Farm Families of Mississippi recently announced that MPA members Steve and Deanna Goodnight of Perry County as one of its featured farmers for 2020. The couple will represent the organization on various forms of media, like television commercials, billboards and social media throughout the year.

The Goodnights grow for Mar-Jac Poultry MS and own and operate six chicken houses with state-of-the-art technology on their farm. They can control all of their chicken houses with the touch of a button from their phones, computer, iPad or one screen in their chicken houses.

“Back in the day, all a farmer needed to make something grow was a little bit of determination,” Farm Families of Mississippi Coordinator Jon Kalahar said. “Today, technology provides farmers with a helping hand that can take luck all but out of the equation, even when running chicken houses. That is why we selected the Goodnights as one of our 2020 featured farmers. They are thinking out of the box with their operation, and we think it’s important to share that with consumers.”

Each of the six chicken houses on Goodnight Farm contains 37 thousand growing chickens. With that many animals under his care, Steve feels blessed to have access to such helpful technology.

“I’m not great at (figuring out) technology, but I’ve learned,” Steve said. “It made (operating six chicken houses) really simple and really easy.”
One single vaccine dose never did so much. VAXXITEK\textsuperscript{®} HVT + IBD provides lifelong immunity\textsuperscript{1} which leads to healthy birds, better performance and operational profits\textsuperscript{2}. Talk to your local representative for more information.

REFERENCES
1 Data on file.
2 Data on file.

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EMERGING TRENDS
A Newsletter of the Mississippi Poultry Association

MISSISSIPPI POULTRY ASSOCIATION
Pic Billingsley • Chair
Steve McLaurin • Vice Chair
Ted Mangum • Grower Advisory Committee Chair
Mark Leggett • President
  leggett@mspoultry.org
Becky Beard • Administrative Assistant
  beard@mspoultry.org
Reed Wade • Grower Relations Coordinator
  wade@mspoultry.org

If you want to join the Mississippi Poultry Association as a Grower Member, call the MPA office at (601) 932-7560 for more information!
In addition to working as an electrician who wires chicken houses with his father, Steve runs six batches of chickens through his farm each year.

“I remember when we first started wiring chicken farms, the biggest farms we worked on had about three houses,” he said. “Because they didn’t have the manpower, they had to stay there 24 hours a day. They couldn’t leave, couldn’t go anywhere or do anything. They had to stay right there all day long.”

Fortunately, for the Goodnights, the technology installed in their chicken houses allows them to have a more flexible schedule than chicken farmers in the past.

The information you give the Census Bureau is confidential and cannot be used against you by any state or federal agency or in court. The information cannot be used for immigration or government benefit purposes. If you fill out the Census online, the information you input will be encrypted and not kept online.

“Almost 95% of households will receive their census invitation in the mail. Less than 1% of households will be counted in person by a census taker, instead of being invited to respond on their own. We do this in very remote areas like parts of northern Maine, remote Alaska, and in select American Indian areas that ask to be counted in person.

Note: We have special procedures to count people who don’t live in households, such as students living in university housing or people experiencing homelessness.

Mark Leggett - President, Mississippi Poultry Association

Mississippians have a chance April 1 to get back a bigger share of the taxes paid to the federal government, but only if you fill out the 2020 Census form and return it. Completing the process this year may be the easiest ever.

Every Mississippian is to receive a census form in March 2020. Every household will have the option of responding online, by mail or by phone. The Census is used to divvy up $675 billion in federal funding based on population. If Mississippi is to get its fair share, everyone needs to be counted.

Gov. Phil Bryant named former State Sen. Giles Ward to lead the Mississippi Complete County Committee to promote participation in the 2020 Census.

“The Complete Count Committee is working diligently to make certain that every person in Mississippi realizes the importance of responding to the 2020 Census. And, that the census has a direct impact on them. More than $20,000 of federal funding is lost over the next decade for every person in the state who DOES NOT RESPOND. This represents a huge amount of money for our state, our counties and our local municipalities. Census data is used for more than 50 different purposes -- and every Mississippian is impacted by the results,” Ward said.

On or between March 12-20 you will receive an invitation to respond to the 2020 Census. Then on or between March 16-24, you will receive a reminder letter. Then the Census Bureau will follow up with a post card reminder on March 26-April 3, then a reminder letter and a paper questionnaire. Finally, on April 20-27, if you haven’t responded, you will get a post card that someone from the Census Bureau will be making an in-person visit.

The information you give the Census Bureau is confidential and cannot be used against you by any state or federal agency or in court. The information cannot be used for immigration or government benefit purposes. If you fill out the Census online, the information you input will be encrypted and not kept online.

The Census count is used to determine how many U.S. Congressmen each state elects. Mississippi does not appear to be in danger of losing a Congressman to another state as happened in 2000. Alabama is facing the loss of one, possibly two seats. Texas, Florida and Georgia will be gaining seats in Congress.

The Mississippi Legislature will use the Census results to draw the Congressional district lines and their own state House and Senate districts. Boards of supervisors and city councils use the Census numbers for redistricting.

The census is used in planning where to put new roads, schools, hospitals, new factories or retail outlets, whether cities should annex and how they should zone areas within the city. And federal funds flow to states based on the population.

How the 2020 Census will invite everyone to respond

Every household will have the option of responding online, by mail, or by phone.

Nearly every household will receive an invitation to participate in the 2020 Census from either a postal worker or a census worker.

95% of households will receive their census invitation in the mail.

Almost 5% of households will receive their census invitation when a census taker drops it off. In these areas, the majority of households may not receive mail at their home’s physical location (like households that use PO boxes or areas recently affected by natural disasters).

Less than 1% of households will be counted in person by a census taker, instead of being invited to respond on their own. We do this in very remote areas like parts of northern Maine, remote Alaska, and in select American Indian areas that ask to be counted in person.

Goodnights, continued

The Complete Count Committee is working diligently to make certain that every person in Mississippi realizes the importance of responding to the 2020 Census. And, that the census has a direct impact on them. More than $20,000 of federal funding is lost over the next decade for every person in the state who DOES NOT RESPOND. This represents a huge amount of money for our state, our counties and our local municipalities. Census data is used for more than 50 different purposes -- and every Mississippian is impacted by the results,” Ward said.

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Note: We have special procedures to count people who don’t live in households, such as students living in university housing or people experiencing homelessness.

The Mississippi Farm Bureau Federation and other Mississippi agriculture industry stakeholders launched Farm Families of Mississippi in 2010 to promote the importance of agriculture to the public. MPA has been a contributor to the Farm Families of Mississippi campaign since 2011. The campaign uses multiple forms of advertising each year to educate those who are not actively engaged in farming. To learn more about Farm Families of Mississippi and the Goodnights, visit www.farmfamiliesms.org.

This year the Farm Families campaign ads are stressing sustainability, environment, and digital tools (technology).
It was yet another successful year for the 4-H Poultry Chain. This year was the eighth annual 4-H Poultry Chain Show hosted by the Department of Poultry Science at Mississippi State University. We had approximately 60 participants in this year’s event. The majority of those who came to the state competition with their birds also participated in the showmanship category. The number of entries for showmanship has steadily increased and it is really a joy to get to see the progression of the difficulty level from the first year we offered this category up to the current year.

