

MEDLEY

- a potpourri of diverse talent

December 2017

Lincoln University, Jefferson City, MO

Submitted by Tom Coudron

Vision Statement

To create a diverse workforce and promote a positive work environment where all employees are respected and valued for their contributions.

USDA-ARS-Midwest Area Diversity and Equal Opportunity Council (DEOC) members:

Kelli Adkins, Lexington & Bowling Green, KY

Carl Bernacchi, Co-Chair, Urbana, IL

Veera Boddu, Peoria, IL

Tom Coudron, Chair, Columbia, MO

Kathy Eystad, Morris, MN

Bryan Lemmenes, Madison, WI

John Kovar, Ames, IA

Renfu Lu, East Lansing, MI

Luis Martinez, Columbus, OH

Larla Moore, West Lafayette, IN

Kun Xiao, St. Paul, MN

Paul Scott, Employee Engagement Council

Sherri Buxton, Peoria, IL, MWA Office Advisor



Discussion with Julius Moody at Lincoln University in Jefferson City, Missouri. Julius is the USDA 1890 Program Liaison and MANRRS Advisor with Lincoln University.

Q. What are ways that ARS can interact with diverse communities?

Mr. Moody: It is good that ARS wants to be inclusive and welcome members from diverse communities. Career Fairs provide an avenue for that task and ARS has been a wonderful participant in our Career Fairs. ARS also has a lot to offer a diverse community beyond job opportunities. ARS has knowledge, insight, awareness, and experience

that are valued by members of diverse communities. For an education institution, there would be value in having ARS in the class room as well as at the Career Fair. Students would benefit from ARS's presence. They would value hearing the perspectives of ARS researchers on the topics being discussed in the classroom. It is important for students to see and hear ARS on their campus and it would be good for ARS to see what is happening on campus. In a similar manner, ARS might consider ways to increase their participation with organizations like MANRRS as a way to strengthen their outreach to diverse communities. Many of these organizations reach a wide audience and focus on youth which is critical when wanting to partner with diverse communities.

Q. How can ARS prepare for interacting with diverse communities?

Mr. Moody: Set up pre-scheduled visits. These can be discussion groups, listening sessions or interview appointments. The intent is to be more personable by setting aside a time and a place with a purpose. Career Fairs are more general in interaction. The purpose of a pre-scheduled visit is for ARS to interact with members of the diverse community in a manner in which ARS gets to know them as well as they get to know ARS. This takes the interaction beyond filling a vacancy. This creates a special event for members of the community to specifically interact with ARS and it gives all attendees an opportunity to prepare for a more personable exchange.

In this issue we highlight ways ARS can reach out to 1890 and 1994 institutions and diverse communities.

Julious Moody, Lincoln University, Jefferson City, MO

Dr. DeBonne Wishart, Central State University, Ohio

Ames Hosts 1890 Land Grant University Faculty Research Fellow

University of Puerto Rico, Mayaguez, HACU Summer Intern

iTAG Barley STEM, Iowa State University, Ames, IA

University of Minnesota, Morris, MN

Continued on next page...

Q. What does ARS have to offer that is attractive to diverse communities?

Mr. Moody: ARS has to offer knowledge, insight, awareness, and experience as well as job opportunities. It's more than a job. It's more than a career. It is a person understanding who they are and developing into all they can be. ARS can do this with internships, scholarships, partnerships, research projects and presentations, and other forms of interaction and support. The benefit ARS provides to a diversity of students through their presence on campus, involvement with organizations like MANRRS, and participating in discussion groups is greater than ARS realizes.

Q. What are common misconceptions employers have when reaching out to diverse communities?

Mr. Moody: There are misconceptions by employers as well as by students. Employers think students aren't aware of their business and don't understand what they do. Students think their grades won't be good enough and that the business isn't doing anything they would be interested in doing. The exchange that is missing in both cases is that personable interaction that provides the opportunity to address the misconceptions.

Q. How can ARS measure their success in reaching diverse communities?

Mr. Moody: ARS's impact is greater than it realizes and often continues long after the students interact with ARS. Certainly ARS should look back and reflect on where they were and where they are now. They should refine their goals and objectives as they move through time by prioritizing their efforts. A big part of interacting with diverse communities is making the larger community aware; aware of the presence, value and importance of diversity.

