



# Cheeps & Chirps

..... Points for Poultry Profitability

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## 4-Hers RETURN TO POULTRY-RELATED COMPETITIONS

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This summer, with some COVID-related restrictions, 4-Hers in the state were able to compete in poultry-related competitions.

July 24 was Kentucky 4-H Poultry Days at Madison County Extension Office. The day started with the State Egg Preparation Demonstration Contest and concluded with the State Chicken and Turkey BBQ contests. The contests are generously supported by the Kentucky Poultry Federation.

In the Egg Preparation Demonstration Contest participants are required to prepare a dish containing eggs while demonstrating proper food safety and cooking skills. They are also required to provide information about eggs, including nutritional value, preparation and storage, grading and sizing, versatility, and the economics of cooking with eggs.

This year, all the egg preparation demonstration contestants were from Warren County. There were two juniors and two seniors. In the junior division, Christopher Sweets placed first with his Chess Pie and received a \$50 check and a gift card. Piper Hosay placed second and received a check for \$50. In the senior division, Molly Duke placed first and received a check for \$100.

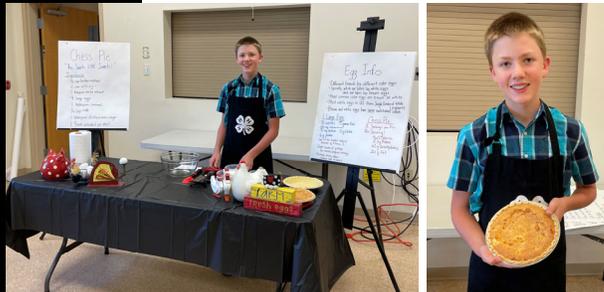
In the chicken BBQ contest, participants prepare four bone-in, skin-on chicken thighs while being judged on cooking skills, including fire safety and control as well as food safety procedures. They submit three thighs for sensory evaluation. There were four participants in the chicken BBQ contest, one junior from Warren County and three seniors from Montgomery County.

In the junior chicken BBQ competition, Jonas Hosay was the only participant and received a check for \$50. In the senior division, Lance Munday placed first and received a check for \$100. Leda Havens placed second and received a check for \$50. Tanner Campbell placed third and received a \$10 Chick-Fil-A gift card.

In the turkey BBQ contest, each participant is provided with two pounds of ground turkey. They are required to prepare and cook turkey burgers with a minimum pre-cook weight of 1/4 pound. They can add whatever they want to the burgers, but they must be 75% by weight turkey meat. Two burgers are submitted for sensory evaluation. As with the chicken BBQ contest, they are judged on fire safety and control, proper food safety, and the taste of the final product.

There were five participants in the turkey BBQ contest, with two juniors for Warren County, one senior from Warren County, one senior from Montgomery County, and one senior from Allen County. In the junior division, Layna Taylor from Warren County placed first and received a check for \$50. Christopher Sweets placed second and received a \$10 Chick-fil-A gift card. In the

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CHRISTOPHER SWEETS AND CHESS PIE



PIPER HOSAY AND EASY BREAKFAST CASSEROLE



MOLLY DUKE AND PEPPER JACK SCRAMBLE



## 4-Hers RETURN TO POULTRY-RELATED COMPETITIONS *(continued)*

*(Continued from page 1)*

senior division, Molly Duke from Warren County placed first and received a check for \$100. Breonica McKinney from Montgomery County placed second and received a check for \$50. Daphnica Wood from Allen County placed third and received a \$10 Chick-fil-A gift card.

Thanks to our judges, Tony Pescatore from the Department of Animal and Food Sciences of the University of Kentucky, and the Kentucky Poultry Federation Executive Director Jamie Guffey.

The 4-H poultry showmanship contest was held at the state fair again this year. In a showmanship contest it is the 4-Her, more than the chicken, that is judged. They are evaluated on how well they cared for their chicken as well as their knowledge about chickens, and their ability to handle the chicken. There are both junior and senior divisions. In each division the 4-Hers are divided into those with bantam and those with standard-sized chickens. There is also an overall grand and reserve champion for each age group.

