

## **NAGA Convention Registration Now Open**

The North American Game Bird Association's 2021 Annual Educational Conference and Convention will be held at the Rio Hotel & Casino in Las Vegas on February 1-3.

In addition to the convention's full schedule of informative sessions, panel discussions and networking opportunities, you'll also have the option to take in the sights and sounds of the entertainment capital of the world. New this year is a special "Dinner and a Show" package where attendees will be treated dinner at the Rio's All-American Bar & Grille followed by "WOW - the Vegas Spectacular" on Tuesday, February 2.

The cost for convention registration is \$275 per person if registered by 12/1/2020, and \$300 per person if registered on or after 12/1/2020. Should the Convention be cancelled due to COVID-19 restrictions, a full refund will be issued to all who register. To register, go to [info@northamericangamebird.com](mailto:info@northamericangamebird.com)

## **Boosting Chickens' Own Immune Response Could Curb Disease**

*Interventions may be even more effective in real-world production settings*

PUBLISHED ON October 8, 2020

URBANA, Ill. — Broiler chicken producers the world over are all too familiar with coccidiosis, a parasite-borne intestinal disease that stalls growth and winnows flocks. Various approaches, developed over decades, have been used to control coccidiosis, but the disease remains widespread.

Recent research from the University of Illinois supports the use of immunomodulatory and antioxidant feed additives to reduce the effects of coccidiosis.

“In the last two decades, partially to get around the parasite's resistance to pharmaceuticals, vaccination has become more prevalent. That's when I got interested, because nutrition is a key element in the effectiveness of vaccines. Diet and health go together in that way,” says

Ryan Dilger, associate professor in the Department of Animal Sciences at Illinois and principal investigator on the research. “So, what we’re talking about here is not a vaccine. Instead, we used nutritional technologies to disrupt the normal reproductive cycle of the parasite.” When a chicken picks up the parasite, of which there are seven major *Eimeria* species affecting broilers, its body mounts an immune response, starting with a cascade of inflammatory proteins known as cytokines. These cause the bird to stop eating and rest, so the immune system can do its work. In normal disease progression, an anti-inflammatory mediator known as interleukin-10 (IL-10) is eventually produced to keep the inflammation from ramping up too high and causing tissue damage through oxidative stress.

However, *Eimeria* tricks chickens into over-producing IL-10 earlier than expected, before the immune system can produce enough cytokines to effectively attack the invader. “It’s like the parasite is saying, ‘Everything’s fine. I’m not actually here!’ It’s really trying to evade the immune response,” Dilger says.

To reverse that effect, doctoral student Muhammed Shameer Abdul Rasheed included a novel feed ingredient, a dried egg product with IL-10 antibody activity, in the diet of broiler chickens before inducing coccidiosis.

“We want the bird to have an acute pro-inflammatory response in order to clear the parasite, and that response is dampened when the parasite tricks the bird into overproducing IL-10 antibody. We’re trying to take away the parasite’s ability to manipulate the bird’s own immune system against itself,” Rasheed says.

The IL-10 dried egg product has been shown to be effective against mild *Eimeria* infection in other studies, but it hadn’t been tested in severe cases and in the absence of vaccine administration.

“Our results suggested that dietary dried egg product could be beneficial in promoting gut health during severe infection for particular strains of the parasite, even though suppression of the IL-10 response may promote an exaggerated inflammatory reaction in the intestinal epithelium, which may cause subsequent tissue damage,” Dilger says. Uncontrolled inflammatory responses can lead to oxidative stress, where chemicals with unpaired electrons, known as free radicals, start to

damage healthy tissue. When Rasheed saw the intestinal damage in this study, he decided to test the combined effects of the IL-10 antibody and an antioxidant known as methylsulfonylmethane or MSM. He had previously tested MSM in chickens and found it had no adverse effects on health or growth, but it had never been tried as a treatment for oxidative stress during coccidiosis.

“The IL-10 antibody works to combat the infection through an immune mechanism, which may inadvertently cause oxidative stress, so MSM was used in combination to specifically combat that tissue damage,” Rasheed says. “So the hypothesis was that if these two interventions are working through different mechanisms, combining them together may actually give us a better response than either of them alone.”

When the research team fed infected birds a combination of MSM and IL-10 antibody, the treatment showed promise. First, chickens that got the treatment showed greater body weight gain 7-14 days post-infection than birds that didn’t consume the dietary products. Also, total antioxidant capacity, an overall indicator of how well an animal can counteract oxidative stress, remained higher in treated birds three and four weeks after infection, suggesting lasting dietary effects.

“In the end, the birds still got sick; they still had an infection that reduced their growth for a certain amount of time. Just like with some pharmaceutical agents designed to lessen the effects of the flu in humans, it’s not actually going to prevent you from getting the disease in the first place. However, our goal is to shorten the length of time you’re sick,” Dilger says. “That’s just as meaningful for broiler chickens.”

Dilger thinks the dietary interventions may be even more effective in real-world production settings. In the clean, controlled environment of a laboratory study, these broiler chickens were raised on wire flooring to separate the birds from their excrement. However, broiler chickens raised on a commercial farm would be raised on the floor, in direct contact with litter, which is partly how the *Eimeria* infection cycle continues. In the end, the nutritional strategies studied here may act as a kind of insurance for producers to help birds bounce back sooner.