Central State University, Ohio

Written by Luis Martinez



Dr. DeBonne Natalie Wishart is an Assistant Professor of Geosciences in the International Center for Water Resource Management (ICWRM) at Central State University, Ohio and is currently on assignment with the Midwest Area Soil Drainage Research Unit in Columbus, Ohio. The goal of the ICWRM is to improve the management of water resources in Ohio and

emerging nations. This goal is directly linked to the University's mission of offering programs with multi-cultural and global perspectives with particular emphasis on African and African American cultures; collaborating with other educational institutions, business organizations and government agencies to enrich learning experiences and educational opportunities for students; and in providing quality educational programs in the scientific technical fields where minorities have been traditionally underrepresented.

Dr. Wishart was born in Kingston, Jamaica in 1961 and immigrated to the United States in 1991. She earned her Ph.D. in Environmental Science from Rutgers University and New Jersey Institute of Technology. She was recruited by Central State with the objective of building their Geoscience program and has enjoyed teaching there for seven years now.

When asked what she believes would most help close the gap for underrepresented minorities, she believes that we must spark students interest in science as early as possible in their academic life. She has noted that many incoming freshman are notably lacking in knowledge and hands on experience in science. Dr. Wishart encourages everyone she meets to get out and mentor, foster and encourage as many high school students in science as possible.

National Laboratory for Agriculture and the Environment in Ames Hosts 1890 LGU Faculty Research Fellow

Written by John Kovar

The USDA Agricultural Research Service (ARS) each year invests up to \$500,000 for Faculty Research Fellowships for Capacity Building at 1890 Land-Grant Universities (LGU). These fellowships provide a development opportunity for career-track faculty to do cooperative work at an ARS location. Faculty members must have five or more years in their current position and be approved for a Fellowship leave.

Each 1890 Faculty Research Fellowship provides up to \$100,000 to support expenses (e.g., salary, living expenses, and research costs) for a Fellow to conduct cooperative research with an ARS scientist during a 6- to 12-month residence at an ARS laboratory. No more than one fellowship is granted per institution per year. A maximum of three applications may be submitted by a given 1890 Land-Grant University per competition. Prospective ARS hosts must submit the application internally through his or her Area Director for ARS review.

Last year, Dr. Dedrick Davis of the Department of Biological and Environmental Sciences at Alabama A&M University in Normal, Alabama, was awarded a fellowship to conduct joint research with Dr. Tom Sauer of the National Laboratory for Agriculture and the Environment in Ames, Iowa. Dr. Davis conducted his fellowship research from June to December 2016, during which time he completed field and laboratory experiments on crop residue management and biochar application effects on CO₂ production and soil water retention. Dr. Davis stated that the Fellowship program is a great opportunity for faculty at 1890 Land Grant Universities. For him personally, the program enhanced his knowledge and provided hands-on experience regarding new and innovative methods to measure soil water retention and hydraulic conductivity. He currently uses these methods in his research program. He also expanded his research program to include soil CO₂ efflux measurements. In the spring of 2018, he will begin a field project to evaluate the effect of biochar on soil physical properties and processes in Alabama. Soil CO₂ efflux, water retention, and hydraulic conductivity measurements will be critical components of this field study.

Overall, Dr. Davis felt that the fellowship provided him with a good experience. The program also provided a foundation for further collaboration with Dr. Sauer. He plans for Dr. Sauer to visit Alabama A&M University in 2018 to view his research sites and to discuss potential collaborations in other areas, such as agroforestry. Dr. Davis said that he definitely recommends this program to eligible faculty members at 1890 Land-Grant Universities.

Learn more about Dr. Davis at <http://www.aamu.edu/Academics/alns/bes/ESWSP/Pages/Dedrick-Davis0319-2740.aspx>

University of Puerto Rico, Mayaguez HACU Summer Intern

Submitted by Sherri Buxton



Paola M. Cruz Ramos
University of Puerto Rico, Mayaguez
B.S. Animal Science, 5th year.

Q. *How did you learn about the Summer Internship Program?*

Ms. Cruz Ramos: I learned about the summer internship program through an email sent by my university, at Mayaguez, Puerto Rico, where it explained that USDA was looking for summer interns and then I had to apply through HACU National Internships.