This year our participants represented 25 different counties with some of these counties being the first-time having participants at the state level. We awarded Grand Champion and Reserve Champion for juniors and seniors in the Layer category and meat category as well as a Junior and Senior Grand Champion and Reserve Champion for showmanship. A total of $10,900.00 was awarded to the winners which was graciously donated by MPA, the Mississippi State Extension Service, and the Department of Poultry Science.

We would also like to congratulate the following participants for their hard work and success in this year’s chain project.

The Mississippi Poultry Foundation supports the Poultry Chain with an annual donation.
From summer heat to winter frost, the ecology of a broiler house is constantly changing, which can lead to an increased coccidiosis challenge. The precocious strains of HATCHPAK® COCCI III vaccine induce optimum immunity with minimal lesions. So, at whatever level of coccidiosis challenge, your flock can be safely protected year round.

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AV16-003A / HPC(02/17)
Environmental Law Group

Brunini has premier expertise in environmental litigation, regulatory permitting and compliance issues as well as due diligence and transactional matters. John Milner was noted by Chambers USA as being “instrumental in developing Brunini’s environmental practice” into the leadership position it holds today.

John Milner serves as counsel to the Mississippi Poultry Association and has special expertise in poultry-related environmental issues. Partner Gene Wasson also has impressive abilities in the environmental sector. Partner Trey Jones has significant Environmental Litigation experience. Associate Kyle Williams provides valuable assistance on business issues.

First Financial Bank of Carthage recently awarded two scholarships totaling $1,500 per year to two poultry science seniors at Mississippi State University. A committee of educators chose the recipients and the funding was provided through the Mississippi Poultry Foundation.

The winners of the 2019 scholarships are Rebecca Sloan from Madison, Alabama and Elizabeth Usery from Athens, Alabama. Michael Barnes, FFB Vice President, made the presentation at Mississippi State University recently. First Financial Bank is one of the state’s largest poultry industry lenders.

“First Financial Bank is glad to assist these future leaders in the poultry industry with their education at MSU,” Barnes said. “We are proud to be a supporter of the Mississippi Poultry Foundation’s efforts to assist poultry science students with their education.”

Sloan, who won a $750 scholarship, has worked internships in poultry processing for Pilgrim’s Pride and in logistics for JBS corporate. She has been admitted into a master’s program for genetics at the University of Alabama in Huntsville where she plans to take this knowledge and return to work in the poultry industry after graduation.

Usery, who won a $750 scholarship, has previously done a production internship with Sanderson Farms in North Carolina and is currently doing undergraduate research under Dr. Aaron Kiess. Her plans upon graduation are to attend veterinary school or start her masters under Dr. Tom Tabler.

This is the tenth year that First Financial Bank has made donations for scholarships by the Mississippi Poultry Foundation.
BankPlus has a strong commitment to agriculture and to integrated poultry lending. For over 100 years, BankPlus has built our success on providing Mississippi farmers with customized financial services, great products and support that promotes agricultural production.

Our loan officers understand the unique challenges that modern farming operations face and are equipped with the skills and expertise to craft flexible loan products to meet your individual needs. Also, BankPlus has been recognized as a Top SBA Lender in MS.

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TWO MPA GROWER ADVISORY COMMITTEE MEMBERS SPOKE TO MSU STUDENTS

Reed Wade, Grower Relations Coordinator - Mississippi Poultry Association

MPA Grower Advisory Committee Chair Ted Mangum with 24 years’ experience growing chickens, and Sean McDonald, with seven years’ experience, spoke to Dr. Wei Zhai’s broiler production class of around 25 students about how to communicate with growers.

Dr. Tom Tabler, MSU Poultry Science Extension Professor, and Dr. Reagan Sadler, MSU Poultry Science Professor, joined to speak from experience and answer questions. Dr. Tabler told the students that when he serviced chickens, he never directly told a grower what to do, but he made recommendations. The students, many of whom will become service technicians need to approach growers as a guest on the growers’ farms. He said they need to learn how to interact with many different personalities because the chicken business is really the people business.

The students were very involved and asked a wide range of questions including “what is the first step in becoming a grower?”, “how do you dispose of dead birds?”, and “how do you recommend young poultry vets or service techs establishing a good relationship with growers?”. Mangum and McDonald told the students they have had many different service techs and there needs to be a personal relationship between a service tech and a grower, not just a business relationship.

McDonald told the students that no one likes being told what to do, so demanding changes on their farm isn’t the best way to communicate with growers. Instead, he said, he relayed the information in a way to explain how it benefits the company and the grower. When asked the importance of speaking to poultry science students, he said “I think it is very important to establish good lines of communication between producers and integrators. I believe that one of the keys to success in any business is communication. I believe speaking and interacting with the students gives them understanding of producers thoughts and concerns.”

Mangum told the students that growers are not uneducated farmers, they are highly invested in their farms. The most important thing, he said, to remember is that they are small business owners and want to be treated with respect. When asked the importance of speaking to poultry science students, he said, “Many times students spend their entire college experience with no contact with the real world. You can tell we have their undivided attention. I think we turned some lights on for many of them.”

This is the second year Dr. Zhai has asked growers to come talk to her poultry science class and she plans to continue this every year for the benefit of the students. She said, “This is a unique situation and an excellent opportunity for our students concerning industry/grower relationships and how best to foster those relationships. It allows our students to ask questions directly of poultry farmers who spend every day growing birds for the commercial poultry industry in Mississippi. It also allows Mississippi poultry growers the opportunity to interact with our poultry science students and it gives the students a unique, real-world perspective that they typically do not get in a classroom setting. It is a win-win for everyone...students, growers, faculty, and the poultry industry. The Poultry Science Department is grateful to MPA, the commercial poultry industry in Mississippi, and the individual growers that take time out of their busy schedule and for helping us better prepare tomorrow’s future poultry industry leaders in Mississippi and across the country.”

Front of the room, from left to right: Dr. Tom Tabler, Ted Mangum, Sean McDonald, Dr. Reagan Sadler.
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The Mississippi Poultry Foundation had a record year in fundraising in 2019. The annual auction at the MPA Convention took in $47,000, more than $14,000 greater than the previous record set the year before.

The auction has generated increasing revenue since it began in 2006 with a total of $9,585 in its first year. Since it started, the auction has grossed $318,000.

The Foundation Board of Trustees, chaired by Peco Foods CEO Mark Hickman, has used the funds raised at the auction after expenses to create an endowment at Mississippi State University which now stands at $50,000. The interest from the endowment, created in 2016 with an initial $25,000, has provided scholarships for three students so far.

“The board has taken a careful, long-term approach in managing these funds to encourage continuing support for students who are our future leaders of the poultry industry,” Hickman said.

The funds raised also allow the Trustees to award four annual scholarships currently valued at $4,000 each to children or grandchildren of grower members or students majoring in poultry science. The scholarships, which were first awarded in 2005 before the start of the auction, have provided $94,000 to 46 students.

The funds also support the MSU Extension Service’s annual Poultry Chain competition for elementary and high school students.

Five MPA members also make annual donations to the Foundation to fund scholarships. They are First Financial Bank, International Paper, BankPlus, Southern Ag Credit, and the latest addition, First South Farm Credit. These scholarships and travel grants in 2020 will total $11,000 to graduate and undergraduate students in poultry science.