“Producers may not have coccidiosis when they mix this in the feed, but by the time the chickens consume it, the disease may have reared up

again. So if the product is already there, you have some protection,” Dilger says. “Again, it’s not going to prevent the birds from getting coccidiosis, but hopefully it can reduce the untoward effects and allow them to get back to a healthy state faster and continue growing, such that they can remain productive during that time. It’s another important tool in the arsenal for producers.”

–University of Illinois  
College of Agricultural, Consumer and Environmental Sciences

## **USDA Updates the National Poultry Improvement Plan**

*NPIP is a cooperative Federal-State-industry mechanism for controlling certain poultry diseases*

**PUBLISHED ON October 5, 2020**

WASHINGTON — The United States Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS) is updating the National Poultry Improvement Plan (NPIP) to align with changes in the poultry industry and to incorporate new scientific information and technologies into the NPIP. These updates are consistent with the recommendations approved by representatives from across the poultry industry at the 2018 NPIP Biennial Conference.

In this update, APHIS is:

- creating a new U.S. Newcastle Disease (ND) Clean program;
- updating low pathogenic avian influenza regulations on indemnity and compensation;
- creating an NPIP subpart specific to the game bird industry; and
- clarifying and updating the program regulations to match current scientific information and technologies.

The ND Clean program and compartment status will focus on primary breeder egg-type chickens, meat-type chickens, and turkeys – the animals that provide the foundation for the industry. Through the program, owners can show that their flocks meet all requirements to be considered unaffected by ND by both the Official State Agency and APHIS. The requirements for ND Clean compartments are similar to those in the AI Clean compartments. This allows clean flocks to participate in international and interstate trade, even during a ND

outbreak. This benefits not only the flock involved, but the overall industry, by keeping trade flowing.

APHIS is updating the NPIP regulations on indemnity and compensation payments for low pathogenic avian influenza detections so they reflect current policy and operational practices. The rule adds/clarifies definitions for various terms related to providing payments for animals, materials, cleaning and disinfection, and other steps needed for infected farms to return to normal business.

APHIS is creating an NPIP subpart specific to game birds, an industry that has grown rapidly and become more complex since its inception. The new subpart aligns with the terminology, production methods, and end uses in the industry, which are significantly different than those in other poultry industries. The new subpart adds testing regimes, terminology, and programs specifically designed for the game bird industry.

APHIS made two changes to the proposed rule. The agency is in the process of standardizing fair market valuations across species, so the language was updated to remove the requirement for use of indemnity calculators. APHIS also added a clarification explaining that a Virus Elimination calculator will not be used when the claimant and APHIS jointly agree the VE calculator is not applicable to the premises type. The [rule](#) becomes effective 30 days after publication in the Federal Register.

The NPIP is a cooperative Federal-State-industry mechanism for controlling certain poultry diseases. NPIP's objective is to provide a cooperative program through which new technology can be effectively applied to improve poultry and poultry products throughout the country. NPIP offers a variety of programs and identifies States, flocks, hatcheries, dealers, and slaughter plants that meet disease control standards specified in the various NPIP programs.

–USDA APHIS

## **Some Climate Change Questions Answered as Hurricane Season Peaks, Wildfires Rage**

*New easy-to-read UF/IFAS Extension document*

**PUBLISHED ON September 22, 2020**

GAINESVILLE, Fla. — Wildfires out west? Check. Tropical storms or hurricanes hovering – seemingly everywhere? Check. Those are just two of the potentially catastrophic events caused in part by climate change, say University of Florida experts.

“Our climate is changing and, with that, comes more extreme events,” said Ashley Smyth, an assistant professor of soil and water science at the UF/IFAS Tropical Research and Education Center in Homestead. “Just look at the most recent hurricanes — as they cross the Gulf, they gain energy. That is because of the warm water. As the air stays warmer longer, so does the water. What we also need to be concerned about is the heat and what that means for human health.”

Smyth wrote about climate change along with a Ph.D. graduate from the soil and water sciences department at the UF/IFAS College of Agricultural and Life Sciences. Smyth, Josh Papacek, Holly Abeels, a UF/IFAS Extension Florida Sea Grant agent in Brevard County and Alicia Betancourt, director of UF/IFAS Extension Monroe County just published a [new UF/IFAS Extension document](#) that puts climate change in an easy-to-read, science-based Q&A format.

Here are a few of the questions that the document answers:

- How do we know the climate is changing?
- What are greenhouse gasses and where do they come from?
- Is climate changing in Florida, and what are the long-term projections?
- Why are sea levels rising?

The document stemmed from a project they worked on last year with [Residents and employees of the city of Hallandale Beach attended a forum, Papacek said. With the forum, they aimed to increase climate literacy for the city staff, and they held a forum for staff to ask questions about climate change directly to scientists.](#)

As a rule, climate change doesn’t come along suddenly. It builds over years, Smyth said. For example, temperature increases come very gradually.