Q. *Why did you select ARS for your summer program?*

Ms. Cruz Ramos: USDA has many different areas that interest me, but ARS really caught my attention, because I study Animal Science and would like to pursue a DVM/PhD in the future. Furthermore, I liked that ARS focuses on extending scientific knowledge through research projects in many areas like: animals, crop production, food safety, and bioenergy. This really is important to me, because it helps solve the nation's starvation problems and contributes to safe living for animals and humans. Therefore, ARS was a great opportunity for me to grow as a professional and learn more about animal behavior.

Q. *What were your main job duties?*

Ms. Cruz Ramos: As a livestock lab assistant in the Livestock Behavior Research Unit, my main duties were to help different scientists in their farm and laboratory research of swine, cattle, and poultry. This included collecting and analyzing video data of behavior tests, use different laboratory techniques and equipment, run various tests on different samples of tissue and specimens, keep exact and detailed records of data obtained, and schedule and independently carry out work assignments. More specifically, I prepared probiotics, dilutions, dose piglets, castrated, withdrew blood, assisted and performed necropsies, analyzed pig vocalizations through Avisoft-SASLab Pro, analyzed IR photos, ran Competitive Tryptophan ELISA tests, and inoculated various plates for microbial profiling.



Q. *How did you benefit from your experience?*

Ms. Cruz Ramos: By working with about 6-9 scientists and three different species I enhanced my knowledge on livestock behavior, learned a variety of lab techniques, and understood what it takes to pursue a PhD and conduct a successful research, and most importantly I grew as a person and professional. I now can confidently say I have better judgement and self-discipline, can easily adapt to different situations and people, have initiative, pay more attention to detail, and have great leadership and communication skills. Nevertheless, this experience helped me prepare better for my path to studying veterinary medicine and obtaining a DVM.

Q. *What did you like best?*

Ms. Cruz Ramos: The thing I liked the most was the sense of teamwork the ARS employees have established. By everyone helping each other in their different research and having different perspectives and opinions, this really helped me gain knowledge from many areas and I was able to learn something new every day. Additionally, I liked their genuine interest in wanting me to learn, as well as their trust in letting me carry out many tasks on my own. This allowed me to grow as a professional, as I was able to try new things and not just observe.



Q. *Do you have any suggestions for improving the internship experience?*

Ms. Cruz Ramos: I personally don't think there is anything that could be improved from this internship, because my experience was very rewarding in all aspects.

Q. *Did your vision of agriculture production or research change after this experience? How?*

Ms. Cruz Ramos: After this experience, I am now more aware of the importance of controlling animal conditions at a farm, like temperature, feed, noise, etc., since all of these factors have a big effect on livestock behavior and their production. I also have a much more broad view and understanding of all the different factors one can research in agriculture and the immense opportunity of discovery there is in this area.

Q. *Based on this experience, are you more likely to consider a career in agricultural research?*

Ms. Cruz Ramos: After working with ARS, I am certainly considering a career in agricultural research since my interests are research and veterinary medicine. I one day hope to graduate from veterinary school and work in USDA to help contribute information to ongoing problems and questions, that could benefit not only animals, but humans as well.

Q. *What advice can you share with others interested in this Summer Internship program?*

Ms. Cruz Ramos: My advice to others interested in this opportunity is to not think twice and certainly apply. Then, if chosen, I advise them to always give your 100% in everything they do, show interest in learning, and be as helpful as possible, because that is the best way to learn and gain the most from this experience.

Q. *Would you recommend the program to others? Why?*

Ms. Cruz Ramos: I definitely recommend this program, because compared to other internships I've done, this one is the most complete. By this, I mean that you will not just learn to do one task really well, but you will learn to do many tasks well, like for example: to use different computer programs, lab techniques, farm work, medical terms, and surgical techniques. At the end, this will make you a well-rounded professional that is prepared and has the experience to overcome and achieve whatever task is given.

iTAG Barley STEM training advances hands-on science for secondary-school students

Written by Roger Wise, Corn Insects and Crop Genetics Research, Iowa State University, Ames, IA
Submitted by Paul Scott

Most students decide to pursue STEM careers in high school rather than college. Thus, professional researchers need to reach out to these students and their teachers to share what it means to “do science.”