The named scholarships started with First Financial Bank scholarship to MSU seniors in 2010 and was followed by the International Paper scholarship to graduate students based on their research. BankPlus and Southern Ag Credit make travel grants for graduate students to present their research at international forums. The First South Farm Credit scholarship will go to undergraduates.

“The support of the Mississippi Poultry Foundation has been tremendously affirming of our programs, both undergraduate and graduate,” according to Dr. Mary Beck, Poultry Science Department Head. “The confidence in and support for our students by the Mississippi poultry industry is unparalleled and most gratefully acknowledged.”

Steve McLaurin is the newly elected Chairman of the Mississippi Poultry Association Board of Directors for 2020. He assumes the position Jan. 1.

Poultry is Mississippi’s largest agricultural industry, paying almost $3 billion to growers and generating an $18 billion economic impact. MPA, founded in 1937, represents 1,000 members including poultry companies, growers and allied industries.

McLaurin, of Forest, is live operations manager for Peco Foods in Sebastopol. He has 40 years experience in the industry. Peco Foods employs 3,300 in Mississippi.

McLaurin previously served as chairman of the Board for MPA in 2009 and 2015. A graduate of Mississippi State University with a poultry science degree, he is also on the MSU Department of Poultry Science Advisory Committee.

McLaurin replaces Bob Billingsley of Sanderson Farms as chairman of the association’s 30-member board.

Other members of the 2020 MPA Executive Committee are: David Porter, Mar-Jac Poultry MS, vice chairman; Dr. Ryn Laster, Cal-Maine Foods, treasurer; Billingsley, immediate past chairman; Ray Ables, Tyson Foods, past chairman; Bobby James, Wayne Farms LLC, executive committee member-at-large and Ted Mangum, chairman of the Grower Advisory Committee.
Gov. Bryant praised the Miss. Poultry Association for its annual donation of poultry and eggs. The donation equaled 534,600 servings of protein for needy families during the holidays.

MPA started the donation in 2011 and has donated more than 2.6 million servings of protein to Governors Bryant and Haley Barbour. The governor names a charity to receive the donation.

Gov. Bryant again directed the 2019 donation to the Salvation Army which shared it with Gateway Rescue Mission, Mississippi Food Network, Catholic Charities, Stewpot Ministries and Joyce Hope Home for Girls.

The 2019 donation was 63,452 pounds of meat and 280,800 eggs donated by Cal-Maine Foods, Mar-Jac Poultry, Peco Foods, Sanderson Farms, Tyson Foods and Wayne Farms. Members of the MPA Executive Committee were on hand for the presentation made by MPA Chair Bob Billingsley of Sanderson Farms at the Salvation Army in Jackson on Nov. 6.

Gov. Bryant praised the companies’ generosity in this donation and year round and noted the poultry industry’s impact on the state’s economy and the lives that would be touched by the donation of food.

“The Salvation Army is thrilled to be the recipient of this generous gift. The chicken and the eggs will go a long way in helping to provide protein to so many Mississippians in the greater Jackson Area. Working with and sharing this gift with the other agencies in our network gives many more touch points of service for our clients. This gift is invaluable as it arrives at a time where the children will be out of school for various days throughout the holidays,” said Salvation Army Major Robert Lyle.
SCHOLARSHIP ANNOUNCEMENT

FIRST SOUTH FARM CREDIT SCHOLARSHIP

First South Farm Credit announced a donation to the Mississippi Poultry Foundation to fund two annual scholarships totaling $2,000 per year to two poultry science Junior or Senior undergraduate students enrolled at Mississippi State University.

Recipients must be full-time, intending to work in some aspect of the poultry industry, have demonstrated leadership abilities, and a Grade Point Average of 3.0 on a 4.0 scale. The first scholarships will be awarded in the spring of 2020.

A committee of educators will choose the recipients and the funding will be provided through the Mississippi Poultry Foundation.

“For more than 100 years First South Farm Credit has been focused on strengthening agriculture in Mississippi. The scholarships we have funded through the Mississippi Poultry Foundation will help strengthen Mississippi’s poultry industry. This will make a real difference in educating the next generation of poultry industry leaders,” said J.C. Simmons, Marketing & Business Development Specialist with the Mississippi Division of First South Farm Credit.

The first scholarship will be awarded in 2020.
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**MEMBER SPOTLIGHT: HYGIENA**

Hygiena started out manufacturing sample collection and human disease diagnostic tests more than 40 years ago. In 1980, Hygiena introduced bioluminescence technologies to verify cleaning effectiveness within the healthcare and the food and beverage industries. These technologies started with ATP monitoring systems as a fast, easy alternative to cell culture and led to more specific pathogen detection and characterization systems, adopting scientific techniques like the polymerase chain reaction (PCR). Today, Hygiena’s line of products solve several challenges within the supply chain, helping to ensure what we eat is safe.

Recently, the company developed a method that revolutionizes how the poultry industry can determine Salmonella contamination. This method, called BAX® System SalQuant, relies on real-time PCR to more accurately quantify the amount of Salmonella in facilities. This method is an alternative to the traditional Most Probable Number (MPN) technique, currently used by poultry and other facilities to enumerate Salmonella.

Most Probable Number, however, is costly, labor-intensive, and can take 72 hours to gather results from serial dilutions. Salmonella has been a constant concern for the poultry industry, and the US Department of Agriculture (USDA) has begun demanding prevalence levels of no higher than 23 percent in a facility. Currently, poultry production facilities have been recording 50 percent prevalence rates on average, and the search is on for more accurate detection and quantification techniques.

“Salmonella thrives in poultry and can spread throughout the carcass during processing, resulting in a chronic challenge for the industry,” said Tyler Stephens, PhD, Territory Sales and Government Affairs Manager at Hygiena and a co-inventor of the Sal Quant method. “BAX® System SalQuant generates rapid, real-time data in the processing facility, giving processors better resolution into where Salmonella contamination is coming from in their facility.”

The SalQuant method uses the BAX® System Q7 and BAX® System PCR assay for Salmonella. Running samples generates a cycle threshold value (CT), which can quantify the number of colony-forming units (CFUs) in any sample. Lower CTs indicate a higher level of contamination, and data curves from these results can be computated to determine levels of contamination.

![Traditional presence methods (MPN) with Sal Quant (quantification)](image)

![The BAX System Sal Quant easily, reliably helps poultry farmers detect contamination](image)
KEEPING GASTROINTESTINAL SYSTEM INTEGRITY IS CRUCIAL FOR SUCCESS IN POULTRY

Martha Pulido-Landínez. DMV. MSc. PhD. Dipl. ACPV
Associate Clinical Professor, Poultry research and Diagnostic Laboratory,
College of Veterinary Medicine, Mississippi State University

Introduction
The way of producing food is constantly evolving. The global agri-food industry faces many trends and challenges that will influence food and agriculture production in the coming decades. One of the most important factors is the consumer's pressure resulting in the adoption of important changes. Among them, the regulations on the use of antimicrobials and the animal welfare are preponderant factors causing changes in the management of the chickens. The poultry industry must face these challenges adapting to the new requests. All current changes have affected in some way the productive performance. In some cases, this transition has resulted in lower weight and uniformity, higher feed consumption, less productive efficiency, and increases in disease and mortality in the birds. Frequently, these results are consequence of management changes, the use of certain raw materials in the diet, and especially to the prohibition of using some additives for chickens feeding. The adjustment to the new production requirements will be successful if the poultry industry finds the best way to take advantage of these new conditions.

