



## THE EGG INDUSTRY CENTER

CONTRIBUTING TO A SUSTAINABLE EGG SUPPLY

2015



# Egg Industry Center IMPACT REPORT

## IN 2015, THE U.S. EGG INDUSTRY ENCOUNTERED AN UNPRECEDENTED CRISIS.

Avian influenza caused the destruction of approximately 35 million laying hens and approximately 6 million pullets, and it devastated numerous commercial facilities and family farms. While the economic impact of the disease remains to be fully assessed, estimates run into the hundreds of millions of dollars. And yet, along with this natural calamity came opportunity – to forge new relationships, fulfill urgent needs and demonstrate the center’s value to the egg industry.

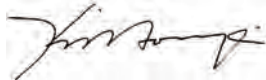
I encourage you to read on in this report to learn more about how the Egg Industry Center leveraged its expertise to help industry navigate the AI crisis. We are particularly grateful to Egg Farmers of Canada for its generous donation of 500,000 Canadian dollars in support of AI research coordinated by the center. The United Egg Association Allied has also donated funds for AI research to be carried out by the center. We are equally pleased and excited about the additional funding by the American Egg Board to support AI research facilitated by the center. These partnerships and their support significantly enhance the center’s financial ability to conduct and sponsor research that will lead to a better understanding of prevention and mitigation of this destructive disease.

Support and collaborations such as these not only grow the strength of the center, but also make the egg industry more resilient and vibrant over the long term.

It is gratifying to see the center’s increasing role as a valuable industry resource. The exponential growth of our flagship outreach event, the Egg Industry Issues Forum, is an annual testament to the center’s ability to extend its expertise to industry constituents and to provide timely information that is vital to their livelihoods.

Of course the accomplishments touched on above and throughout this report would not have been possible without the dedicated support of you, our donors. Your commitment to advancing the center’s mission to facilitate research, communication and collaboration is truly a worthwhile and much appreciated investment in the future of the industry.

Thank you.



**Hongwei Xin**

Director, Egg Industry Center  
C.F. Curtiss Distinguished Professor  
Iowa Egg Council Endowed Professor  
Iowa State University



**HONGWEI XIN**

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## MOVING INDUSTRY FORWARD

IN JUST SEVEN YEARS, THE EGG INDUSTRY CENTER HAS EVOLVED FROM AN ASPIRATIONAL IDEA TO A CREDIBLE ORGANIZATION RECOGNIZED AROUND THE GLOBE FOR THE VALUE IT BRINGS TO THE EGG INDUSTRY. DEDICATED TO THE DISCOVERY AND DISSEMINATION OF PRACTICAL KNOWLEDGE AND SOLUTIONS, THE CENTER COLLABORATES WITH RESEARCHERS, PRODUCERS AND INDUSTRY LEADERS TO ADDRESS CRITICAL ISSUES AFFECTING ONE OF THE WORLD'S MOST IMPORTANT AGRICULTURAL MARKETS.

Whether it's through regular economic reporting, direct or sponsored research, support for the education of future legal experts on animal welfare or the annual Egg Industry Issues Forum, the center satisfies the immediate needs of egg producers, processors and consumers while promoting the future sustainability and vitality of the U.S. egg industry. While these efforts often require developing new relationships and raising the bar on current initiatives, at other times they require the agility to quickly take meaningful action during times of crisis, such as the 2015 avian influenza outbreak.

As the center's capacity to help advance the egg industry has increased, so has the support of its partners and friends. Without the generosity of these individuals and organizations, the center wouldn't be able to fulfill its mission through the many exciting programs and projects featured in this report.

Please consider joining this special group of visionary leaders by giving to the Egg Industry Center Endowment. This critical resource supports applied research and the potential discovery of new solutions to current and emerging challenges facing egg producers worldwide.

Your contribution is not only a worthwhile investment in today's thriving egg industry, but it will also help to ensure a promising future.

For more information, please contact:

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# AGILITY DURING CRISIS

## THE EGG INDUSTRY CENTER RESPONDS TO AVIAN INFLUENZA

“IT’S ABSOLUTELY THE WORST SITUATION EVER FACED BY THE POULTRY INDUSTRY,” SAID HONGWEI XIN, DIRECTOR OF THE CENTER. **“IT’S DEVASTATING.”**

**Xin is of course referring to the avian influenza outbreak that swept much of the nation’s poultry regions in 2015.** He made these comments after returning from an infected facility where the destruction of more than 1 million birds was imminent. The most urgent concern was that the virus would spread to another multi-million-bird operation a few miles down the road – just as it had done so many times in recent weeks.