The **Wise lab** has developed iTAG Barley (iTAG = **I**nheritance of **T**raits and **G**enes), a grade 7-12 STEM outreach program, to help students understand the relationship between genotype (i.e., the genes contained within an organism) and phenotype (the organisms outward appearance). In other words, how does one’s DNA affect how it looks and grows.

The iTAG Barley program is available with teacher and student versions in PDF or digital textbook format [**iTAG for iPad** (McGhee *et al.* 2016a, McGhee *et al.* 2016b)], and includes NSF-funded lab equipment to enable students to perform the experiments.

Figure 1 illustrates the *extraordinary* diversity exhibited by the Oregon Wolfe barley population, which forms the foundation for iTAG. These lines originate from a wide cross and have dramatic phenotypes, making it ideal for teaching phenotypic diversity, genetics, and genomics. Students observe plants for several traits, including two-row vs. six-row seed heads (encoded by *Vrs*, a domestication trait) and hooded vs. non-hooded (encoded by *BKn3* - a homoeotic mutation where another spikelet replaces the awn). These phenotypes are discussed in the context of developmental mutations, grain domestication, and cellular pathways. Students grow plants, isolate DNA, perform PCR of the *Vrs/BKn3* genes, and visualize the PCR result on agarose gels. Inquiry-based activities have been designed to link gene function with the biological phenotypes. iTAG Barley is aligned to the national Next Generation Science Standards (NGSS) and is adaptable to any state science education standards.

iPath - Extending iTAG Barley into host-pathogen interactions for grades 7-12: The Oregon Wolfe barley lines also segregate for powdery mildew resistance (R) or susceptibility (S), due to the presence or absence of the *Mla6* allele, respectively (**phenotypes in Figure 1 above**). This makes a natural connection between the genetics of the plant and its resistance to disease. We plan on adding a plant disease component by having students PCR-genotype *Mla* alleles in addition to the *Vrs/BKn3* genes. These PCR-genotypes can then be associated with OWB *Mla6* (resistant) vs. OWB *m1a* (susceptible) plants.

Broader impacts: Young students are subjected to health/medical fields daily, but are not readily exposed to the fundamental concept of plant diseases in agriculture. The iPath experience will make students aware of the role of basic research in the sustainability of their food supply. iPath concepts will also be incorporated into our ongoing “Research Experience for Teachers” (RET) training. Each summer secondary school teachers have trained with the Wise group in 6-week sessions, over consecutive years. These RETs enhance the iTAG/iPath curriculum by incorporating new discoveries into the secondary school curriculum, using plant host-pathogen interactions to teach foundational concepts in heredity and ecological interactions.

These trainings have included workshops with our partners at Iowa State University, Ames, IA (2014), Tuskegee University, Tuskegee, Alabama (2015) and Des Moines Area Community College, Ankeny, IA (2017). Collectively, 40 summer “Research Experience for Teachers” (RETs) have implemented the iTAG Barley curriculum in >170 classrooms from 2010-2017, impacting **over 4,200 students**, 1/3 of which were underrepresented from urban to rural communities.

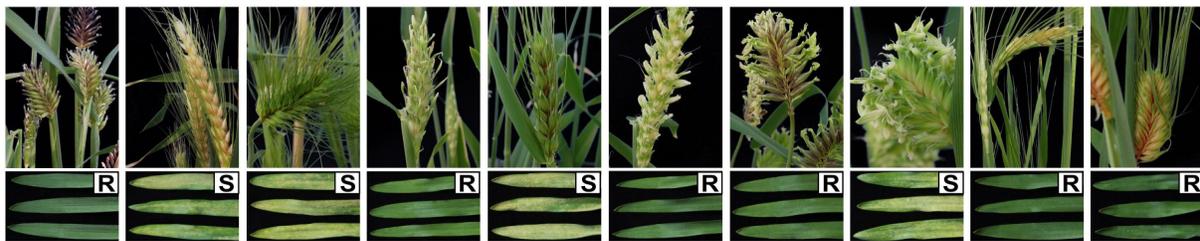


Figure 1. Oregon Wolfe Barley Informative and Spectacular Subset: Top: Spikes (flowers). Bottom: Powdery mildew infection phenotypes.

