

**MARCH 2025**

**Pulaski County Extension Office**

# Agriculture Newsletter

**T.J. Adkins, Agent**

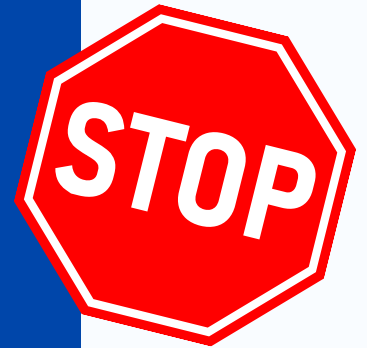
Our office will be changing locations  
sometime in March please be on the look out  
for exact moving date



## WE ARE MOVING!

New address:

90 UK Extension Blvd.  
Somerset, KY 42503



*AG Council Breakfast*  
**CANCELLED**

There will be NO meeting for the month of  
MARCH. We will resume in April.

# *Italian Ryegrass Control Field Tour*

Thursday, March 27, 2025

9 a.m. to 11:30 a.m. CDT

**Please meet at the Caldwell County Extension Office**

1025 U.S. Highway 62 West, Princeton, KY

Sign-in begins at 8:30 a.m. CDT

A caravan will proceed to the UKREC in Princeton for plot tours of Italian ryegrass research.

Click link or scan QR Code to register

[https://uky.az1.qualtrics.com/jfe/form/SV\\_2c6KX2NmiqEp1TE](https://uky.az1.qualtrics.com/jfe/form/SV_2c6KX2NmiqEp1TE)



Presented by Dr. Travis Legleiter, UK Extension Associate Professor - Weed Science, this field tour will highlight the options available to Kentucky farmers for maximum control of this problematic weed in the fall and spring prior to corn and soybean planting. For more information about the field tour call (859) 562-2569.

**Educational credits available:**

CCA: 3 CEUs in IPM;

KY Applicator Credits: 3 CEUs for Category 1A (Ag Plant)

## BIRD FLU H5N1 – IS THERE A RISK TO PUBLIC HEALTH?

### **Situation:**

On January 7, 2025, the first human patient diagnosed with H5N1 died, raising concerns for the general public. The patient was confirmed infected on December 18, 2024, through routine surveillance when they were hospitalized with severe respiratory illness. The patient was 65 years old with underlying health conditions and appeared to have been infected from exposure to backyard poultry and wild birds.

First, the CDC still maintains that the risk to the general public remains low. They do, however, caution those that come into contact with wild birds, poultry, or dairy cows that they are at a higher risk. The CDC is providing information for those potentially exposed to H5N1 birds - <https://www.cdc.gov/bird-flu/prevention/farm-workers.html>. For such people Personal Protection Equipment (PPE) is recommended. The CDC also provides flyers on the proper use of PPE, found at the same website. The information is available in both English and Spanish.

### **Background material:**

H5N1 is an influenza virus that primarily affects birds but in the last couple of years has started to affect mammals, including dairy cows. In 2024 there were 66 confirmed human cases of H5N1 in the USA, although there have been many more globally. Of these 66 cases, 40 were work-related to exposure (to dairy cows). The highest incidence of human infections has been confirmed in California (37), Washington (11), and Colorado (10). There have also been two confirmed cases in Michigan and one each in Iowa, Louisiana, Missouri, Oregon, Texas, and Wisconsin.

### **Symptoms of H5N1:**

A December 2024 article from the New England Journal of Medicine<sup>1</sup> described 46 human cases of H5N1 confirmed between March through October 2024. The cases were primarily due to exposure to infected poultry (20) or infected dairy cows (25). One had no identified exposure and was hospitalized with non-respiratory systems and the H5N1 confirmed through routine surveillance. None of the other patients were hospitalized. Of these, 93% had conjunctivitis (pinkeye), 49% had a fever, and 36% had respiratory symptoms only. The median duration of the illness for which they have data (16 patients) was 4 days. Most patients (87%) received oseltamivir (Tamiflu). There has been no known person-to-person transmission.

From the CDC - symptoms can include:

- Eye redness and irritation (conjunctivitis)
- Fever (temperature of 100°F [37.8°C] or greater) or feeling feverish
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches

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<sup>1</sup> Garg, S. et al. 2024. Highly Pathogenic Avian Influenza A (H5N1) virus infections in humans. The New England Journal of Medicine. Published December 31, 2024, and available online at <https://www.nejm.org/doi/pdf/10.1056/NEJMoa2414610>

- Fatigue
- Shortness of breath or difficulty breathing
- Less common signs and symptoms include diarrhea, nausea, vomiting, or seizures.

### ***Should there be a concern?***

While the Louisiana patient is the only severe case of H5N1 in the USA, a Canadian case occurred in November 2024<sup>2</sup>. The case involved a 13-year-old girl who was overweight and had mild asthma. She went to the hospital with a case of conjunctivitis in both eyes and a day-old fever. She was discharged without treatment but returned a few days later with a cough, vomiting and diarrhea and was in respiratory distress and acute kidney injury. She was treated with oseltamivir and recovered.