The knowledge about gastrointestinal system integrity as a key tool to face the new challenges of poultry production:

The gastrointestinal system plays an important role as a chicken's defense barrier. Its physical, chemical, immunological and microbiological components provide “a shield” to the host against diseases targeting the organs of this system. However, Gastrointestinal system can also act as a portal of entry for various pathogens due to the constant interaction of this barrier with the environment and the microorganisms present here. Consequently, keeping the integrity and the proper function of this system is crucial to prevent pathogens from invading the birds by orally route. The restriction of the use of antibiotics as growth promotors has resulted in the presentation of an imbalance in the gut environment, producing various enteric problems, mostly caused by proliferation of harmful bacteria such as Escherichia coli, Salmonella sp., Enterococcus cecorum, and Clostridium perfringens; among others. In simple terms, this restriction produced changes in the intestinal microbiota (formerly called intestinal flora). Therefore, the proliferation of “bad” bacteria and the products of their metabolism, could lead to a radical change in the environment of the intestine and loss of intestinal integrity. This imbalance in the microbiota, also known as “dysbacteriosis” or “dysbiosis”, can affect the health of the birds, the absorption and utilization of nutrients; having a negative effect on the growth and the productive performance of the chickens. Changes in intestinal integrity can affect the gut associated lymphoid tissue (GALT), currently considered as the most important organ of the chicken's immune system because of its extension and special functions. As consequence, the birds become more susceptible to different diseases, not only caused by bacteria (Necrotic Enteritis, Colibacillosis), but also by virus (running stunting syndrome) or by parasites (coccidiosis, histomoniasis, round and tape worms).

The gut integrity preservation must be based on the prevention and reduction of challenges towards this system. Therefore, any alternative in the preservation of gut health must be accompanied by excellent health plans including biosecurity, vaccination, nutritional programs, and management improvement. It is indispensable to avoid the frequent mistake of thinking that a single product by itself will prevent or solve all the problems. Basic knowledge about normal anatomy and physiology of the gastrointestinal system of birds and the GALT; as well as the way to preserve its integrity and functions, will result in better productive results.

Brief review of the anatomy of the digestive system of birds

A first concept to take account of is that the gastrointestinal system of the chickens is completely interconnected. Feed particles go “from the beak to the cloaca” (Figure 1). Also, it is necessary to understand that the GALT extends throughout the entire digestive system of birds, again: “from the beak to the cloaca”. So, any abnormality present in any segment of this system will affect the digestive process, the absorption of nutrients, the health of the birds, and consequently the productive performance.

It is important to highlight that any injury in the beak, oral cavity, esophagus, crop and gizzard would affect the normal start of the digestive process (fig 1). In order to have a correct digestive process, abnormal beak (scissors beak), injuries in the oral cavity (mycotoxins) or in the crop (candidiasis, dehydration), must be avoided. Gut motility depends in a great percentage on gizzard function. Gizzard injuries as those caused by bacteria, fungi, mycotoxins, and consumption of indigestible materials (darkling beetles) can impair the digestive process.

Conservation of intestinal integrity and disease prevention:
More than 400 species of bacteria are normal inhabitants of the digestive system. Some of these are called beneficial
bacteria, while others (less desirable) are pathogenic bacteria. The natural microbiota of the chickens’ gut has been widely studied. For example, it is known that the ceca contains an immense variety of bacterial species, including anaerobic and aerobic bacteria distributed as follows: 40% are Gram negative bacilli of the Bacteriodiacea group, 40% Gram positive bacilli including Lactobacilli, and the remaining percentage corresponds mainly to Peptostreptococcus. The balance in the composition of the intestinal microbiota of the birds, meaning healthy intestinal microbiota, protects the host against the invasion of pathogenic microorganisms, and it is closely related to intestinal health. So, beneficial bacteria contribute to the digestive process.

Top ten challenges for the digestive system of chickens:

Chickens gut faces multiple challenges. Many of them are present every day in the chicken’s life and can affect the homeostasis of the digestive system:

1. Stress
2. Diet changes
3. Antinutritional factors, nutritional imbalance
4. Feed distribution, feed restriction
5. Water quality and water restriction (dehydration)
6. Temperature
7. Chicken house environment – resident microbiota
8. Litter quality
9. Presence of indigestible materials (darkling beetle)
10. Diseases caused by protozoa, bacteria, viruses, parasites.

Importance of preserving the normal microbiota

The gut of the birds must begin its maturation process immediately after hatching, adapting to the changes in the type of nutrition (“from the yolk to the feed”). The gut initiates a physiological and metabolic transition to adjust its function from a diet consisting mainly of lipids from the yolk to a diet usually rich in carbohydrates and amino acids. Therefore, the digestive system plays a decisive role in determining the potential for development after hatching. Nutrient digestion, absorption, assimilation and incorporation of growing and developing tissues (including muscles, future chicken meat), depend directly on the structural and functional integrity of the gut.

In order to preserve the intestinal mucosa integrity and the correct performing of its functions; it is necessary to adapt the bird's management, especially regarding feeding program and water consumption. An intestinal mucosa keeping its integrity may respond better to injuries induced by mechanical agents or pathogens. So, the correct gut function will result in a good body development and excellent results in meat and egg production (Fig 2).

Strategies for the conservation of intestinal integrity:

Restriction in the use of antibiotics as growth promoters has been a game changer for poultry production. Prebiotics, probiotics, organic acids, essential oils and medium-chain fatty acids are available in the market. However, other substances such as enzymes, antioxidants and adsorbents should also be part of the category of non-antibiotic growth-promoting products.

Each of these products has its justifications for use. The correct timing to use any of them is crucial to get good results. The use of these products as substitutes for conventional performance promoters must be accompanied by basic and explanatory information about their mode of action. Additionally, one person taking the decision to use these products must be completely informed about doses, route of administration (water, feed), the chicken’s best age for treatment, period of inclusion in the water or in the feed, when or what type of products can be combined (symbiotic effect), and what negative interactions can be present among these products.

As mentioned before, the use of each one of these products must be accompanied by improvement in the chicken’s management, excellent chicken health plans (very good biosecurity and excellent vaccination programs), and improvement in the chicken house environment, decreasing the loads of pathogenic bacteria.
Litter Management

1. Method of creating optimal welfare conditions for poultry through an understanding of litter dynamics from air quality to bacterial management.

2. Multi-dimensional problem-solving that leverages ammonia control, pH reduction, proper decaking, ventilation, safety and more to enhance bird performance.

3. Defined by Jones-Hamilton Co. over the course of 25 years through the manufacture of PLT® - Poultry Litter Treatment, and the development of best management practices.
   a. A continuous refinement of BMPs led to the development of Precision Litter Management, a program for maximizing performance potential and minimizing environmental challenges.

We Defined Litter Management
Ideas that winning, and sometimes losing, candidates put forward on the campaign trail often make it to a vote in the House and Senate during the first year of a new term. What are we likely to see in 2020 in terms of legislation?