RESOURCES:

- McGhee, L., Hayes, N., Schuck, R., Maffin, L., Hall, G., Hubbard, T., Whigham, E., Fuerst, G. and Wise, R. (2016a) iTAG Barley: A grade 7-12 curriculum to explore inheritance of traits and genes using Oregon Wolfe barley v6 Student Edition. iBooks > Science & Nature > Life Sciences > Wise Lab: iTunes, pp. 46.
- McGhee, L., Hayes, N., Schuck, R., Maffin, L., Hall, G., Hubbard, T., Whigham, E., Fuerst, G. and Wise, R. (2016b) iTAG Barley: A grade 7-12 curriculum to explore inheritance of traits and genes using Oregon Wolfe barley v6 Teacher Edition. iBooks > Science & Nature > Life Sciences > Wise Lab: iTunes, pp. 80.

FUNDING PROVIDED BY:

- NSF-PGRP 0922746 ‘The functional interactome of cereals with the obligate fungal biotroph, *Blumeria graminis*’ 3/15/10 - 2/28/15, **R. Wise**, A. Bogdanove, D. Nettleton, J. Dickerson, A. Leshem; with P. Spanu (UK BBSRC-funded partnership).
- Joint NSF-PGRP / ERA-CAPS 1339348 ‘Host targets of fungal effectors as keys to durable disease resistance’ 4/1/14 - 3/31/18, **R. Wise**, R. Innes, A. Bogdanove, D. Nettleton, F. Altpeter, A. Leshem, J. Jackson (in partnership with ERA-CAPS ‘DURESTrit’ investigators, P. Schweizer, IPK, Germany and P. Spanu, Imperial College, UK).

Pictures on next page...

2015 iTAG RET Summer Workshop (Ames, IA)



2015 iTAG Scholars in Action (grade 10-12)



Ames High School

DSM Area Comm College

(RET Ron Schuck)

(RET Julie Gonzalez)

Colfax-Mingo High School

Ames High School

(RET Laurie McGhee)

(RET Ron Schuck)

2016 iTAG Scholars in Action (grade 7)



Ankeny Middle School
(RET Lynn Bleeker)

iTAG Teacher Sustainability



University of Minnesota, Morris, MN

Submitted by Kathy Eystad

This summer, Talisha Zimmerman and Tyler Goodrie (graduates of the University of Minnesota, Morris) worked towards completing the Wild Rice Research Study that began in 2016. For the 2nd consecutive growing season, samples of water, sediment, plant, and seed were collected and analyzed from 3 lakes in a watershed located on, and surrounding, the White Earth Reservation. The goal of the project is to investigate the environmental impacts at a temporal and spatial level on native wild rice (*Zizania palustris*) populations. This pro-

ject is a cooperative study between the White Earth Tribal and Community College (WETCC) in Mahnomen MN, Kiksapa Consulting LLC, the United States Geological Service (USGS), and the ARS North Central Soil Conservation Research Laboratory in Morris, MN. At the beginning of November, Talisha was given an opportunity to travel to Washington D.C. to present the preliminary findings of water quality data, at the First Americans Land Grant Consortium (FALCON).



Special Emphasis Programs/Observances/Resources and Information

Special Emphasis Programs (SEPs) are an integral part of the overall civil rights, human resources and program delivery functions. The purpose of the SEPs is to provide oversight, guidance, direction, enforcement and assistance to enhance opportunities for women, minorities, and people with disabilities in all employment and program delivery activities.

Employment activities: Recruitment, hiring, promotions, separations, awards, training, or any other employment action which impacts on the inclusion of and equal opportunity for women, minorities, and people with disabilities.

Program delivery activities: These activities include outreach, training, public notification, program accessibility or any system, practice or procedure or other activity which increases the knowledge of and participation by women, minorities, and people with disabilities.



Monday, January 15th, is Dr. Martin Luther King, Jr. (MLK, Jr.) Day of Service, "Day On, Not A Day Off." The MLK, Jr. Day of Service is a way to transform Dr. King's life and teachings into community service that helps empower and strengthen local communities. *Source United We Serve Corporation for National and Community* <https://www.serve.gov/site-page/mlkday>

Resources & Information: [United We Serve](https://www.serve.gov/site-page/mlkday) (<https://www.serve.gov/site-page/mlkday>). Find a project, register a project and promotional materials.