The H5N2 avian influenza strain first hit commercial poultry operations in January 2015 and egg-laying operations mid-April. Within six months, the virus had affected more than 48 million birds, the majority of which were in Iowa, the nation’s number one egg-producing state. The rapid spread of the disease frustrated officials as they raced to identify the source(s) of transmission.

### DIRECT AND FUNDED RESEARCH

“OUR RESPONSE WAS TO LOOK AT THE RESEARCH SIDE – TO CONDUCT RESEARCH RELATED TO AI AND ALSO TO FUND IT THROUGH THE CENTER’S RESEARCH GRANT PROGRAM,” SAID XIN.

An expert in air quality and environmental physiology in poultry housing systems, Xin obtained funding of \$100,000 through the U.S. Department of Agriculture’s Exploratory Grants program. The project involves the collection of air dust samples at newly infected sites as well as environmental samples from cages, air inlet surfaces, fans, feed troughs, egg belts and other areas.”

The idea is to determine if the virus is transmitted by air, which may help explain why it spreads so quickly. Our work is complementary to the epidemiology study being done by the USDA that looks at a number of potential vectors of the disease transmission,” said Xin.

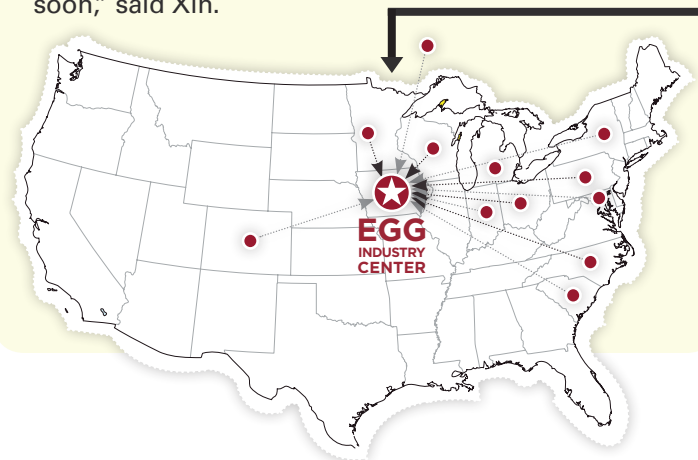
In addition to investigating the transmission of AI, researchers at the center are exploring the efficacy of various cleaning and disinfection strategies on air quality and other environmental elements.

### THE CENTER IS ALSO SUPPORTING

#### THE RESEARCH OF OTHERS.

With the goal of making a significant impact on the understanding and mitigation of AI, **the center’s 2015 research grant process was tailored to AI-related projects only.** And thanks to a generous contribution of 500,000 Canadian dollars from Egg Farmers of Canada and additional funding from the American Egg Board (\$80,000 this year with the potential for more funding in future years), the center will make even bigger strides in finding answers to this difficult and catastrophic disease.

“We received a nice breadth of proposals: from understanding the potential roles of feed or feed ingredients, rodents, insects and wild birds in transmission of the virus to determining how the virus attached to different surfaces and was able to persist. We should have some excellent work going soon,” said Xin.



## CRITICAL COMMUNICATIONS

KEY TO THE CENTER'S MISSION IS INFORMING PRODUCERS, ALLIED INDUSTRY AND CONSUMERS ABOUT IMPORTANT ISSUES AFFECTING THE EGG INDUSTRY.

"We had an immediate need to understand the situation: to frame what was known, unknown and to identify the gaps," said Lesa Vold, communications specialist for the center.

The AI outbreak instigated a widespread and urgent need for information. Vold quickly found herself in a communications frenzy. Media inquiries from local, national and international outlets increased exponentially. Requests poured in from producers for information on topics ranging from virus mitigation to bird disposal. And consumers had questions, too.

"Our first message was to consumers: The egg supply is safe and the disease has not been transmitted to humans," said Vold. "As the crisis escalated, we added more messaging around economics, research and practical steps producers and consumers could take to help mitigate the spread of the virus."

By early spring, the center became a hub for comprehensive AI information. Academic institutions, industry leaders, government and other entities across the country submitted information to the center, and Vold compiled it into a searchable collection of AI resources on the organization's website.

