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ARD Updates

ASSOCIATION OF 1890 RESEARCH DIRECTORS

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DR. VERNON JONES

Message from the Chair

First and foremost, I wish that you and your family are safe, healthy and virus-free during these uncertain times. ARD is honored to be part of the land-grant community, which has proven countless times to be resilient and innovative in times of crisis.

The novel coronavirus (COVID-19) mitigation efforts of social distancing and shelter-in place orders have caused unprecedented disruption in higher education across the U.S., including the research operations and capacity in the land-grant system. Current modeling suggests that some level of mitigation will be required throughout the country through the late spring, into early summer and perhaps the fall. For researchers, faculty and students, the cancellation of on-site classes and the shutdown of research labs and field sites has resulted in drastic changes in the way this year's spring and summer projects can be completed. For those funded by grants, developing means to support students, post docs and faculty is a major area of stress.

States and universities in the land-grant system will continue to update their policies regarding social distancing, testing, contact tracing and travel restrictions. Institutional leaders are facing extreme levels of uncertainty with no historic parallels to use as a guide. Nevertheless, the experiment/research directors are stepping up to be the leadership source for our faculty and scientists within the land-grant system and are being proactive, innovative and forward-thinking to support the research enterprise.

Through it all, there are at least three questions on the minds of the 1890 research directors: How can we obtain supplemental funding to handle ramp-down and ramp-up costs to close and restart research activities? How can we adjust to the anticipated enrollment declines? What will the new normal look like?

Relative to supplemental research funding, ARD, in collaboration with the other four regional re-

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Faulkner promoted to new NIFA grants position

Matthew Faulkner has been selected for the position of deputy director, Office of Grants and Financial Management with NIFA. He joins NIFA from USDA's Rural Development mission area where he was the director of Enterprise Risk Management and director of the Continuous Process Improvement Office.

Prior to this, he worked at the Office of the Chief Financial Officer, USDA as the director of the Credit, Travel and Grants Policy Division. Faulkner has extensive departmental experience in multiple Farm Bill implementations, full lifecycle management of federal assistance programs including credit and grant programs, strategic and operational performance management and enterprise deployment of continuous process improvement.

During his 35 years at USDA, he has strived to improve program efficiency and effectiveness to benefit customers, stakeholders and employees. He led USDA's Grants Management Line of Business initiative with 14 grant-making USDA agencies, establishing the To-Be Process for end-to-end grants management. This initiative provided the requirements for ezFed-Grants; a comprehensive grants and agreements management solution that allows agencies and their customers to efficiently manage online throughout the entire agreement lifecycle.

Besides his 24 years in Washington, D.C., he also has worked at a county office providing program services to farmers and ranchers.



MATTHEW FAULKNER



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COVID-19 presents opportunity to address climate change

By: **ALI FARES, Ph.D.**, professor of water security in the *College of Agriculture and Human Sciences at Prairie View A&M University*.

The middle of the last century was marked by widespread degraded air and water quality and the spread of severe environmental challenges (water contamination, poor air quality, smog and high ozone levels).

It was the perfect storm to motivate 20-million or 10% of the U.S. population (led by the U.S. Senator from Wisconsin, Gaylord Nelson) to start the first national Earth Day on April 22, 1970.

This environmental movement resulted in the passage of several landmark environmental protection laws, e.g., The Clean Air Act, The Clean Water Act, the Endangered Species Act and the creation of the Environmental Protection Agency (EPA). In 1990, Earth Day became a global event, mobilizing hundreds across the globe.

According to the Fifth Assessment

Report of the Intergovernmental Panel on Climate Change, a group of 1,300 independent scientists from all over the world, under the auspices of the United Nations, reported with a high certainty that human activities over the past 50 years have warmed the earth. These “activities” are mainly industrial activities that we depend upon. The panel is also very confident

that primary greenhouse gases generated as a result of human activities (nitrous oxide, methane and carbon dioxide) are the origin of the increase in the earth’s ambient air and ocean temperatures documented during the past half century.

According to the 2018 Global Analysis of the National Oceanic and Atmospheric Administration–National Centers for Environmental Information (NOAA–NCEI), the global annual temperature has increased at an average rate of 0.17°C (0.31°F) per decade since 1970.