The Legislature convenes on Jan. 7 for what is scheduled to be a 125-day session. The first session after state elections is 35 days longer than the 90-day sessions for the three following years of the four-year term. This gives the new governor time to be inaugurated, other officials to get their offices organized and new legislators time to learn the process.

Five of the eight statewide elected officials – Governor, Lt. Governor, Secretary of State, Attorney General and Treasurer - are new to their positions. Two of the other three were elected for the first time after being appointed during the last term to fill a vacancy. State Auditor Shad White and Commissioner of Agriculture and Commerce Andy Gipson were elected to their first full terms in November. Insurance Commissioner Mike Chaney is the only official elected statewide who was in the same office for a full term.

Below are some of the things these statewide elected officials talked about during the campaign or since the election.

**Governor-Elect Tate Reeves has said he wants to**
- Give teacher pay raises every year until Mississippi teachers reach the Southeastern average. Mississippi's average teacher pay for the 2017-18 school year is $43,107, according to the U.S. Department of Education's National Center for Education Statistics. The nine Southeastern states average is $50,377. Assuming the other states don’t increase pay, Mississippi teachers would need $7,270 in raises to reach the average.
- Provide funding to train more doctors to work in rural areas.
- Increase workforce training at community colleges and through helping workers obtain industry credentials.

**Lt. Gov. Elect Delbert Hosemann wants to:**
- Give counties the ability to vote on a local option fuel tax to fix local roads and bridges. There are many details yet to be explained about this proposal.
- Give teachers annual pay raises.
- Expand Medicare in some form. Expanding Medicaid to cover more people is a proposal Gov.-Elect Reeves said he strongly opposes.
- Make a 1% cut across the board for state agencies. With a $6 billion general fund, a 1 percent cut would equal $60 million.

**Secretary of State-Elect Michael Watson wants to:**
- Remove the constitutional provision that requires candidates for statewide office win both a majority of the popular votes and a majority of the House districts. If a candidate does not receive majorities in both, the House of Representatives decides the winner. The requirement has only come into play once since it was included in the 1890 Constitution, in 1999, when the House chose Ronnie Musgrove over Mike Parker.
- Move the Drivers’ License Bureau from the Highway Patrol to the Secretary of State’s Office.
- Reform the campaign finance laws that allow elected officials to keep campaign funds as personal income if the funds were raised before January 1, 2018. In 2017, the Legislature changed the law for funds raised after that year to required public officials to donate the funds to charities, political parties or other candidates.
- Make campaign finance records more easily searchable online. While all campaign finance reports are posted online, each is a separate document and there is no common database of campaign donations and spending.
- Give voters the authority to initiate recall elections for officials.

**Commissioner of Agriculture and Commerce Andy Gipson:**
- Wants to update laws relating to agriculture through what he calls an Ag Omnibus bill.
- Will present the recommendations of the legislatively-created hemp task force, which Gipson chaired. The proposal would require changes to state law to permit farmers to grow hemp.

State Auditor Shad White in a column in the Nov. 26 Clarion-Ledger is calling for the Legislature “to consolidate backroom functions” in state government. He points out that Mississippi has 204 boards, commissions and agencies and many of these have their own accounting, human resources, information technology and payroll offices. He and retiring Director of the Department of Finance and Administration proposed consolidating these jobs into a single Office of Shared Services.

The idea of consolidating these back-office functions was discussed by the Senate during the last term when legislation shifted many special fund agencies with their own revenue streams to funding through the state general fund. Last term, the idea was more popular in the Senate than in the House. White and Jackson say sharing administrative services will reduce administrative costs and save taxpayer dollars.
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The significant insurance premium increases Mississippi poultry growers have been seeing in the last two years prompted the MPA to bring together growers, insurers, bankers, regulators and university experts to search for solutions.

The MPA Executive Committee and Grower Relations Committee met for a second time this year on Oct. 31 at Jones College in Ellisville to get information on the scope of the problem and to find what Alabama did to address a similar problem 15 years ago.

As part of the fact-finding, MPA polled growers about their poultry houses and their insurance rates. Nearly 500 growers participated in the online or paper survey. The 500 growers represent about a third of the 1,513 growers that have state poultry farm environmental permits.

Of those who responded to the survey, slightly more than one third of growers reported they had had trouble finding insurance. Nearly 40 percent of growers said they had seen their insurance rates rise by greater than 10 percent in the last year. More than 60 percent of those who responded had houses built before Hurricane Katrina hit in 2005 and many of the older houses do not have the sturdier chain wall construction. A majority of growers reported having wiring inside of conduit but less than a third had metal knee braces and hurricane straps.

Mississippi has more poultry farms closer to the Gulf of Mexico than other poultry growing states. Insurers also say the concentration of most farms into 22 counties makes tornadoes and other storms result in more damages.

The problems with insurance have become especially acute for breeder growers after some insurers have said they will no longer write policies for breeder farms that do not have firewalls between the buildings, and most do not have them. Insurers interviewed by MPA report some breeder farms have seen premiums double in the last five years.

Insurers report that fire is the leading peril for breeder farms, while wind – tornadoes and other wind - lead all claims for broiler houses. Lightning claims are a major issue for some insurers.

Professors and engineers from Auburn University and the National Poultry Technology Center at Auburn told the audience at the Oct. 31 meeting that the university reviewed insurance policies and poultry houses in Alabama and what developed was a list of required structural and electrical improvements to make it easier for growers to get insurance. Alabama’s largest insurer of poultry houses made these mandatory before they would insure a farm.

The three most important improvements required in Alabama were metal knee braces, hurricane straps connecting posts and trusses and better grounding to reduce lightning damage.

These improvements can cost $6,000 for one 500-foot long house, according estimates gathered by Mississippi State University.

Insurers are sending structural engineers to look over poultry farms. Other components or procedures insurers recommend include:

- All wiring inside of metal or PVC conduit
- Waterproof covers over all electrical outlets
- Chainwall construction
- Metal hat caps on the roofs
- Tunnel fans hardwired to fully sealed water and dust-resistant switches
- Generator in fully enclosed separate shed
- Grounding connected to rebar in chainwall
- Twice yearly check of wiring and heating and of the screws on roof
- Adequate lightning rods and grounding
- Rewire houses after 20 years
- Firewalls in all connected breeder houses
- Smoke sensor wired to stop generator in the event of a fire
- Control erosion - establish grass in the drip line, no herbicide use near houses

Mark Leggett - President, Mississippi Poultry Association
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Growers asked what would be the impact on rates if they made the suggested improvements. The insurers were unable to commit that if growers installed all the protections, rates would decline, but assured the audience that rates could double or triple if there was no effort to lower risks. Part of the problem is that insurers are required to get re-insurance which is purchased from overseas firms that calculate global risks of all kinds, so an earthquake somewhere in the world can lead to higher insurance rates in Mississippi.