In the junior division there were eight showing standard chickens and eight showing bantams. For those showing standard chickens, Cathrynn Hager from Scott County won champion and Layna Taylor from Warren County won Reserve Champion. For those showing bantam chickens, Christopher Sweets from Warren County won champion and Emily Normington from Scott County won reserve champion. Cathrynn Hager was overall grand champion and Christopher Sweets took overall reserve champion.

In the senior division, there were two showing standard size chickens and four showing bantams. Chloe Hager from Scott County was champion with the bantam chickens, and Landon Childers from Nelson County won reserve. They were also overall grand and reserve champions for the senior age group.

The premiums for the 4-H poultry showmanship were sponsored by Bagdad Roller Mills.



# 4-Hers RETURN TO POULTRY-RELATED COMPETITIONS (continued)

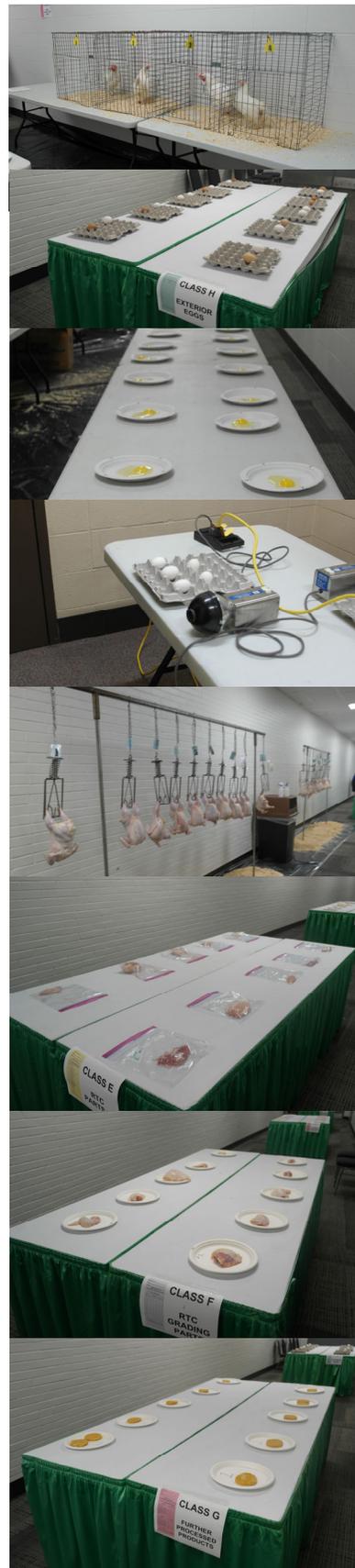
The 2021 state fair also saw the return of the state 4-H poultry judging and 4-H avian bowl contests, although slimmed down slightly because of COVID. Eighteen juniors and eleven seniors competed in the poultry judging contest. In a 4-H poultry judging contest participants are required to evaluate laying hens for level of past egg production, grade table eggs for exterior and interior quality, grade chicken carcasses and parts, identify ready-to-cook poultry parts, and evaluate further processed products.

In the junior division of the poultry judging contest, Christopher Sweets of Warren County placed first, followed by Layna Taylor of Warren County, Cyrus Bivens of Larue County, Bridget Faulkner of Larue County and Jonas Hosay of Warren County for the top

five. In the senior division, Jack Cushenberry of Warren County placed first. Bryan Robbins of Larue County, Molly Duke of Warren County, Brody Higgs of Larue County, and Kara Kelly of Morgan County complete the top five senior winners.

The 4-H avian bowl contest is a double-elimination knowledge bowl related to poultry information. There are junior and senior divisions. There were eight teams in the junior division and only two in the senior division.

The winning junior avian bowl team was from Warren County and included Layna Taylor, Christopher Sweets, Jonas Hosay, and Jace Coles. The winning senior team was also from Warren County and included Jack Cushenberry and Issac Hosay.



