



CHEEPS AND CHIRPS

..... *Points for Poultry Profitability*

VOLUME 8, ISSUE 2

AUGUST 2015

INSIDE THIS ISSUE:

Economic impact of American poultry industry 1

Economic impact of Kentucky poultry industry 1

From the ashes, a new state-of-the-art feed mill rises at UK farm 2

Trends in Fuel prices 3

Breeder house lighting decisions 4

Avian Influenza update 7

Silent auction fund-raiser for KPF scholarships 8

SAVE THE DATE
October 3

Kentucky Poultry Festival

ECONOMIC IMPACT OF AMERICAN POULTRY INDUSTRY

The U.S. Poultry & Egg Association, National Chicken Council, National Turkey Federation, and United Egg Producers have made available an updated economic impact study that highlights the increased positive impact the poultry industry has on jobs, wages, and federal and state revenue in the United States.

Key economic data from each sector is as follows:

- » The turkey industry provides 308,400 jobs, \$16.9 billion in wages, \$80.1 billion in economic activity, and \$5.6 billion in government revenue.
- » The chicken industry provides 1,339,900 jobs, \$74 billion in wages, \$348.7 billion in economic activity, and \$24.4 billion in government revenue.

- » The egg industry provides 128,000 jobs, \$7.2 billion in wages, \$30.7 billion in economic activity, and \$2.2 billion in government revenue.

The data is hosted on interactive websites that can be viewed collectively or by individual product, and then sorted nationally, by state, congressional district, state house district or state senate district.

For more information about the U.S. poultry industry's economic impact, visit:

www.turkeyfeedsamerica.org
www.poultryfeedsamerica.org
www.chickenfeedsamerica.org

ECONOMIC IMPACT OF KENTUCKY POULTRY INDUSTRY

In 2014 the Kentucky Poultry Industry was a \$1.2 Billion industry and continues to grow. There are over 850 large scale poultry farms, 3000 poultry houses in 42 counties, and still growing in all sectors of the industry.

The broiler-breeder industry in Kentucky employees approximately 6,300 people across the state and generate an additional 20,444 jobs in both the supply and ancillary industries.

Kentucky's turkey industry also plays an integral role in Kentucky's economy. In 2014, the turkey industry was responsible for contributing roughly \$393.8 million as a whole to the Kentucky economy and created as many as 2,567 jobs in our state.

Egg producers contribute approximately \$214.7 million dollars to Kentucky's

economy, while creating 1,769 total jobs for Kentuckians. In a circular memorandum to the Industry, Joanne Ivy, president and CEO of the American Egg Board, highlighted growth in egg consumption during 2014. Per capita use grew to 160.7 eggs, the highest in 30 years and the fifth consecutive year of an increase.



From the ashes, a new state-of-the-art feed mill rises at UK farm

In the early morning hours of May 26, 2013, a fire destroyed the feed mill at a University of Kentucky College of Agriculture, Food and Environment's C. Oran Little Research Center in Woodford County. The college's farms are home to thousands of animals including sheep, swine, poultry and cattle, and the fire threw a big hitch in the way the UKAg staff feed those animals. But the college chose to see the fire as an opportunity to create a state-of-the-art facility that would better serve the animals and propel research programs associated with animal feeding.

The new mill is designed to produce high-quality feed in a user-friendly environment. Feeding thousands of animals every day is a monumental task, and the mixing capacity of the new mill is poised to take on the task with expanded mixing capacity with four stainless steel mixers—a two-ton mixer, one-ton mixer, 1,000-pound mixer and a 500-pound mixer.

"This state-of-the-art feed center greatly enhances our feed mixing capabilities and will improve our nutritional research efforts through more precise blending of diets to

targeted nutrient levels," said Richard Coffey, chair of the UK Department of Animal and Food Sciences. "Additionally, the computer-controlled automation and expanded ability to handle prepared diets in bulk makes this feed center much more user-friendly than our previous feed mills for those responsible for preparing diets."

The new mill has the same footprint as the old mill, but the storage silos were placed in a different location. The mill allows the staff to accurately mix simple and more complex diets and is automated in many ways, which is a very important feature for impactful research.