"This crisis has highlighted the need for the center's key objectives: to conduct and fund research critical to advance the industry and to provide a science-based resource of reliable information on important industry topics," said Vold. "We remain deeply committed and strategically focused on our mission to add value to the egg industry through research, education and collaboration."

## VITAL RESOURCE & PARTNER

"THE EGG INDUSTRY CENTER HAS BEEN A CRITICALLY IMPORTANT RESOURCE AND VITAL PARTNER THROUGHOUT THE AVIAN INFLUENZA OUTBREAK IMPACTING IOWA THIS YEAR. IN PARTICULAR, THE ABILITY OF THE CENTER TO TALK AUTHORITATIVELY ABOUT THE ECONOMIC IMPACT OF THE EGG INDUSTRY IN IOWA AND THE POTENTIAL IMPACT ON CONSUMERS AS A RESULT OF THE DISEASE HAS BEEN VERY IMPORTANT. THIS OUTBREAK JUST REINFORCED THE IMPORTANT ROLE FOR THE EGG INDUSTRY CENTER."

– BILL NORTHEY,  
Iowa Secretary of Agriculture  
and executive director,  
Iowa Egg Council



# SHARING MARKET KNOWLEDGE

## PRODUCERS AND MEDIA SOLICIT THE CENTER'S ECONOMIC EXPERTISE

THE EGG INDUSTRY NEVER STANDS STILL. NEITHER DOES THE PRICE OF ITS WARES.

Subject to a variety of factors, including weather abnormalities and consumer demand, fluctuating egg prices make it difficult for industry stakeholders to make strategic decisions.

IT'S THE JOB OF MARO IBARBURU, ASSOCIATE SCIENTIST AND BUSINESS ANALYST AT THE CENTER, TO BRING CONTINUITY TO THIS CHAOS THROUGH ECONOMIC REPORTING.

### IMPROVING PROJECTIONS

For six years, Ibarburu has produced three monthly reports that aim to capture current market conditions, provide accurate price projections and deliver valuable insights on vital industry topics. Since taking over the reporting from his longtime mentor, Donald Bell, who was recently deceased, Ibarburu has met the challenge of providing market information to about 1,150 subscribers representing more than 90 percent of laying hens in the U.S.

"Projecting the prices of eggs is very challenging," said Ibarburu. "My desire is to continually improve our analysis and our reporting."

In 2015, Ibarburu made significant progress in this direction. He developed a new price projection model intended to improve the accuracy of the center's egg price projections.

## EGG INDUSTRY CENTER

### MONTHLY AND SPECIAL ECONOMIC REPORTS

Sample testing of the new model showed an increase in accuracy, especially when projecting prices on a quarterly basis.

Also new this year is the consolidation of three monthly reports into two: "**U.S. Flock Trends and Projections**" and "**Costs and Prices.**"

Additionally, Egg Farmers of Canada provided new software to the Egg Industry Center and is collaborating with Ibarburu to further improve the flock and price projection accuracy.

### NAVIGATING THE UNEXPECTED

The enactment of California Proposition 2 and the widespread outbreak of avian influenza made 2015 a potentially game-changing year for the egg industry. And while the long-term effects of these events remain to be seen, one question immediately surfaced: "**What will happen to egg prices?**"

While reporting on this question and other concerns, media outlets such as the *Wall Street Journal*, *USA Today*, *the Associated Press* and *CNBC* turned to the Egg Industry Center for its expertise.

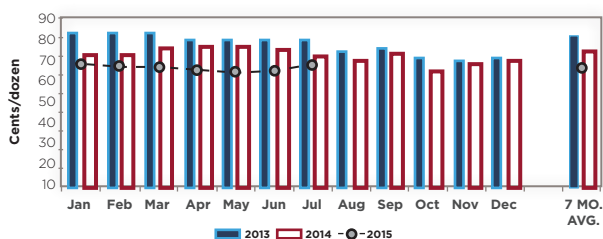
Ibarburu provided a special economic report for each industry development: "**The California Situation**," released a few days prior to the enactment of California Proposition 2, and "**Avian Influenza and U.S. Egg Prices**," released several weeks into the outbreak.