WARREN COUNTY JUNIOR AVIAN BOWL TEAM



TOP FOUR JUNIOR POULTRY JUDGING WINNERS



WARREN COUNTY SENIOR AVIAN BOWL TEAM



TOP FOUR SENIOR POULTRY JUDGING WINNERS

## HIGH SCHOOL STUDENTS COMPETE IN EGG COOK OFF AT THE STATE FAIR

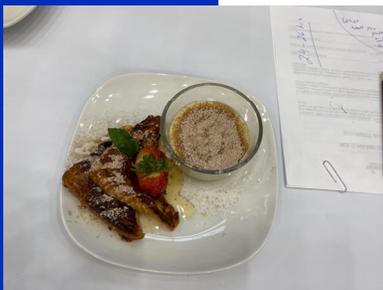
Live  
life in  
red.



At the 2021 Kentucky State Fair, FCCLA (Family, Career and Community Leaders of America) and the Kentucky Poultry Federation teamed up to hold the first ever egg cooking contest. Teams of high school students faced-off cooking egg dishes. The dishes had to be cooked within a 30 minute time limit. High school students from around the state competed for pride and a prize. The top team in each cook off received \$100 for their school program.

There were three cook offs. Eggs were whisked, crepes were folded, quiches were baked, and French toast fried. During the contest the FCCLA state officers entertained the audience with knowledge-based questions relating to their organization and eggs. They even 'cracked a few yolks.'

FCCLA is a Career and Technical Student Organization that functions as an integral part of the Family and Consumer Sciences education curriculum and operates within the school system. Since 1945, FCCLA members have been making a difference in families, careers, and communities by addressing important personal, work, and societal issues. Through participation in competitive events, becoming involved in community service opportunities, student leadership, and attending leadership conferences, members develop real world skills, explore career pathways, and become college- and career-ready.



# RE-EMERGENCE OF BED BUGS AS A POULTRY PEST

Recently bed bugs have become especially problematic in the United States, with all 50 states seeing a resurgence in the number of infestations. It is estimated that one out of every five Americans has had an infestation in their home or knows someone who has.

Surprisingly, the increase in bed bug infestations has involved two different species of bed bugs. These include the common bed bug (*Cimex lectularius* L.) and the tropical bed bug (*Cimex hemipterus* F.). The two species will actually interact, and hybrids have arisen.

It is believed that pesticide resistance was the key initiator for the current resurgence in bed bugs. Resistant bed bugs then spread worldwide by global travel.

## Overview of bed bugs

Bed bugs are nocturnal, hematophagous sucking insects. That is, they feed on blood, mostly during the night. Bed bugs are photophobic (they don't like light) and hide in cracks and crevices whenever possible.

Bed bugs are brown, oval, wingless, about the size of an apple seed, and flattened. After they feed, they become engorged much like a tick does. The blood can be seen through the cuticle making them redder in appearance.

Bed bug mouth parts are adapted for piercing the skin and sucking blood. They have extremely fine needlelike stylets that are inserted into the skin and are withdrawn after feeding. When a bed bug is feeding, it injects saliva which contains 46 different protein components, some of which have anticoagulant properties. The severity of skin reactions from a bed bug bite varies considerably between individuals and can vary with the level of previous exposures.

For both species of bed bugs there are five juvenile stages, called 'instars.' These have been described as miniature versions of the adults in general appearance but having different sizes and colorations. The first instar is about 1 mm in length and off-white in color until it feeds. Unfed adults are 5-6 mm long and a deep red-brown. All juvenile stages and adults of both sexes require blood for nutrition and development.

Bed bugs do not fly or jump, so they have to walk to their host or be carried on fomites. If blood meals are available, a female bed bug can lay 5-8 eggs per week for 18 weeks. The optimal environmental conditions are 23°C and 90% relative humidity. The eggs hatch within 9-12 days at a room temperature of 22°C. Hatching will take longer under cooler conditions. The length of the life cycle is extremely variable and is dependent on ambient temperatures. The life cycle ranges from two months to 4.5 months. Under cool conditions (10°C) a fed bed bug can live for up to 485 days.

Bed bugs stay close to each other and release aggregation pheromones to help locate their harborage after a blood meal. You can usually detect their hiding places from the fecal spotting in the area. Bed bugs also release alarm pheromones, which become most evident during the course of a treatment. The smell is very typically 'buggy' in odor which some have described as being 'sickly sweet.'