Even pandemics, such as the current COVID-19 virus

pandemic, may be caused by climate change. According to Pushpam Kumar, United Nations Environment Programme and Chief Environmental Economist, the COVID-19 virus pandemic has been attributed to human interferences, such as deforestation, encroachment on animal habitats and biodiversity loss.

A team from the College of Agriculture and Human Sciences, which includes myself, is also studying the impact of COVID-19 on leading air quality indicators and the emission and fate of some greenhouse gases in the earth’s atmosphere (carbon dioxide, methane, ozone and nitrous oxide and its derivatives). Our researchers have looked at some of the major metropolitan areas of the world, e.g., Wuhan, Milano, Madrid, New York and Houston, and found there have been at least two significant indicators that could impact the response of the air quality in these locations during the COVID-19 shutdown. They include energy sources and the level of economic activities. Since the source of energy in these three locations is different: China uses more coal; Europe uses more natural gas; and the U.S. uses more gasoline, we postulate that air quality response will be globally different. Preliminary results have shown significant improvement during this pandemic in some air quality indicators (such as a decrease in nitrous oxide).

Although COVID-19 has been causing loss of lives and

jobs, economic and social disruption and other challenges globally, it has been an opportunity to test community resiliency and the human ability to innovate and find solutions for many problems in a short time. This pandemic offers an opportunity for the scientific community in the area of climate change, atmospheric sci-

ence and natural resources and environmental management to collect data at local, regional, national and international scales on the anthropogenic impacts of human activities on the earth’s ecosystem. This is a once-in-a-lifetime opportunity for these scientists and also policymakers to address many important issues.

Earth Day has been an opportunity to pause for a moment to think about the fate of our planet and humanity. It is essential to know that human needs should not be unlimited

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ALI FARES, PH.D.



TSU researchers uses multi-prong approach to address COVID-19

Control Measures to Inactivate SARS-CoV2

Dr. Ankit Patras and Dr. Brahmaiah Pendyala conducted genomic modeling and mathematically calculated the UV sensitivity [D₉₀ value] of 2019-nCoV virus. This requires a complete understanding of the nucleotide composition, genomic sequence and dimerization value of 2019-nCoV virus. The data will be used to understand UV dose requirements for inactivating 2019-nCoV virus on surfaces and in air.

Secondly, to screen potential inhibitors of 2019-nCoV, the team investigated the binding affinity of various food bioactive compounds towards main protease (M^{pro}) which plays an essential role in processing the polyproteins and RNA-dependent RNA polymerase (RdRp) - catalyzes the replication of RNA from RNA template. Initial results indicated that Phycocyanobilin (food bioactive compound) has a superior binding affinity than antiviral drugs, which may make it a possible potent inhibitor to M^{pro} and RdRp and a therapeutic agent to COVID-19. Docked model visualization studies were conducted for the antiviral drug [Remdesvir], phycocyanobilin with M^{pro} and RdRp.

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because the earth has limited resources. We need to find a balance on how to live sustainably on this earth. The quick and sudden improvement of the earth's air quality and substantial decrease in air pollution as a result of COVID-19 is a reminder that if we live sustainably and responsibly, we can live in harmony and have a positive impact on our environment.

COVID-19 demonstrates to humanity, without a reasonable doubt, that it is possible to slow down or even to reverse some of these dangerous trends of global warming. Humanity has shown that it can be very innovative in dealing with life-threatening challenges. It's by getting together and addressing those challenges as a global community that we can make change.

COVID-19 also shows that if humans don't protect the environment and live responsibly, we might lose some of the basics needs of our existence. We might deprive ourselves of our freedom to do the day-to-day activities we take for granted, such as going to work, traveling and having the ability to congregate.

The 50th Earth Day anniversary came at the right time. It is now up to humanity to continue the positive environmental trend resulting from it. It reminds us that we should continue on this positive path for the better of this earth and for humanity.

Therapeutics and vaccines to treat Covid-19

Dr. Yongming Sang and his research team is conducting bioinformatics analysis of the decoy domain of the SARS-Cov2 to deviate host immune reaction. In addition, Dr. Sang is designing a BSL2 animal coronavirus disease model to study Covid-19. He proposes to conduct a collaborative test if porcine IFN- ω provide an antiviral option.