Insurance Commissioner Mike Chaney presented charts showing that rate increases in 2019 have not been as high as in 2018. Rates rose in 2016, 2017 and showed a major spike in 2018 of up to 30 percent for one insurer.
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PFAS: “FOREVER CHEMICALS”
FOSTER FRENZY

John E. Milner, MPA Counsel - Brunini, Grantham, Grower & Hewes, PLLC

A class of man-made chemical compounds known as per- and polyfluoroalkyl substances, or PFAS, has exploded onto the public scene. Based on their persistence in the environment, PFAS are often referred to as “forever chemicals”. Few recent environmental issues have caught the attention of businesses, regulators, environmental professionals and the media like PFAS contamination.

PFAS are found a host of consumer products such as in waterproofing in clothing and leather goods, food packaging, cosmetic and hygienic products, dental hygiene products, nonstick pots and pans, carpet, furniture textiles and fire suppressant foam. All of these products are routinely sent to landfills for disposal. They can, therefore, be mixed with liquids in landfill wastewater leachate and be released into groundwater, as well as streams, lakes and rivers.

Recently, the Food and Drug Administration (FDA) conducted testing of several categories of grocery store products and found that PFAS levels in nearly half of the meat and fish tested were two or more times over the only currently existing federal advisory level for these compounds. Thankfully, an FDA spokesperson has recently stated that the agency thought the PFAS contamination was “not likely to be a human health concern.” However, the FDA’s food-test results are likely to “feed the frenzy” of complaints by public health groups that the Trump Administration is not acting fast enough or firmly “to regulate the PFAS contamination.” Although, the Trump Administration has left the task of developing standards for acceptable concentrations of PFAS in groundwater at 20 ng/L. Few precedents exist where the Wisconsin Department of Health Services to regulate PFAS in groundwater at 20 ng/L. Few precedents exist where chemical substances have been regulated at nanograms per liter (ng/L) or parts per trillion (ppt) levels. What does 20 ng/L actually mean? One analogy is that 20 ng/L is the equivalent of waiting 32,000 years for 20 seconds to pass. The mass of a grain of salt is approximately 58,500 nanograms as another reference.

3. PFAS are already in our blood
According to the National Groundwater Association, studies have estimated that 95 percent of the U.S. population has been exposed to PFAS and has measureable bloodstream concentrations of PFAS. Americans are exposed to PFAS regularly through ordinary products, such as those listed earlier in this article. Efforts are underway to identify the PFAS in these and other products as well as to determine potential PFAS alternatives that can be substituted in such products in the future.

4. PFAS are functioning as designed
When 3M first formulated the chemical substances that became the PFAS family, their chemists modified the fluorine and carbon bonds to make a markedly strong and lasting product to resist water, oil and other liquids. The market responded positively due to the remarkable conveniences PFAS created and the pervasive application of PFAS in commercial products ensued. These desirable characteristics also make PFAS extremely difficult to manage in the environment. It is persistent, does not naturally degrade, and its physical and chemical properties make it highly mobile, allowing it to migrate quickly through groundwater. These combined attributes make PFAS a challenge to remediate.

5. The Trump Administration EPA is not leading significant scientific and regulatory efforts
EPA has described PFAS as a “potential public relations nightmare” and a “national priority.” EPA Administrator Andrew Wheeler has stated that “I know there are people who would like us to move faster. We are addressing this much faster than the agency has ever done for a chemical like this.” EPA’s primary accomplishment has been the production of its February, 2019 “PFAS Background and Action Plan” (https://www.epa.gov/pfas/pfas-action-plan). Implementation of the Plan, including two key action items, is “stuck in neutral”. The development of a federal Maximum Contaminant Level (MCL) for drinking water is several years away and the Congressional Budget Office recently estimated that “the capital and operating costs for monitoring, treating, and removing PFAS from drinking water could exceed several billion dollars in the first five years ....”. Second, establishing PFAS as a Superfund “hazardous substance” could be “impossible” according to a recent statement by EPA Administrator Andrew Wheeler. Consequently, under the mantle of “cooperative federalism”, EPA has left the task of developing standards for acceptable concentrations of and exposure to PFAS to the states, which has led to a patchwork of standards nationwide.
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6. **PFAS litigation has produced huge recent settlements and a flurry of recent litigation**

Most of the PFAS litigation to date has focused primarily on damages to natural resources. For example, in *Minnesota v. 3M Co.*, (Minn. Dist. Ct. Dec. 30, 2010), 3M settled with the State of Minnesota for $850 million after the state sought $5 billion in damages. In another case involving workers and persons exposed to PFAS in the vicinity of PFAS production activities, *Freeman v. E.I. du Pont de Nemours & Co.*, (S.D. Ohio Nov. 5, 2013), DuPont settled for $670 million. More litigation, focused also on alleged health effects, is now underway and rapidly expanding as individual and class action lawsuits.

7. **Even Congress may actually take action on PFAS despite partisan conflict**

House and Senate lawmakers appear to be “inching” closer to an agreement on measures addressing PFAS in the pending Department of Defense (“DOD”) bill, although they have yet to resolve their differences over a controversial House provision listing PFAS as hazardous substances under the Superfund law. The DOD bill is a significant vehicle for Congressional action since PFAS are required constituents of fire-fighting foam, which the Defense Department calls “irreplaceable” in suppressing jet-fuel fires.

Time will tell whether the frenzy regarding PFAS litigation and state-led efforts to regulate PFAS is justified. Implementing changes to address and reduce the presence of and the potential risks from PFAS will take confidently developed regulations, possibly state by state, should EPA, other federal agencies and Congress fail to act on a national basis.

If you have any questions concerning this article, please feel free to contact its author, John Milner of Brunini Law Firm, who serves as MPA Counsel. John can be contacted at jmilner@brunini.com or (601) 960-6842.

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**2019 ELECTIONS RESULTED IN SEVERAL FIRSTS IN STATEWIDE AND DISTRICT RACES AND NEW PEAKS IN LEGISLATIVE MEMBERSHIP**

Mark Leggett - President, Mississippi Poultry Association

Several firsts occurred with the 2019 state elections. Republicans won all statewide elected positions for the first time since the end of Reconstruction in 1877. State Treasurer Lynn Fitch was elected attorney general, the only statewide post held by a Democrat for the last eight years. Since Kirk Fordice was elected governor in 1991, Republicans have won and held onto each statewide office over the last 28 years. At left is the list of when each statewide office was first won by a Republican.

Looking at the governor’s races from 1979 to 2019 there were a couple of firsts:

- For the first time, more people voted in the Republican primary than in the Democratic primary in August. Of the 664,152 who voted in the August party primaries, 56 percent voted Republican and 44 percent voted Democratic.
- For the first time, there were more Democratic votes in the general election than in the Democratic primary. From 1979 to 2015, there had been a steep drop in Democratic votes from the primary to those voting Democratic in the general election. As usual, more people voted Republican in the general election than in the Republican primary.

Lynn Fitch was elected as the state’s first female Attorney General. The only statewide offices to which a woman has not been elected are Auditor, Secretary of State, and Governor.

Women elected to other statewide offices are shown at left. In district races, State Senator Willie Simmons, D-Cleveland, became the first African-American elected to the three-member Transportation Commission from the Central District. Simmons, the Senate Highways and Transportation Committee Chairman, has served in the Senate since 1993.

In legislative elections, Republicans added to their numbers pushing them to the highest numbers since the end of Reconstruction. The Republicans, women and African-Americans added seats, all reaching new peaks in seats held.