Check out resources to get started: [Getting Started Toolkit](https://www.serve.gov/site-page/toolkits) or access <https://www.serve.gov/site-page/toolkits>



Black History Month, Month of February

National Theme: "African Americans in Times of War"

Resources & Information: Library of Congress– The African American Mosaic <https://www.loc.gov/exhibits/african/>
African American History & Heritage Site <http://www.creativefolk.com/blackhistory/blackhistory.html>



Women's History Month, Month of March

National Theme: "NEVERTHELESS SHE PERSISTED: Honoring Women Who Fight All Forms of Discrimination Against Women"

Resources & Information: USDA Women in Agriculture Employee Group

Contacts: Kimberly Graham, WIA Chair, Kimberly.graham@osec.usda.gov or Carrie Moore, WIA Vice Chair, carrie.moore@dm.usda.gov

Email WIAEmployeeGroup@usda.gov to be added to the mailing list



Take Our Daughters and Sons to Work Day, April 26th

Resources & Information: Take Our Daughters and Sons to Work Foundation <http://www.daughtersandsonstowork.org/>

Phone: (800) 676-7780

For Presidential Proclamations, right click and open hyperlink [Presidential Proclamations](https://www.whitehouse.gov/briefing-room/presidential-actions/proclamations) or go to

<https://www.whitehouse.gov/briefing-room/presidential-actions/proclamations>.



Additional resources for diversity awareness material and ideas for special observances (catalog, pins, videos, etc.) are available from the following resources:

ARS EEO Video Library: <http://www.afm.ars.usda.gov/ODEO/files/ARS%20Video%20Library%20Catalog1.pdf>

Diversity Store: www.diversitystore.com; Phone: 800-200-5964; Email – hmsdc@aol.com

Smithsonian: <http://www.si.edu/>; Phone: 202-633-1000; Email: info@si.edu

USDA Department-wide Monthly Observances – Links for Websites: <http://www.dm.usda.gov/employ/observances.html>

Observance events/activities should be conducted in a most cost-efficient manner.



You can earn credit for diversity training when you participate in a Special Emphasis Observance event (i.e., Women's Equality Day, Veterans Day, etc.)?

- ◆ How? There are two options, as applicable:
 1. Record your own learning in AgLearn if the learning item allows users to do so upon completion of the learning item. Access AgLearn and go to Record Learning.
 2. Contact your Designated Location AgLearn Administrator or Debra Owens-Coleman, Acting MWA Outreach, Diversity and Equal Opportunity Program, at

We'd love to highlight your Outreach event or share your story.

Contributions can be sent to your location ODEO representative listed on the front page below the vision statement.

U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

REE Mission Area EEO Counseling: 202-720-3410, 800-340-4289, TDD: 202-720-3303

<http://www.ars.usda.gov/AboutUs/docs.htm?docid=23089>; Axon: <https://axon.ars.usda.gov/ODEO/Pages/Home.aspx>

Cooperative Resolution Program: Jeff Schmitt; 301-504-1352, jeff.schmitt@ars.usda.gov or coopres@ars.usda.gov

<http://www.ars.usda.gov/odeo/coopres>; Axon: <https://axon.ars.usda.gov/ODEO/Pages/Home.aspx>

Reasonable Accommodation Program: Tonya B. Morris, 301-504-4339, tonya.b.morris@ars.usda.gov

<http://www.ars.usda.gov/AboutUs/docs.htm?docid=23085>; Axon: <https://axon.ars.usda.gov/ODEO/Pages/Home.aspx>

Outreach and Recruitment Branch Area Contact: Debra Owens-Coleman, 979-260-9416, debra.owens-coleman@ars.usda.gov.

<https://www.ars.usda.gov/AboutUs/docs.htm?docid=23072>; Axon: <https://axon.ars.usda.gov/ODEO/Pages/Home.aspx>

Office of Outreach, Diversity, and Equal Opportunity (ODEO) Home Page:

<http://www.ars.usda.gov/ODEO> Axon: <https://axon.ars.usda.gov/ODEO/Pages/Home.aspx>