"Our research on nutritional management must be as accurate as it can be, because the information is used to recommend feeding systems for producers in Kentucky and beyond," said Nancy Cox, dean of the college and director of the Kentucky Experiment Station. "With this new feed mill, we are confident our recommendations can serve our industries as well as individual owners."

(Continued on page 3)



PHOTO: Matt Barton, UK Agricultural Communications

New UK feed mill *(continued)*

Anthony Pescatore, UKAg extension professor for poultry, said the fire allowed the research team to redefine the capacity needs of the farm and forced upgrades that will become essential to a top-notch research college. The stainless steel mixers help reduce cross-contamination between batches. It also furthers the college's mission to be as sustainable as possible.

"Having milling capability allows us to produce our own feed and to use the grains and corn we produce on our farms," Pescatore said. "It also helps us keep our feed costs under control."

Precision is another important feature of the new mill. With different-sized mixers, users will be able to mix diets from 200 pounds all the way up to 2 tons with high accuracy.

That's important because all animals, even within species, don't have the exact same nutrition requirements.

"We have been able to design a facility from the ground up that should serve our programs well into the future," said Robert Harmon, who was chair of the Department of Animal and Food Sciences at the time of the fire.

The new mill has dust-collection equipment and a vacuum system to aid in the cleaning process. A 1-ton hoist will lift ingredients into the mixers instead of workers having to carry them. The walkways and stairs are designed to prevent slips and falls, and it is temperature-controlled to make the facility more comfortable for workers. Another important feature of the new mill—the electrical system is explosion-proof.

"This is by far, a step up for our feed mill," Pescatore said. "A big focus of the Department of Animal and Food Sciences has always been animal nutrition, and we want to continue to build on our history of nutritional research. Precision nutrition is an important part of the future of animal agriculture. We'll continue to focus on fine tuning the nutrient needs of animals and increase their efficient use of grains and feed."

By Aimee Nelson

For more information:

Tony Pescatore 859-257-7529

Richard Coffey 859-257-2686

Trends in fuel prices

Propane Stocks Keep Rising

US Gulf Coast propane stocks have risen to yet another record high. Production continues to outpace demand. Distribution terminal prices have declined even further in June to around \$0.40 per gallon. Kentucky poultry growers should be able to contract winter propane supplies under \$1.00 per gallon. This is an excellent opportunity for growers to trim their costs and put more money in their bank account.

Natural Gas Prices Decline

Continuing high levels of shale gas production have helped reduce natural gas prices almost 50% in the past year. Unlike propane, natural gas distribution in Kentucky is regulated by the Public Service Commission (PSC). One requirement is for changes in gas cost to be passed directly to the

customer through "gas cost adjustments," which distributors must routinely file with the PSC.

With declining market prices, distributors' new gas cost adjustments should be showing lower rates for gas service, and those lower rates would be reflected on your billing. If you use natural gas, check your recent bills to see if there have been any rate reductions. If not, talk with your gas supplier to see if lower rates will be taking effect in the coming months. Barring some drastic change, the rate for natural gas should be lower in the upcoming heating season that it was last year.



Breeder House Lighting Decisions



Light output
from a light bulb
is measured in
“lumens”

Should we be replacing the typical high pressure sodium (HPS) lights in breeder houses with light emitting diode (LED) lights? Some people seem to think so, but there are some unanswered questions that make the decision less than clear-cut.

Unlike broiler houses, breeder houses usually have translucent curtains on the sidewalls so there is natural daylight in the house. The primary purpose of supplemental lighting is to increase day length to about 16 hours so lights are most important in the morning and evening. A typical lighting schedule would have house lights on from about 5 a.m. to 9 p.m.

Most Kentucky breeder barns were originally lighted with 150 watt HPS fixtures. Because LED lights have recently become an affordable energy saving option for broiler houses, it is logical to ask if they could be an energy saving option in breeder houses as well. Indeed, LEDs have already been used for a few retrofits of existing houses and installations in new house construction, too. Let's take a look at some details.