In the Senate, the partisan split now shows 36 Democrats and 16 Republicans

- 12 Senators did not run for re-election (3 Democrats and 9 Republicans).
- 2 Senators lost bids for re-election (1 in Democrat primary and 1 in Republican primary).
- 14 new Senators. Three of the newly elected Senators have prior legislative experience.
- 4 seats switched from Democrat to Republican.
- 1 seat switched from Republican to Democrat.

The Republicans in the Senate have one more than a two-thirds veto-proof majority.

In terms of race, the Senate will have 14 blacks and 38 whites, a net gain of one for the Black Caucus.
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The number of women in the Senate increased by three for a total of 12 out of 52. This is the highest number of female Senators since women have been allowed to vote in 1920. Four women replaced men and one man replaced a woman for net of three more women as a result of the 2019 elections.

In terms of seniority, 10 have no prior legislative experience while seven have more than 20 years experience. The average is 9.25 years.

In the 122 member House

- 13 Representatives did not run for re-election (Eight Republicans and five Democrats)
- 12 Representatives lost bids for re-election (seven in Republican primaries, two in Democratic primaries, two Republicans and one Independent in the General Election.
- 26 new Representatives (includes 1 elected in April after 2019 session adjourned)
- Two seats switched from Democrat to Republican
- Two seats switched from Republican to Democrat, but one election is being contested and will be decided by the House.
- One seat switched from Democrat to Independent. Rep. Angela Cockerham who was a Democrat during the 2019 session, qualified to run as an independent. She caucuses with the Republicans.
- There is one less Democrat (Democrats 46, Republicans 75, Independent 1).
- The House maintains its Republican super-majority. A simple majority is 62 votes, a 3/5th majority required to pass a tax bill is 74 and a 2/3rds majority, which is required to override a governor’s veto and to change or suspend the rules is 82.

In terms of race, there are 40 African-Americans, a gain of two and the highest number since the end of Reconstruction. In terms of sex, there are 18 women as five women replaced men and three men replaced women for net of two more women. A total of 24 have no prior legislative experience, while 14 representatives have more than 20 years experience. The average is 8.3 years.

When Republicans Won Each Statewide Office

<table>
<thead>
<tr>
<th>Office</th>
<th>Candidate</th>
<th>Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor</td>
<td>Kirk Fordice</td>
<td>1991</td>
</tr>
<tr>
<td>Lieutenant Governor</td>
<td>Eddie Briggs</td>
<td>1991</td>
</tr>
<tr>
<td>State Auditor</td>
<td>Phil Bryant</td>
<td>1995</td>
</tr>
<tr>
<td>Commissioner of Agriculture &amp; Commerce</td>
<td>Lester Spell</td>
<td>1995</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Tate Reeves</td>
<td>2003</td>
</tr>
<tr>
<td>Secretary of State</td>
<td>Delbert Hosemann</td>
<td>2007</td>
</tr>
<tr>
<td>Commissioner of Insurance</td>
<td>Mike Chaney</td>
<td>2007</td>
</tr>
<tr>
<td>Attorney General</td>
<td>Lynn Fitch</td>
<td>2019</td>
</tr>
</tbody>
</table>

Women Elected Statewide in Mississippi

<table>
<thead>
<tr>
<th>Office</th>
<th>Candidate</th>
<th>Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Tax Collector</td>
<td>Nellah Bailey</td>
<td>1946-60</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Evelyn Gandy</td>
<td>1960-64</td>
</tr>
<tr>
<td>Supreme Court Clerk</td>
<td>Julia H. Kendrick</td>
<td>1968-80</td>
</tr>
<tr>
<td>Insurance Commissioner</td>
<td>Evelyn Gandy</td>
<td>1972-76</td>
</tr>
<tr>
<td>Lieutenant Governor</td>
<td>Evelyn Gandy</td>
<td>1976-80</td>
</tr>
<tr>
<td>Lieutenant Governor</td>
<td>Amy Tuck</td>
<td>2000-08</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Lynn Fitch</td>
<td>2012-20</td>
</tr>
<tr>
<td>Ag &amp; Commerce</td>
<td>Cindy Hyde-Smith</td>
<td>2012-18</td>
</tr>
<tr>
<td>U.S. Senator</td>
<td>Cindy Hyde-Smith</td>
<td>2018-20</td>
</tr>
<tr>
<td>Attorney General</td>
<td>Lynn Fitch</td>
<td>2020-24</td>
</tr>
</tbody>
</table>

WHEN REPUBLICANS WON EACH STATEWIDE OFFICE

State Tax Collector and Supreme Court Clerk are no longer elected positions.

MISSISSIPPI STATE & JONES COLLEGE AWARDED RECRUITING GRANT

The U.S. Poultry and Egg Harold E. Ford Foundation supports efforts to attract more young people into the poultry industry through recruiting grants to colleges and universities. Two Mississippi higher education institutions received those grants recently.

Jones College received $1,300 for the Industry Education Recruitment Funding Program. The gift, to aid in recruiting and retention efforts, is given in part by Wayne Farms. The funds will enhance Jones’ student recruiting efforts in more poultry focused programs and to visit/tour industry companies in your area such as Wayne Farms.

The USPOULTRY Foundation gift of $30,447, given in part by Sanderson Farms, Inc will be used to Mississippi State University will be used to aid in recruiting and retention efforts, is given in part by Sanderson Farms, Inc.

“Over the course of the last 7-8 years, recruitment funds from the Harold Ford Foundation have been used by Dr. Jessica Wells to good advantage, in that the number of our MSU Poultry Science majors has increased more than 125%, from 30 to 72 students,” said MSU Poultry Science Department Head Dr. Mary Beck.
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Proper nutrient management is a vital part of all agricultural enterprises, especially for those using any form of manure nutrients. With better knowledge of environmental threats and improved nutrient management practices and techniques, producers can now maximize use of manure nutrients while minimizing potential risks to the environment.

Cost of commercial fertilizers continues to increase, making use of animal manures an important economic decision for many producers. However, proper use of nutrients from animal manures is also important from the standpoint of preserving our water, soil, and environment. Application of nutrients beyond crop needs not only increases the potential for nutrient loss from fields, but it also wastes valuable fertilizer nutrients that could be used on another field on the farm or sold to generate revenue. Calibrating litter spreaders (knowing the rate of litter application under specific conditions) is important to ensure proper nutrient management and maximize the economic potential of manure nutrients.

Manure and litter spreaders are typically calibrated using the same techniques designed for calibrating commercial fertilizer spreaders. Precision calibration for commercial fertilizer spreaders is critical for obvious reasons. However, calibrating litter and manure spreaders can be difficult because of differences in material density, handling and flow characteristics, and particle size, especially when spreading cake-out litter that may have larger chunks and increased moisture compared to total-cleanout litter.

One of the most widely used and recommended methods of litter spreader calibration is referred to as the “tarp method.” The procedure outlined below is a modified version of the tarp method that works well for poultry litter spreader calibration. One person can easily perform spreader calibration in only a few minutes.

**MATERIALS NEEDED**

- six small tarps all the same size (such as 8’ by 10’)
- 5-gallon bucket or other weighing container
- scale
- calculator

---

**Step 1.**

Place the six tarps in a row on a flat area in the field. Place weights or pin the corners and the centers of the tarps where they meet. Do not allow the tarps to overlap as you are placing them.