### Excerpt from EIC Monthly Market Report

#### ESTIMATED TOTAL COSTS BY REGION (CENTS/DOZ.)—2015

Month	Southeast	Northeast	Midwest	South Central	Northwest	California	of 5 Regions
Jan	74.78	62.91	59.46	61.13	69.13	81.68	65.48
Feb	69.88	61.45	60.75	60.76	67.12	79.66	63.99
Mar	71.32	61.44	58.11	60.19	66.88	79.41	63.58
Apr	70.05	61.94	57.25	58.99	65.55	78.09	62.75
May	69.31	57.95	56.47	58.10	64.69	77.23	61.50
Jun	68.23	60.50	56.40	58.25	66.89	79.43	62.05
Jul	71.08	63.50	59.17	61.79	68.90	81.44	64.89
Aug							
Sep							
Oct							
Nov							
Dec							
7 Month Avg.	70.67	61.39	58.23	58.89	67.02	79.56	63.44
Region/US Avg.	1.11	0.97	0.92	0.94	1.06	1.25	(1.00)

FIGURE 2: COST OF PRODUCTION BY MONTH



TO RECEIVE THE EGG INDUSTRY CENTER'S MONTHLY MARKET REPORTS VIA EMAIL, CONTACT **Maro Ibarburu at maro@iastate.edu** OR **515.294.8132**. To view current and archived reports, visit: **www.eggindustrycenter.org**.

"Don's passion for sound, applied research and incorporating new technologies led him to be one of the most important contributors to the development of the egg industry, both in the U.S. and around the world," said Hongwei Xin, director of the center.

Throughout his career of 50-plus years, Bell investigated a variety of egg industry issues and accumulated a large collection of information. In 2014, he donated more than 3,000 documents covering more than 80 topics to the Egg Industry Center. The center is incorporating the documents into an online resource library, which is accessible from the center's website.

A friend to everyone he met, Bell will be especially missed by his protégé, Ibarburu.

"Don was not only the most knowledgeable person I've ever known, but the most humble as well. He freely shared all the information and knowledge he had, and he taught me most of the things I use now," said Ibarburu. "He wasn't done teaching."

Bell's passion for education will continue to be remembered through the Don Bell Memorial Lecture Series, announced at the 2015 Egg Industry Issues Forum. The memorial lectures will seek to educate participants on current and emerging industry issues through keynote presentations at future forum events.

### EGG INDUSTRY CENTER LOSES A DEAR FRIEND



SADLY, OCTOBER 2014 MARKED THE PASSING OF DONALD BELL, EXTENSION SPECIALIST EMERITUS AT UNIVERSITY OF CALIFORNIA-DAVIS AND A FOUNDING MEMBER OF THE EGG INDUSTRY CENTER ADVISORY BOARD.

Known for his prolific research and writing as well as spot-on economic forecasts, Bell heavily influenced policy, best practices and other areas integral to the advancement of the egg industry worldwide.

## INDUSTRY FLOCKS TO FORUM

ONCE AGAIN, THE 2015 EGG INDUSTRY ISSUES FORUM SET NEW PARTICIPATION RECORDS: REGISTRATION FOR THE EVENT INCREASED BY 33 PERCENT OVER THE 2014 FORUM, AND THE NUMBER OF INDUSTRY SPONSORS DOUBLED.

When asked about the formula for success in growing the event, Lesa Vold, communications specialist said, "Listening to producers' needs and recognizing the value of an intimate atmosphere for learning and discussion."

Held in Des Moines, the forum opened with an address from Iowa Secretary of Agriculture Bill Northey. Next came the inaugural Don Bell Memorial Lecture given by Robert Fraley, executive vice president and chief technology officer at Monsanto. Fraley discussed the effects of genetically modified organisms on the egg industry and noted that the link between feed and egg production means agriculture must increase as a whole in order for egg producers to meet the demands of a growing world population.



ROBERT FRALEY, executive vice president and chief technology officer at Monsanto, delivers Don Bell Memorial Lecture.

Also new to the forum this year was a dual-track format that allowed participants to choose among topics, and a panel discussion where industry leaders addressed the aftermath of California Proposition 2.

"It was interesting to hear from the people who have to interpret a law that is vague and put money and time into addressing it with housing and management changes," said Gregory Martin, extension educator at Pennsylvania State University.

Other popular sessions addressed salmonella control, global market trends for feed grains, cage-free housing system management and genetic improvement of hens raised in alternative hen housing systems.

"The variety and quality of topics was good. I especially liked Dr. Sullivan's talk on genetic improvements and alternative hen housing because it fits what I do on a daily basis," said Mark Oldenkamp, vice president of Northwest Operations for Valley Fresh Foods, Inc. "The forum plays an important role in disseminating information that is timely for the industry."