For teaching and outreach activities, Dr. Sang is scientifically disseminating his understanding about Covid-19 as an immunologist to promote the students' understanding and relieve some of their concerns about Covid-19 in his online classes.

Currently Dr. Sang initiated and co-authored a commentary paper in "The Lancet" journal to propose a scientific-sounding name of SARS-Cov2 for the Covid-19 virus. He also co-authored a correspondence paper in the EMI journal to resist the conspiracy theory about Covid-19.

Developing a CORVID-19 Surveillance and Mitigation System for Ag-related small businesses

Dr.s Suping Zhou, Yongming Sang, Fur-Chi Chen, John Ricketts and other biotech focus members is preparing to set-up a mobile detection system

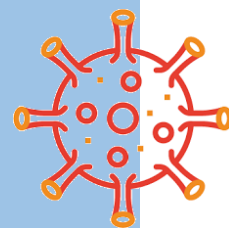


using commercial kits and our own lab instruments to help garden centers, and U-pick farms operators to detect the presence of the contagions for the business staff as well as consumers. In addition, systemic guidelines will be developed and implemented to contain and prevent the spread of the pathogen in case it occurs. The team is preparing a proposal to be submitted to NIFA CARE.

NIFA announces COVID-19 funding opportunities

There are four areas of priority: health and the security of livestock; well-being of farm, food service providers, and rural Americans; economic security; and food safety. Applicants should focus on critical and urgent research, Extension or integrated solutions in response to the COVID-19 pandemic and its impacts on the nation's food and agricultural system. Applications should include strategies and knowledge that can be rapidly implemented to minimize or eliminate COVID-19 impacts on the nation's food and agricultural system.

The deadline to submit applications is June 4. NIFA will expedite the application evaluation and awards review to ensure rapid project start-up. Click for more information and [to apply](#).



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search associations (Northeast, North Central, Southern and Western) in the national land-grant university system's Experiment Station Section, conducted a survey to collect data to support a multi-million-dollar supplemental funding request by APLU for NIFA-supported research that has been adversely impacted by the COVID-19 pandemic. In responding to the question related to "ramp-down and ramp-up costs to close and restart research activities," 42% of 1890 directors reported ramp-down or closure of at least 80% or greater; while 30% of 1890 directors reported ramp-down or closure of at least 61% or greater. In addition, according to the directors, the cost of terminating on-going experiments coupled with future restarts would be devastating.

On average, 75% of the 1890 directors anticipate that six to 12 months of additional support is need to meet research objectives. The data are clear. As a consequence of the stop and/or unexpected disruptions of research operations because of COVID-19, research programs in the food and agricultural sciences at the 1890 institutions are in urgent need of supplemental funds.

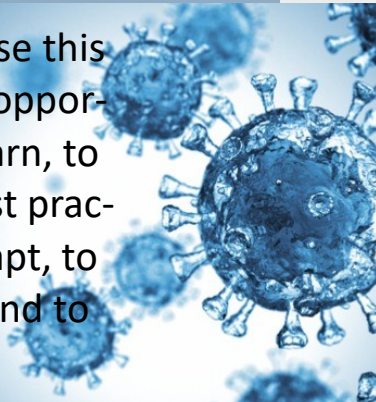
The anticipated enrollment declines because of COVID-19 mean significant reductions in state funding, reductions in meeting required matching funds for research and an overall reduction in research capacity. In addition, the 1890s heavily rely on undergraduate and graduate students in carrying out research projects. With the anticipated drop in enrollment this fall, there will be fewer students available to participate in research, the work will be slower to come online, and thus, cost more. There was already a shortage of students in STEM areas in 1890s before the COVID-19 pandemic, thus the shortage of student researchers, particularly from underserved communities, will be exacerbated.

Most experts agree that these unprecedented and unpredictable times will eventually give way to a new normal. For a virus that can spread from people who may not show symptoms, this means that we won't be safe to resume "normal" levels of interaction until virtually all Americans are immune. At the heart of the "reopening" concerns of our universities and research labs is that the premature lifting of measures designed to keep people apart could rapidly derail the progress to date. Consequently, the coronavirus pandemic has left university leaders facing difficult decisions about when to reopen campuses and how to go about it.

I am very optimistic that COVID-19 will be conquered and our universities and research labs will re-open. Things, however, will be different; with new ways of doing things—a "new normal."