Table 1 on the next page provides data for some HPS and LED lights. Light output from a bulb is measured in “lumens.” Column 5 shows “lumens per watt,” (known as efficacy) which is a measure of the light output per unit of energy used. As a light source, HPS bulbs have one of the highest lumen per watt outputs of any type of light source used in poultry houses. Some reports have described high pressure sodium lights as “energy hogs,” but that's probably an overstatement – at least in regard to the light itself.

A typical HPS fixture in many breeder houses uses a 150 W bulb and has a ballast that consumes an additional 15 to 20% of the bulb wattage, making the total fixture wattage about 175 watts. LEDs do not need a ballast but do require a power

supply which also uses a small amount of energy. Column 6 of table 1 shows the HPS light, even with the ballast energy included, still emits as much or more total lumens per watt than LEDs suggested as potential replacements.

LEDs can have an advantage in directing light to birds on the floor. HPS bulbs emit light in all directions and rely on a reflector above the bulb to direct light to the floor. Reflectors are not 100% efficient. They can be quite inefficient, especially when dirty, corroded, or otherwise damaged, and as much as $\frac{1}{3}$ to even $\frac{2}{3}$ of the light emitted from a bulb may not reach the birds at floor level. LEDs do not rely on a reflector because the lights themselves can be constructed as a downward directed light source. Thus, a very high percentage of light from the LEDs will reach the floor.

A typical 40 x 500 foot breeder house would have about 34 HPS light fixtures with 150W bulbs. The total bulb light input would be 544,000 lumens. Some LED installations have used about 150 fixtures with 10W bulbs (810 lumens each) providing 121,500 lumens of total light input. Just looking at the bulb lumens and wattage, the LEDs provide only 22% of the total light input and use 26% as much energy when compared to a typical HPS installation. The energy savings are certainly attention grabbing but that's also a drastic reduction in light input! Even allowing for a 50% reflector loss for the HPS lights, the LEDs still only provide 44% as much light to the floor as the HPS system.

So, how much light is really needed? Most recommendations seem to be around 4 to 6 footcandles (*see sidebar*

(Continued on page 5)

Table 1. Data for HPS and LED lights

Light source	Power, W		Light out- lumens**	Efficacy, lumens/W		Rated Life hrs
	bulb	fixture		bulb	fixture	
HPS 1	150	175	16,000	107	91	24,000
HPS 2	70	83	6,300	90	76	24,000
LED 1*	12	12.5	750	63	60	50,000
LED 2	10	10.5	810	81	77	35,000

* LED 1 has unique wavelength and other electronic characteristics

** initial lumens given - light output declines about 10% at half life

Table 2. Estimated 10-year cost - New House (40 x 500) Construction

Light source	Cost (each)		Installed cost per house*	Energy		10 yr cost		
	Bulbs	Fixtures		Use kWh/yr	Cost @ \$0.10/kWh	replace bulbs	replace ballasts**	total
HPS 1	\$13	\$200	\$7,242	31,416	\$3,142	\$972	\$1,496	\$41,126
HPS 2	\$12	\$200	\$7,208	14,900	\$1,490	\$898	\$1,496	\$24,502
LED 1	\$30	\$40	\$10,500	9,900	\$990	\$4,752	\$0	\$25,152
LED 2	\$11	\$40	\$7,650	8,316	\$832	\$2,489	\$0	\$18,455

* 34 HPS fixtures per house & 150 LED fixtures per house

** ballast life assumed to be 2 times bulb life



High Pressure Sodium (HPS) light



Light Emitting Diode (LED) light

Breeder House Lighting Decisions (continued)

(Continued from page 4)

on the next page) on the floor, and some field measurements have confirmed that the LED installations do provide at least that amount of light. A 70W bulb in an existing HPS system would also provide about 40% as much light input as the 150W HPS bulbs and would be comparable to the light input from LEDs. Energy savings could be possible from that change as

well, although it is not known if actual light levels on the floor would meet the 4 to 6 footcandle target.