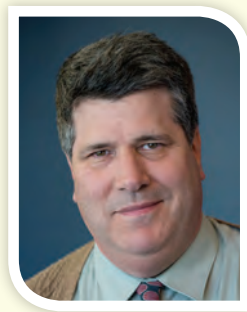
Retained from last year's list of firsts was the post-forum workshop. This year participants had the option of attending a poultry-handling class where they could earn certification through the Poultry Handling and Transportation Quality Assurance Program now offered by the U.S. Poultry & Egg Association.

Said Martin, co-instructor for the workshop, "Everyone should have the opportunity to learn something new in their occupation. The Egg Industry Issues Forum provides opportunities to hear from people and see things you typically don't experience at other national meetings."

**SAVE THE DATE!**  
2016 Egg Industry Issues Forum  
April 20-21, Chicago, IL

“THE EGG INDUSTRY ISSUES FORUM ISN’T JUST ANOTHER INDUSTRY MEETING. IT BRINGS TOGETHER INDUSTRY AND ACADEMIA – SCIENCE AND PRACTICE – FOR THE TRANSFER OF KNOWLEDGE ABOUT KEY PRACTICES AND RECENT DISCOVERIES THAT ARE USEFUL TO PRODUCERS.”

— GREGORY MARTIN,  
EXTENSION EDUCATOR,  
PENNSYLVANIA  
STATE UNIVERSITY



PRIOR TO THE FORUM, MORE THAN FORTY PARTICIPANTS TOURED HY-LINE INTERNATIONAL IN DALLAS CENTER, IOWA. THE TWO-HOUR TOUR INCLUDED A FIRST-HAND LOOK AT THE COMPANY’S EGG QUALITY LAB AS WELL AS PRESENTATIONS ABOUT ITS MOLECULAR GENETICS PROGRAM AND RESEARCH AND DEVELOPMENT OPERATION.



## 2015 EGG INDUSTRY CENTER BY THE NUMBERS

**500K+** DOLLARS BEING USED ON AVIAN INFLUENZA RESEARCH

EGG FORUM  
REGISTRATION  
INCREASE  
OVER 2014  
**33%**

IMPRESSIONS  
FROM OUTLETS  
QUOTING EIC  
DURING AVIAN  
INFLUENZA CRISIS  
**1.1** BILLION

WORLDWIDE  
RECIPIENTS OF  
MONTHLY MARKET  
REPORTS

**15** EGG INDUSTRY RESEARCH PROJECTS  
CURRENTLY UNDERWAY

**90%**  
**INCREASE**  
FROM 2014 TO 2015  
IN FUNDING  
AWARDED  
THROUGH EIC  
RESEARCH GRANT  
PROGRAMS

**1,150+**

## ENCOURAGING NEW DISCOVERIES

### EGG INDUSTRY CENTER INCREASES SUPPORT FOR APPLIED RESEARCH

WHETHER THE GOAL IS TO MITIGATE THREATS TO THE INDUSTRY OR TO INVESTIGATE THE VALIDITY OF NEW PROCESSES, TECHNOLOGIES OR SOLUTIONS, APPLIED RESEARCH IS ESSENTIAL TO THE ADVANCEMENT OF THE EGG INDUSTRY. THAT'S WHY SUPPORTING SUCH WORTHWHILE PROJECTS – THROUGH THE EGG INDUSTRY CENTER RESEARCH GRANT PROGRAM – IS A CORNERSTONE OF THE CENTER'S MISSION.

This year, the center is proud to announce an increase of more than 90 percent in research grant funding. This increase enabled the center to expand the number of projects funded this year from one to three. While partly due to exceptional stewardship of the center's endowment, the driving force behind the acceleration of this important resource is the continued generosity of the center's committed donors.

#### INVESTIGATING FOCAL DUODENAL NECROSIS

FOCAL DUODENAL NECROSIS IS AN INTESTINAL DISEASE SYNDROME THAT MOSTLY AFFECTS LAYING HENS AT THE PEAK OF EGG PRODUCTION.

It is currently rated as one of the top five diseases affecting layers in the U.S. and has also been reported in Europe and South America. While FDN is not associated with increased mortality rates, the disease has been linked to decreased egg production and lower egg weights.

"The potential economic effects of FDN are significant. There aren't many options for treating the disease, and it often returns to a flock six to eight weeks after treatment," said **MONIQUE FRANCA**, assistant professor at the University of Georgia and one of this year's grant award winners. "We need to prevent the condition in the first place. That's why we are working to understand the risk factors related to FDN."