While the average summer temperature in Florida has risen 1 degree since 1950, Smyth notes that between 1950 and 1970 the average summer temperature was 80.5. From 1991-2010 the average summer temperature was 81.4. Projections suggest summer temperatures will be

above 83 from 2020-2039.

“There are a few key take-a-ways from this,” Smyth said. “The rate of change is increasing, meaning that unless we change our emissions, we will likely see hotter and hotter summers. That means climate change is not moving as slowly as it did in the past. One degree might not seem like a lot, but it is enough to trigger sea-level rise, snow melting, storms, heat waves and drought. These small changes add up over time to have large impacts. This is a sign of the Earth heating up.”

Another big takeaway from the paper, says Smyth, is that climate change is costly. It also can change growing seasons for agriculture by affecting pests, time and duration of rainfall and fertilizer use.

“Those can impact businesses’ bottom lines,” she said.

Smyth sees some positive signs in human activity that might change the trend toward global warming.

“I also think it is important to remind everyone that there is still hope,” she said. “More people are concerned, and there is evidence that people are taking action to reduce their carbon emissions, one potential cause of global warming.”

Added Papaceck: “Many Floridians are already tuned in to what is happening, and most people are already concerned with the trajectory of our climate. We wanted to not only answer any lingering questions they may have about the science of climate change and what that means for Florida, but also provide some tools and resources to on how they can act now. The sooner we act, the smaller the impacts.”

–Brad Buck, UF/IFAS

## **Secretary's Corner**

### ***Please Vote, Your Vote Matters***

#### **The USA and the Roman Empire**

Is the United States becoming the Roman Empire of ancient times? The Empire eventually dissolved due to jealousies within their government, and rife between the haves and have-nots; which led to a civil war and the Empire’s demise. The US has many haves: Forbes reported that the 400 richest Americans have a value of \$3.2 trillion; and there are 614 billionaires, and 18.6 millionaires: and have-nots - 552,830 homeless people, and 38.1 million living at the poverty level.

In addition to these events, there were a variety of environmental problems in the Roman Empire, many of which were very serious. These environment problems were and are similar to what is happening to the US. Fortunately, the Romans also found ingenious solutions that helped stop the further growth of these important environmental problems.

*What are some environmental problems that the Romans dealt with?*

- Deforestation
- Air Pollution
- Lead Poisoning

*What is deforestation and how did it affect the Roman Empire?*

Deforestation: The **intentional** clearing of forests by logging and/or burning. Deforestation in the US is considered one of the major causes of the disappearance of wild Bobwhite quail.

Causes of Deforestation in the Roman Empire

- Fuel: Wood was a primary source of heating. Fires were used in the classical Roman bath that generated heat, the making of ceramics, and the process of smelting metal. Mining centers also used fire after mining various metals.
- Housing: The majority of houses in the Roman period was made of wood. Wood was the most basic supply that was used. Wood was easy to get and was cheap. It did not take long to build a wood house as did a brick house. As population increased, so did the number of houses. Thus, wood was consumed increasingly.
- Agriculture: Due to the increasing number of people, the demand for crops and vegetables rapidly rose. Thus, farmland was needed. Forests were cleared away for farmland.
- Military: The Roman army was ordered to cut down forests that could potentially hide an enemy which could result in a surprise attack. In addition, wood was used extensively in the Roman army for various tools and weapons (chariots, etc.).

*How did the Roman Empire produce air pollution?*

Air pollution was not a major concern of the Roman Empire. However, the air was filthy near urban areas due to various reasons. The air was also known as “heavy heaven” or “infamous air”.

Causes of Air Pollution



- Garbage Disposal: The Romans had problems on where to dispose garbage that were produced by the empire.
- Burning Wood: Fires that used wood would stink horribly. These fires were used either for heat or for craft workshops, such as smelting metal.
- Sewage Problems: Rome was lucky to have a sewage system that drained polluted water away. However, sewage systems would frequently overflow, causing polluted water to contaminate pure water from the aqueducts.

*Why was lead poisoning a problem in the Roman Empire?*

Lead poisoning was a leading cause of unnatural deaths in the Roman period. Lead poisoning would be a problem in most people because of the contaminated water sources. The aqueducts were effective in cleaning and purifying water sources, but they were contaminated as water flowed out of lead pipes. Thus, even the most-wealthy would suffer from lead poisoning.

Life evolved on the earth due to our atmosphere and water. The earth was a massive forest for billions of years. The carbon dioxide present in the earth's formation was absorbed by photosynthesis which produced oxygen, ultimately giving rise to viruses and living organisms.

The earth has gone through many changes in its 5.5 billion-year history. Are we as humans seeing evolution being speeded up by our use of fossil fuels? In addition, the countries of the world are in constant turmoil of political and religious beliefs, which have occurred since different races of human-kind began on earth.

Global warming is real according to scientists. Global warming is already having catastrophic effects on the world's climate and economics. Is it too late to help the earth to survive another 5 billion years?

Happy Hunting

Sincerely,

Dr. Gary S. Davis, Executive Secretary  
SEGB&HPA

website: [www.segamebirds.us](http://www.segamebirds.us)