As members of the land-grant learning community, we will use this crisis as an opportunity to learn, to develop best practices, to adapt, to reimagine and to innovate. To date, in this COVID-19 environment, I have been impressed with how quickly our 1890 researchers have developed new protocols, made major shifts in research/experimental designs and developed novel approaches to the discovery enterprise. Moreover, this was done in weeks.

In this "new normal," we need to continue to ask - What will we do differently? How will we reimagine research and discovery in food and agriculture? And what new opportunities does this crisis bring? Based on what I have witnessed in the land-grant community in the last two months, I'm convinced that we will emerge from COVID-19 stronger, more resilient, more agile and with new opportunities and innovative methods to better serve our students and our clientele in the communities we serve.



"...we will use this crisis as an opportunity to learn, to develop best practices, to adapt, to reimagine and to innovate."

As I was thinking about the "new normal," a former #1 bestseller, "Who Moved My Cheese?" by Spencer Johnson came to mind. This book is a simple parable that offers unique insights to deal with difficult change in our work and in our lives. Johnson's mice characters, enticing images and language give the reader a fundamentally sound and memorable way of managing change. Without a doubt, COVID-19 has moved our "cheese," and a 'new normal' is on the horizon. I encourage you to read this book as you lead and manage your way through COVID-19; it takes less than an hour to read. It's a great read!

I want to recognize our directors, faculty and staff for their commitment to our students and the people in the communities we serve and for their tireless efforts in changing and adapting rapidly to the challenges of an unforeseen fluid environment. Also, our Executive Director (Dr. Alton Thompson) is doing an excellent job of keeping us updated on COVID-19-driven legislation and other vital developments via weekly Zoom meetings.

Take care everyone and don't forget to exercise. A wise 1890 director once said, "Food is easy over the lips but hard off the hips."

National Experiment Station Section Diversity and Inclusion Award: recognizes research team efforts that supported the creation of diverse and pluralistic teams at the local, state, regional or national level. Executive Vice Chair, Diversity Catalyst Committee (Rick Rhodes) will communicate this year's award recipient(s) on behalf of the Award Review Panel (appointed by the ESCOP Diversity Catalyst Committee) to the ESS Chair and NIFA Director by June 1.



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1890 Land Grant Universities

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ARD Updates is published monthly by the Association of Research Directors. To suggest articles, contact Dr. Alton Thompson at athompson1@ncat.edu

Census restarts field data collections

The 2020 Census is underway and more households across America are responding every day. Over 70 million households have responded to date, representing over 48% of all households in America. In light of the COVID-19 outbreak, the U.S. Census Bureau is adjusting 2020 Census operations in order to:

- Protect the health and safety of the American public and Census Bureau employees.
- Implement guidance from federal, state and local authorities.
- Ensure a complete and accurate count of all communities.

The Census Bureau temporarily suspended 2020 Census field data collection activities in March. Steps are already being taken to reactivate field offices beginning June 1, in preparation for the resumption of field data collection operations as quickly as possible following June 1.

In-person activities, including all interaction with the public, enumeration, office work and processing activities, will incorporate the most current guidance to promote the health and safety of staff and the public. This will include recommended personal protective equipment (PPE) and social distancing practices.



Once the 2020 Census data collection is complete, the Census Bureau begins a lengthy, thorough and scientifically rigorous process to produce the apportionment counts, redistricting information and other statistical data products that help guide hundreds of billions of dollars in public and private sector spending per year.

In order to ensure the completeness and accuracy of the 2020 Census, the Census Bureau is seeking statutory relief from Congress of 120 additional calendar days to deliver final apportionment counts.

Under this plan, the Census Bureau would extend the window for field data collection and self-response to Oct. 31, which will allow for apportionment counts to be delivered to the President by April 30, 2021, and redistricting data to be delivered to the states no later than July 31, 2021.

ARD CALENDAR

SAVE-THE-DATES

2020 JOINT COPS MEETING – July 20 – 23 in Kansas City

2020 ESS-SAES-ARD FALL MEETING - Sept. 28-30 at the Baltimore Waterfront Marriott, 700 Aliceanna St., Baltimore, MD [Click to book room](#) or call 1-888-511-7809 and give group name, Association of 1890 Research Directors 2020.