Franca's study, "CHARACTERIZATION OF THE PREDISPOSING FACTORS AND PATHOGENESIS OF FOCAL DUODENAL NECROSIS IN EGG LAYERS,"

aims to determine the causes of FDN in egg-laying chickens as a means to aid the egg industry in effective disease

prevention and control. Working with U.S. layer operations, Franca and her team will determine predisposing environmental risk factors (diet, management practices, housing, etc.) and characterize the duodenal environment, microbiome and *C. perfringens* isolates associated with health and disease. The researchers will then use this information to help create a challenge model using *C. perfringens* isolates and intestinal homogenates obtained from FDN lesions. The study is estimated to take three years.

**CAROL CARDONA**, professor at the University of Minnesota, and her colleagues are also working toward finding the causes of FDN. Her study, "UNDERSTANDING CLINICAL FOCAL DUODENAL NECROSIS," proposes that in order to determine the causes of FDN, the first step is to understand the pathogenesis of the disease. The study will employ a longitudinal and cross-sectional sampling strategy with local producers to accomplish three objectives:

- 1) Evaluate the pathology of FDN in multiple organ systems
- 2) Develop an ante-mortem diagnostic tool
- 3) Characterize the duodenal microbiota of FDN hens

Expected outcomes include the ability to use clinical chemistries to identify birds with FDN and baseline data against which treatments and preventative strategies can be measured.

**GAINING A BETTER UNDERSTANDING OF FDN AND ITS CAUSES HAS THE POTENTIAL TO GREATLY BENEFIT EGG PRODUCERS BY INCREASING BOTH PRODUCTIVITY AND PROFITABILITY.**



MICROSCOPIC LESION

## DRIVING THE DEMAND FOR EGG YOLKS

**AWARDED AN EIC RESEARCH GRANT**, researchers at the University of Nebraska-Lincoln are examining the effects of egg yolk compared to spray-dried animal plasma in nursery diets on pig growth, health and gut microbial populations. Already shown to have beneficial effects on piglets' feed intake, growth and circulating immunoglobins, comparisons with spray-dried animal plasma could establish egg yolk as a viable alternative to plasma, the protein source used in about 90 percent of early-phase nursery diets.

"There are always benefits to having alternatives. The price, production or processing of plasma could change someday. Things never stay the same," said **PHILLIP MILLER**, professor at UNL and principal investigator for the study, "**THE EFFECTS OF EGG YOLK ON PIGLET GROWTH, HEALTH AND MICROBIAL POPULATIONS.**"

In addition to data on pig growth performance and gut microbial populations, the study will also include an economic analysis of diet cost relative to growth performance.

"I imagine that if we show egg yolk to be as beneficial as other ingredients in pigs' diets, and it is priced favorably, there may be a market for it," said Miller.

TO HELP ENSURE PROJECTS LIKE THESE CONTINUE, GIVE TO THE EGG INDUSTRY CENTER ENDOWMENT.

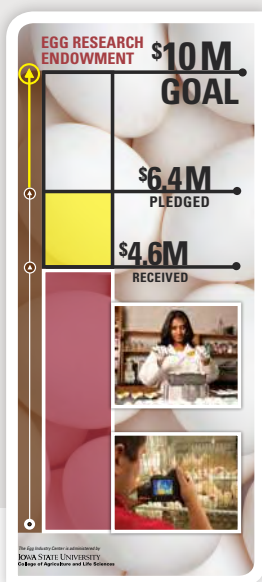
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## RESPONDING TO A CRITICAL NEED

THE FLEXIBILITY OF THE CENTER'S RESEARCH FUNDING PROGRAM WAS KEY TO ENSURING A TIMELY RESPONSE TO THE AVIAN INFLUENZA OUTBREAK.



Dedicating awards to this critical issue reflects the center's commitment to promoting projects with the greatest potential to benefit the egg industry. After reviewing many quality proposals, **the center awarded a total of more than \$311,000 among five projects:**

- "Understanding New Highly Pathogenic Avian Influenza (HPAI) Viruses Affecting the U.S. Poultry Industry and Their Persistence," University of California-Davis
- "Evaluation of Alternative Environmental Sample Matrices for AIV Surveillance and Stability in Commercial Poultry Facilities," Iowa State University
- "Role of Terrestrial Wild Birds, Rodents, and Insects in Spreading Avian Influenza Virus to Commercial Layer Operations," Iowa State University
- "Evaluation of Feedstuffs for the Presence of Avian Influenza Virus (AIV) Collected from Feed Mills and Poultry Farms and Their Role in Spreading of AIV," Iowa State University
- "The Role of Litter Beetles, Water, and Rodents in Avian Influenza Virus Transmission," Auburn University