**Step 2.**

Drive your spreader or decaking machine over the center of your row of tarps (where the third and fourth tarps meet). Engage the spreader or decaking machine several yards before driving over the tarps to make sure you will have a normal throw pattern when you cross the tarps. Use the operating pattern that you would normally use in the field and record gear selection, engine RPMs, spreader gate opening, spreader hydraulic flow control setting, and any other information that could affect the rate of litter application.
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Step 3.
Assess the spread pattern of litter over the tarps. Estimate the width of the area of heaviest application and the width of lesser application on the edges of the spread pattern. Use this information to estimate the distance needed between spreader passes to get a uniform application over all the tarps. On future passes, overlap the thin edges of the spread pattern, but do not overlap the areas of heaviest application.

There are drastically different spread patterns and rates of application between various types of litter and litter application equipment. For example, cake-out litter spread with a decaking machine yields a completely different pattern and application rate than litter from a total house cleanout spread with a spreader truck. Calibrate with the specific equipment and the particular type litter you will actually be working with.

Step 4.
Make a pass on each side of the first pass at the appropriate distance estimated in Step 3. If you have estimated the distance correctly, you should get an even application of litter across all areas between the centerline of the second and third pass.

Step 5.
Collect the litter deposited on each of the four middle tarps individually. You can pour the litter into the bucket (pictured above), or simply fold up the tarp with the litter inside, and place the tarp and litter in the bucket. If you do this, be sure to weigh and record the weight of the bucket and tarp together before spreading litter on the tarps. The four middle tarps represent what the average application rate would be in the field when you consider overlapping passes. The outer two tarps are for helping to evaluate spread pattern width, particularly for caked litter, which is often wider than the middle four tarps.
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Step 6.
Weigh the bucket and litter (or bucket, tarp, and litter). Record the empty weight of the bucket before collecting the litter on the tarp. Subtract the weight of the empty bucket to calculate the weight of the litter material applied. Do this for each of the four middle tarps. For example, the bucket and the litter in the picture weigh 9.75 pounds, and the empty bucket weighs 1.75 pounds. So the litter applied to the tarp weighs 8 pounds.

Step 7.
Calculate the rate of application for each of the four middle tarps. Use this equation (taken from the Poultry Waste Management Handbook):

\[
\frac{\text{(pounds of litter on tarp)} \times 21.78}{\text{area of the tarp (square feet)}} = \text{tons of litter/acre}
\]

For example, 8 pounds of litter multiplied by 21.78 and divided by 80 (our tarps in this example were 8 feet by 10 feet) equals an application rate of 2.18 tons of litter per acre (21.78 is a constant previously determined).

Step 8.
Repeat the procedure several times to get a reliable average. If the rate of application is higher or lower than the desired rate based on nutrient management planning, then make equipment adjustments (RPMs, flow controls, gate opening level) and/or drive the equipment faster or slower.

This procedure is relatively inexpensive. An 8-by-10-foot tarp currently retails for $7 to $15, depending on the quality. Any reliable scale you may have will work, or you can purchase a dial scale similar to the one in the example for less than $50. Most people have plastic buckets on the farm, and most have a simple calculator or have a calculator feature on their cell phone. In addition, materials can be used over and over for future calibrations should equipment, litter type, or desired rate of application change.

Reference
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A large crowd from all aspects of the poultry industry and Mississippi State University was on hand Dec. 12 for the installation of the portrait of Mark Hickman in the Miss. Poultry Hall of Fame in Starkville.

“This is the honor of a lifetime, which our family and I will treasure,” Hickman said. “This room – and the Hall of Fame – represent so many pioneers who have built our industry’s rock-solid foundation. I am privileged to join my father Denny as a member, along with Van Bowman and Henry Welch, two former members of Peco’s management team.

“As fourth-generation members of our family take on growing roles, it is rewarding to be a coach rather than a rookie in this fast-paced era of innovation, technology and sustainability. With that brand of energy and enthusiasm carrying us forward, the future of our industry is extremely bright. What could be better?” he said.

Hickman has led the growth of Peco Foods, Inc. into one of the nation’s largest poultry companies. Peco has a significant footprint in Mississippi. Mark’s grandfather founded the company and Mark followed his father, Denny, who was inducted in the Mississippi Poultry Hall of Fame in 2004.

Mark joined the company in 1982 and in 2002 he was named president and CEO. He serves on the board of the National Chicken Council, as chairman of the NCC Political Action Committee, and he serves on the board of the U.S. Poultry and Egg Association. Mark is also chairman of the Mississippi Poultry Foundation Board of Trustees.

He was joined by members of his family, numerous Peco employees, allied members of MPA, the MPA Board of Directors, faculty of the Poultry Science Department and other MSU divisions at the installation ceremony in the Hill Poultry Science Building.
It’s About
GROWTH

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EMERGING TRENDS

FRESH PEACH POULTRY

**INGREDIENTS**
- 4 chicken legs, skinless
- 15 mL (1tbsp.) canola oil
- 2 onions, chopped
- 2 garlic cloves, minced
- 5 mL (1 tsp.) cinnamon
- 5 mL (1 tsp.) turmeric
- 5 mL (1 tsp.) nutmeg
- 2 mL (1/2 tsp.) paprika
- 250 mL (1 cup) chicken stock, skimmed
- 2 drops Tabasco sauce
- Juice of 1 lemon
- 2 fresh peaches, cut into sections
- 15 mL (1 tbsp.) corn starch
- 60 mL (1/4 cup) chicken stock, skimmed

**PREPARATION**

In a nonstick frying pan, brown chicken well on all sides in hot oil (about 10 minutes). Remove chicken from frying pan and keep warm. If necessary, remove a bit of fat from frying pan and brown onions and garlic at medium heat. Add spices and reduce heat. Keep cooking for 3 minutes.

Add chicken stock (250mL/ 1 cup), Tabasco sauce and lemon juice. Put back into frying pan.

Add peach sections to preparation and cover. Simmer for 20 minutes. Use a skimmer to remove chicken and other foods from frying pan and place in a dish.

Dilute corn starch with chicken stock (60 mL/ ¼ cup). Pour half of corn starch into cooking juice and cook for 2 minutes. Garnish with chicken sauce before serving.
UPCOMING EVENTS:

At all events involving growers, please practice strict biosecurity procedures

The Grower Advisory Committee will meet quarterly at the call of the Chairman.

- MPA, Inc. Poultry Health Seminar
  WED., FEBRUARY 12, 8:00 a.m.
  AG & Forestry Museum, Ethnic Bldg.

- MPA, Inc. Legislative Reception
  THURS., FEBRUARY 20, Noon
  Galloway Methodist Church

- Deadline for applications for the Mississippi Poultry Foundation Scholarship
  FRI., FEBRUARY 28, 5 p.m.

- MPA, Inc. Poultry Management School
  MAY - TBD
  MSU Poultry Science Dept.

- Breeder/Hatchery Seminar
  AUGUST 12 and 13
  Pearl Lab (12) & Collins Civic Center (13)

- MPA, Inc. Convention
  SEPTEMBER 17-20
  Hilton Sandestin Golf & Tennis Resort, Destin, FL

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