If, in fact, 1575 watts of LED lights (150 fixtures x 10.5 W/fixture) are an adequate replacement for 5950 watts of HPS lights (34 fixtures x 175 W/fixture) then obviously substantial energy savings are possible. Is the LED lighting really adequate for the birds and if it is, could the typical

HPS lighting of the past also be reduced? Are the birds more sensitive to light from the LEDs and therefore not as much illuminance is required as some have claimed? Those are some of the questions that remain to be answered.

This discussion probably should

(Continued on page 6)

Breeder House Lighting Decisions—Side bar



Research into lighting requirements for broiler breeders is very scarce. Advice is often based more on field experience and/or tradition than on research results. Recommendations (*Cobb, Ross/ Aviagen, and Arbor Acres breeder management guides and other sources*) for illuminance (often incorrectly called intensity) at bird level range from 3 to 7 footcandles (30 to 70 lux). (Note: 1 footcandle = 1 lumen per square foot and 1 lux = 1 lumen per square meter).

Questions about a positive bird response due to the wavelength of a light source involve both physics and biology and remain mostly unanswered at this time. It is known that birds can “see” and do have some response to ultraviolet and infrared light outside of the human visible spectrum. Poultry also have greater sensitivity than people to some

wavelengths within the visible spectrum. However, it is not well established that those bird responses will translate into better egg production.

In general, the lamp type seems irrelevant to egg production from broiler breeders. Currently there is not good evidence for using anything other than a “white” light, preferably one in the lower or “warm white” range of color temperature (2000 to 3000°K). Some poor performance in the latter stages of production has been noted when using “cool white” (>3500°K) or higher color temperature lights.

*Doug Overhults
Biosystems & Agricultural Engineering
University of Kentucky*

Breeder House Lighting Decisions (continued)



(Continued from page 5)

not end without considering potential costs and savings. Table 2 above shows the estimated installation and operating costs for LED & HPS lighting in new house construction. The same information is provided in Table 3 for retrofitting an existing house that already has HPS lights. All LED and HPS lights have long lifespans and different replacement schedules, so some long term comparison of the options is needed. In both tables, a 10-year total cost (installation + operation) is given to provide a common basis for comparison.

The LED 2 system has a 10-year cost that is about ½ of the 150W HPS system, primarily due to energy cost savings accumulated over 10 years. Costs for the

LED 1 system are higher than the LED 2 system mostly because of higher initial and replacement bulb cost. If a 70W HPS system could provide acceptable lighting, it could be cost competitive with the LED 2 system in a retrofit application. Energy cost savings from the LED and 70W HPS systems are created in all cases by reducing total light input into the house. The critical discussion about savings is not so much about the light source. It should be about the amount and distribution of light required and the effectiveness of the installed system in meeting that requirements.

*Doug Overhults
Biosystems & Agricultural Engineering
University of Kentucky*

Table 3. Estimated 10-year cost - Retrofit Existing House (40 x 500)

Light source	Cost (each)		Installed cost per house*	Energy Use		10 yr cost		
	Bulbs	Fixtures†		Energy kWh/yr	Cost @ \$0.10/kWh	replace bulbs	replace ballasts**	total
HPS 1	\$13	\$48	\$2,074	31,416	\$3,142	\$972	\$1,496	\$35,958
HPS 2	\$12	\$47	\$2,006	14,900	\$1,490	\$898	\$1,496	\$19,300
LED 1	\$30	\$40	\$10,500	9,900	\$990	\$4,752	\$0	\$25,152
LED 2	\$11	\$40	\$7,650	8,316	\$832	\$2,489	\$0	\$18,455

† Assumes existing fixtures are used - new bulbs & ballasts installed - ballasts @\$40 each

* 34 HPS fixtures per house & 150 LED fixtures per house

** ballast life assumed to be 2 times bulb life

AVIAN INFLUENZA UPDATE

High Pathogenic Avian Influenza (HPAI) has had a devastating effect on the Poultry Industry. The outbreak this spring affected 232 poultry premises in the United States of which 211 commercial operations and 21 backyard flocks were involved. The strain of greatest concern was H5N2 which was highly pathogenic, killing chickens and turkeys in large numbers and spreading rapidly through a facility.