For more information on these grants and other research, visit [www.eggindustrycenter.org](http://www.eggindustrycenter.org)

## SUITED UP AND READY TO GO

### KEEL BONE RESEARCH COMPLETES PRELIMINARY TRIAL

“I’M COMING OFF A BIG HIGH,” SAID MAJA MAKAGON, AFTER TRAVELING TO THE FACILITY WHERE HER RESEARCH PROJECT IS UNDER WAY. “WE’VE MADE SO MUCH PROGRESS. IT’S VERY EXCITING!”

Makagon, assistant professor at University of California-Davis and winner of last year’s EIC Research Grant while assistant professor at Purdue University, is investigating “Causes of Keel Bone Abnormalities in Laying Hens Housed in Enriched Colony Systems.” The two-year project aims to evaluate the causes of keel bone fractures and curvatures from behavioral biomechanical and anatomical perspectives.

“This project defines what I find so exciting about research: bringing people together from different circles of academia and answering questions that matter right now,” said Makagon.

Estimated to afflict more than 50 percent of birds in commercial facilities with alternative housing systems, keel bone damage is as much of an animal welfare concern as it is an economic issue. Such abnormalities have been linked to increased mortality and reduced egg production and quality.

In May, Makagon and her team fitted several laying hens with custom-made vests containing tri-axial accelerometers. This technology measures energy forces experienced at the moment of injury. Combined with sophisticated video surveillance, the research team can identify correlations between bird behavior and its impact on keel bone structure.

“WHEN WE RAN THE PRELIMINARY TRIAL AND REALIZED THAT ALL THE COMPONENTS WERE WORKING TOGETHER – THAT WAS A MOMENT OF EXCITEMENT,” SAID MAKAGON.

**The full trial will involve 120 birds in each of two data collection points: at peak lay and at the end of the first laying cycle.** Researchers will record all impacts expended on the keel that are greater than the baseline set point established in the preliminary trial. The project is expected to provide useful information for producers moving to enriched colony systems.

“By being open to broad ideas, we can be more creative and come up with novel solutions. Funding from the center allows us to do that – and to get big projects that matter to the industry moving quickly,” said Makagon.



MAJA MAKAGON

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AND**

**ANSWERING  
QUESTIONS  
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# MAKING DREAMS POSSIBLE

## EIC SUPPORTS ANIMAL LAW AND POLICY SCHOLARSHIPS

HAVING GROWN UP IN A REGION OF ARKANSAS SATURATED WITH POULTRY PRODUCERS, JORDAN COMPTON'S PASSION FOR AGRICULTURE RUNS DEEP. BUT AS A STUDENT AT WILLIAM H. BOWEN SCHOOL OF LAW, UNIVERSITY OF ARKANSAS – LITTLE ROCK, HE'S FOUND IT CHALLENGING TO COMBINE HIS LOVE FOR FARMING WITH HIS ATTRACTION TO THE LEGAL PROFESSION.

"Bowen doesn't have a class specific to agricultural law. So I've been synthesizing information from classes like environmental law that include cases related to agriculture," said Compton.

While a good start, Compton's self-guided study alone won't prepare him for a career in agricultural law. But his options for pursuing additional coursework were limited – until he learned about the Egg Industry Center scholarships.

Since 2010, the center has been providing funds for law students interested in agriculture to enroll in Animals and Agricultural Production – Law and Policy, a two-credit course held at the University of Nebraska–Lincoln. The course had been located at the University of Oklahoma Law School until the faculty member in charge retired at the end of 2012.

In May 2015, the center sponsored three students.

"Law students are often cash poor. That was my situation. I had no financial way to support taking this class without the scholarship," said Compton.

Attracting students from across the country, the intensive one-week course teaches students about the existing legal structure and theory involved in modern animal science and the use of animals in agricultural production.

"We discussed international trade barriers and domestic regulations related to meat processing," said Mary-Thomas Hart, a student at Samford University Cumberland School of Law in Birmingham, Alabama. **"I DIDN'T KNOW JUST HOW LARGE A ROLE LEGAL ISSUES PLAY IN AGRICULTURE."**

As these issues continue to grow in number and complexity, the center recognizes the need for attorneys and other professionals who are competent in legal principles that affect the egg industry.

