2010). The extension could help provide the transport infrastructure or help in aiding the members of the community to find a way to get their products to the market in a timely manner or teach canning/drying technologies. Less food is lost to waste; more food will be available for the community, and for improving the community's economy.

By creating a program like California's UC Cooperative Extension Service in developing countries more communities can become self-sufficient. With the aid of researchers

and extension educators, developing communities can learn new production methods to improve crop yields and the economic standing of the community. This will help the developing countries to be on track with the population growth and will not allow the demand of food to surpass supply.

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Agricultural Development: (continued from page 25)

ing. These agents, who have a strong awareness of what is available to the communities (i.e., resources, inputs, markets) can tailor sustainable solutions to real community issues.

So what can be done by the American agricultural extension service?

In developing nations access to premier seeds, chemicals, and markets is severely limited or unreliable. Giving farmers access to maximum yield seed and chemicals is immoral when there is no guarantee of being able to secure them the following year because of unstable connections to these suppliers.

One service that should be provided by every agricultural extension service is the creation of a Farmer's Field School. Farmer's Field Schools are tried and true in providing ways for farmers to seek problem resolution. A relevant example can be found in Indonesia. During the 1960s, Indonesia faced a serious food crisis from reduced rice yields. During that time, Farmer Field Schools (FFS) were just taking shape to combat the

White Stem Borer, an insect that affected the rice plant, and educating the farmers about the options available to them to combat the pest (Ooi, 1998). When the information taken from the FFS was effective, farmers were more than willing to share with their neighbors and the information spread.

American extension services need to take a planned approach when providing aid.

While this brief article only describes one approach the extension service provides aid to developing countries, there are many more that can be considered. When providing services to areas of need, it is vitally important to tailor solutions that match the indigenous knowledge and needs of the community without nationalistic agenda's influencing options.

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Editor's Note: *The National Collegiate Agricultural Education Essay Contest is held in October of each year with participants developing their essays from a topic selected by the host chapter advisor. The essays are presented at the National ATA Conclave. Students had the opportunity to compete in two divisions this year: the traditional Individual Essay division and the Co-Author division (two or more authors). Appropriate plaques are awarded to first and second place contestants and their chapters during the Business Meeting at the National ATA Conclave. First and second place contestants in both divisions also receive checks for \$100.00 and \$50.00 respectively.*