## Bed bugs and poultry

The preferred host of bed bugs is humans, but they will feed on other warm-blooded animals, including poultry. The entire life cycle of bed bugs takes only four to five weeks at 82-86°F and 75-80% relative humidity making the poultry barn an excellent bed bug incubator.

Bed bugs in American poultry houses date back to the early 1930s, but it has re-emerged in poultry houses. Farm managers typically describe a mite-like creature on their birds, equipment, support posts, nest boxes, and egg belts. There will also be brownish red spots on eggs from bed bug fecal material.

Broiler breeder farms have historically been the poultry houses affected by bed bugs. As the table egg industry transitions from cages to aviaries or other cage-free systems, they too can become a target for infestations. Compared to broiler breeders, laying hens have a much longer production cycle so bed bugs have a longer period in which they can affect

laying hens. Once bed bug populations are established, they are extremely difficult to eradicate.

Bed bugs can cause irritating white welts on the skin of chickens. Large infestations in a flock will lead to excessive feather loss, cloacal irritation, and lesions on the breasts and legs. In severe cases, the birds will become anemic.

Infested poultry houses can be a source for bed bug infestation in workers' homes. The bed bugs hitch rides on clothing, boxes, and bags. In addition, integrators should be concerned about spreading bed bugs across the entire complex on equipment shared between farms.

## Bed bug control

Bed bugs are considered one of the most challenging insects to control. This is due to the widespread insecticide resistance, current lack of effective insecticides, and the biology of the pest. Bed bugs hide in tiny cracks and crevices making detection and control difficult.

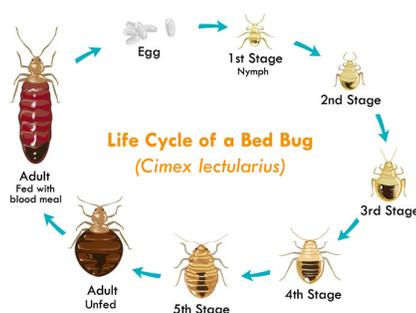
Bed bugs can live three months without a blood meal but can also feed on alternative hosts such as rodents, barn swallows, humans, etc. when poultry are not present. Any control of bed bugs in a poultry house, therefore, needs to include a stringent rodent and wild bird abatement program. The foundation and eaves of the roof are often overlooked as entry points for bed bugs. Exterior application of insecticides is recommended.

Bed bugs do not travel far from their last blood meal. This makes nest boxes, roosts, slats, curtains, and support posts ideal hiding places for them. It is important that all the workers entering the poultry house are trained in bed bug identification. It is important to have regular inspections of clothing and other items that move between poultry houses and homes. Bed bug traps can also be placed in nest boxes as an early detection system.

Insect growth regulators have been used to treat for bed bugs. They function by disrupting the physiology of the insects. The bed bugs die during molts that occur after the treatment. Unfortunately, in order to go through a molt, the bed bugs must first have a blood meal. So, the use of insect growth regulators as a treatment for bed bugs requires that the birds be available as a blood source.

Bed bugs are extremely waxy insects and are very resilient to dehydration. Dust formulations containing silica gel or

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## RE-EMERGENCE OF BED BUGS AS A POULTRY PEST (*continued*)

*(Continued from page 5)*

diatomaceous earth are often anecdotally cited as being effective in controlling pyrethroid-resistant bed bugs but there is very little scientific literature to support the use of DE. Diatomaceous earth can also be dangerous to the birds and workers if inhaled.

Non-chemical bed bug treatments have been investigated. Temperatures of 45°C (113°F) have been shown to kill all stages within one hour. Temperatures above 60°C (140°F) will quickly kill all bed bugs. Whole room heating, however, is not recommended since it can result in spreading of the infestation as the bed bugs seek cooler temperatures. The use of steam cleaning the poultry house, getting into all the cracks and crevices has proven effective. Application of heat after an insecticide application is recommended.

### Conclusions

Indications are that bed bugs will continue to be a home and poultry pest for many years to come. It is unlikely that a magical silver-bullet technology will be developed for controlling this pest. Research on bed bugs is required in many fields, but especially in the area of pest management. Prevention is easier than treatment. **Early detection is key to control.**



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