"Without the course at UNL, I would not have such a deep understanding of agricultural laws and regulations," said Hart. "And because law school is expensive, I would not have been able to afford the course had it not been for the generosity of the Egg Industry Center."



## NORMA KIRSHBERGER IS A BUSY WOMAN

The mother of three boys, she drives 100 miles from her farm in rural Arkansas to her job as a paralegal in Little Rock. Along the way, she sells vegetables to restaurant owners. In the evenings, she attends classes at William H. Bowen School of Law before heading back to her family, cows, laying hens and garden.

Yet despite her exhausting schedule, Kirshberger drove to the University of Nebraska-Lincoln last May to attend the Animals and Agricultural Production – Law and Policy course. She said the experience was well worth the drive.

"The course was thorough and interesting. It helped me see where and how the law affects agriculture and where my farm fits in the bigger picture," said Kirshberger. "It also shifted my focus to where I can be most useful in my community: land and water use."

Kirshberger noted that the lessons learned could benefit students beyond her agrarian-minded peers.

"There's a disconnect between city and rural life. Urban law students need to understand where their food comes from," said Kirshberger. "Many Americans are still farming. **There is a huge need for quality legal services in our rural communities.**"

# EGG INDUSTRY CENTER ADVISORY BOARD

COMPRISED OF ACTIVE LEADERS FROM MANY FACETS OF THE EGG INDUSTRY, THE EGG INDUSTRY CENTER ADVISORY BOARD IS RESPONSIBLE FOR STRATEGIC GUIDANCE AND DECISION-MAKING. MEMBERS OF THE BOARD VOLUNTEER THEIR TIME, TALENT AND EXPERTISE TO ENSURE THE CONTINUED SUCCESS OF THE CENTER AND THE INDUSTRY.

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HONGWEI XIN

## PLEASE WELCOME

Our new advisory board members:

### DONALD BEERMANN

Professor and Chair,  
Animal Science  
Iowa State University

In 2015, Beermann returned to his alma mater, Iowa State University, to chair the animal science department. After completing a Master of Science and doctorate degrees at the University of Wisconsin-Madison, he joined the faculty at Cornell before becoming department chair at the University of Nebraska-Lincoln. He was later appointed director within the UNL Office of Research, and he also served as interim director of the School of Veterinary Medicine and Biomedical Sciences before returning to ISU.

### RANDY OLSON

Executive Director,  
Iowa Egg Council  
Iowa Poultry Association

Prior to starting his position as executive director in 2015, Olson served as a marketing director for the U.S. Soybean Export Council, where he was responsible for the market access of U.S. soy around the world. Olson has also served as executive director of the Iowa Biodiesel Board.

### PAUL PATTERSON

Professor,  
Poultry Science  
Pennsylvania State University

Patterson holds a doctorate degree in poultry science and nutritional science from the University of Wisconsin-Madison. His research interests target environmental poultry management, including the management of manure and by-products of poultry production as well as the impacts of odor, flies and traffic on the environment at the urban-rural interface.



# 2015 EIC IMPACT REPORT

EGG INDUSTRY CENTER ENDOWMENT FUNDS ARE MANAGED BY THE IOWA STATE UNIVERSITY FOUNDATION. FOR MORE INFORMATION, VISIT [www.foundation.iastate.edu](http://www.foundation.iastate.edu) OR CALL 866.419.6768.

# REACHING NEW HEIGHTS

THANKS TO THE CONTINUED SUPPORT OF OUR PARTNERS, THE EGG INDUSTRY CENTER HAS ONCE AGAIN REACHED NEW HEIGHTS.

Your generous contributions to the endowment have enabled the center to magnify its impact on the discovery of new solutions to industry challenges and have fortified the center's growing reputation as a valued industry partner. Thank you for making the Egg Industry Center a viable force in one of the world's most essential industries.

To learn how you can advance the egg industry by supporting the work of the Egg Industry Center, please contact the center today.



The Egg Industry Center is administered, and this impact report provided, by the College of Agriculture and Life Sciences at Iowa State University. Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries regarding non-discrimination policies may be directed to Robinette Kelley, Director, Office of Equal Opportunity, Title IX/ADA Coordinator, and Affirmative Action Officer, 3350 Beardshear Hall, Ames, Iowa 50011, Tel. 515 294-7612, email [eooffice@iastate.edu](mailto:eooffice@iastate.edu).