The impact of the disease will be felt for a long time due to devastating effects on the layer industry (42.1 million hens) and the turkey industry (7.5 million turkeys). Consumer prices are up and exports have declined. The negative economic impact of this outbreak includes the loss of income for producers and their employees, the cost of depopulating farms, the cost of surveillance programs, and the cost for cleaning and disinfecting premises. Recovery for the layer industry will be slow due to the time it takes to physically clean and disinfect a large facility, as well as the time it takes to raise chicks to laying age. In addition, there are limited facilities suitable for raising pullets. The turkey industry lost breeder birds that have tightened the hatching egg supply. As of August 19th only 102 of the 211 commercial operations are eligible to restock and only 8 of the 21 backyard flocks were released.

What has been learned from this terrible situation?

Migratory Birds

- » Migratory birds played a role in the spread of this disease. The HPAI outbreak occurred in the Pacific, Central, and Mississippi flyways. The migratory flight pattern of the waterfowl stalled out in the Midwest for an unusually long time.
- » Waterfowl can shed large quantities of virus into the environment. Numerous detections of the HPAI virus were found in Lesser Snow Geese, but other waterfowl species were also involved.

Biosecurity

- » Traffic between operations was greater than previously thought.
- » Shared equipment and vehicles between operations were greater than expected. There was also greater incidences of poor cleaning and disinfection of equipment between operations.

- » Biosecurity plans were not updated or emphasized to all employees on a regular basis.
- » Forty-two percent of the infected houses were not bird proof for birds such as sparrows and starlings.

Wind Aided Spread of Virus

- » The Midwest experienced unusually sustained winds of high velocity. Preliminary epidemiology studies indicated that if an area had sustained wind for 2 days, a peak in HPAI outbreaks would occur within a week.
- » Farms downwind from an infected premise were 5-6 times more likely to become infected.

Many experts have warned that as the migratory birds return south this fall there may be a spike in HPAI outbreaks through all four flyways in North America. What should you be doing now to help control this poultry disease?

1. Strengthen your Biosecurity Plan. Examine vehicle traffic and the movement of people. Emphasize Biosecurity with your employees and producers.
2. Bird proof your poultry houses.
3. Discourage migratory birds from residing on farm ponds. Remove feed sources and create disturbances through non lethal means.
4. Examine your farm and select a location to set up a truck washing station in case there is an outbreak in your area. The site should preferably be away from the poultry houses and residences.
5. Examine your farm for potential burial sites for large quantities of birds. If you have any questions about the suitability of a potential site ask the NRCS for assistance.
6. Many poultry producers and employees are hunters. As you venture into the woods and fields, you need to follow strict biosecurity measures when returning to the farm. Clean vehicles, clothing, and footwear thoroughly.

*Tony Pescatore
Animal and Food Sciences
University of Kentucky*



Jamie Guffey
Phone: 270-404-2277
PO Box 71
Hardinsburg, KY 41043
Email: jguffey@kypoultry.org



SILENT AUCTION FUND-RAISER FOR KPF SCHOLARSHIPS

Each year the Kentucky Poultry Federation holds a Silent Auction during our annual Kentucky Poultry Festival Hall of Fame Banquet; *ALL* proceeds are contributed to our KPF Scholarship Fund. Through the generosity of our members and allied companies, like yours, four \$1,000 scholarships have been established to assist students in continuing their education.

We are asking that you help us in our endeavors and continue supporting these students through our scholarship program. This year's

Annual Silent Auction will be held on Saturday, October 3rd, 2015 at the Galt House, Louisville, KY.

If you would like to contribute an item to our Annual Silent Auction please contact Jamie Guffey before September 30 at 270-404-2277 or jguffey@kypoultry.org. We hope that you will consider making a donation to our silent auction and helping continue the KPF Scholarship Fund.

What do you want to read about?

We want to know what you want to read about. Please e-mail topics of interest to Jacquie.jacob@uky.edu

Back issues of
Cheeps and Chirps,
as well as other information,
are available at
www.poultryenergy.com