Genomic testing of the H5N1 virus obtained from both patients showed important mutations that lead to the respiratory symptoms. The mutation in the H5 hemagglutinin (the ‘H’ in the H5N1 designation) gene resulted in increased binding to a receptor that facilitates virus entry into cells in the human respiratory tract and enabled viral replication. The pre-mutation virus was not able to enter cells in the human respiratory tract. The mutation occurred in the patient, but no person-to-person transmission was observed.

As a follow up to the previous articles, an editorial published in The New England Journal of Medicine<sup>3</sup> concluded that the CDC still designates the public risk of H5N1 is low and we have candidate vaccines and antivirals available to try to mitigate severe influenza in the case of wider spread. The influenza A virus is highly susceptible to mutations. There is concern for changes to the HA gene resulting in increased binding to the human airway receptors and a need for increased gene testing during surveillance has been recommended.

### ***Conclusions:***

Anyone who comes into contact with wild birds, poultry, dairy cows and other mammals should use proper personal protection equipment – gloves and mask at a minimum. Report any sick or dead wild birds using the Kentucky Department of Fish and Wildlife. Call 1-800-858-1549 from 8:00 AM to 4:30 PM (Eastern) on weekdays. Poultry owners who think their birds are sick please immediately call the Kentucky Sick Bird Hotline at 866-536-7593. This hotline is available for bird owners in Kentucky who are dealing with unusual signs of illness or increased mortality in their flock or livestock.

### **Additional resources:**

- KDA’s Factsheet: Avian Influenza in Kentucky – Information for bird owners - [https://www.kyagr.com/statevet/documents/HPAI\\_Avian\\_Influenza\\_HANDOUT.pdf](https://www.kyagr.com/statevet/documents/HPAI_Avian_Influenza_HANDOUT.pdf)
- KY Fish and Wildlife avian influenza webpage - <https://fw.ky.gov/Wildlife/Pages/AvianInfluenza.aspx>

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<sup>2</sup> Correspondence: Critical illness in an adolescent with Influenza A (H5N1) virus infection. The New England Journal of Medicine. Published December 31, 2024, and available online at <https://www.nejm.org/doi/pdf/10.1056/NEJMc2415890>

<sup>3</sup> Ison, M.G. and J. Marrazzo. 2024. Editorial: The emerging threat of H5N1 to human health. The New England Journal of Medicine. Published December 31, 2024, and available online at <https://www.nejm.org/doi/pdf/10.1056/NEJMe2416323>

# H5N1 VIRUS GUIDANCE FOR FARM WORKERS

H5N1 is a virus that causes what is known as “bird flu.” People can get sick with bird flu when they come into contact with infected birds or animals.

## Symptoms of bird flu can include:

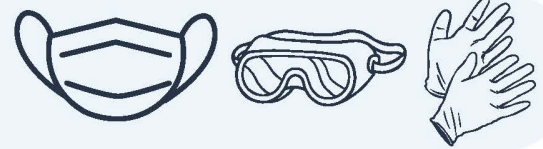
Eye redness (conjunctivitis), cough, sore throat, runny or stuffy nose, muscle or body aches, headaches, fatigue, trouble breathing, and fever.



## How farm workers can protect themselves:

1

Wear protective clothing when working with sick or dead animals, feces, or milk.



2

Get a seasonal flu vaccine to reduce the risk of getting sick with human flu and bird flu at the same time.



3

Wash your hands thoroughly throughout the day and before eating. Avoid touching your face and mouth.



4

Do not drink raw or unpasteurized milk. You could get sick from drinking milk from sick cows.



## What to do if you are exposed or feel sick:

**If you were exposed to the H5N1 virus**, you should monitor your symptoms for 10 days from your last exposure.

**If you start to feel sick and have flu-like symptoms**, you should isolate away from other people right away and get tested by a healthcare professional.



**For questions about H5N1**  
Scan the QR code or visit:  
<https://www.cdc.gov/flu/pdf/avianflu/Bird-Flu-Exposure-Handout.pdf>



## Scours Vaccines\*: What are the Options?

Dr. Michelle Arnold – DVM, MPH UK Ruminant Extension Veterinarian

“Neonatal” calf diarrhea is defined as scours occurring within the first 3 weeks of a calf’s life. Viruses (rotavirus, coronavirus), certain bacteria (E. coli K99; Clostridium perfringens Types A and C, Salmonella spp.) and the protozoan parasite Cryptosporidium parvum are the most common causes in beef cattle operations. Controlling rotavirus, coronavirus, Clostridium perfringens Type C, and E. coli K99 scours through vaccination can significantly reduce calf sickness and death loss when given correctly. Scours vaccines are formulated to be given to pregnant cows and heifers during the third trimester of gestation so they will make the specific antibodies against the pathogens that cause diarrhea while colostrum is being formed. It is important to remember that scours vaccines given to pregnant cattle will only work if an adequate amount of good quality colostrum is consumed by her newborn calf within the first 12 hours (preferably the first 6 hours) of life. If unable to vaccinate the pregnant females in the herd, a variety of products can be given to newborn calves to help reduce the risk of sickness and death from scours as well.

The three most popular vaccines available for use in pregnant cattle are ScourBos®9 and 4 (Elanco), ScourGuard®4KC (Zoetis) and Guardian® (Merck). The first time scours vaccines are used, a two-shot series must be given in the third trimester of pregnancy consisting of a first or “primary dose” followed by a booster dose. After the first year, just one annual revaccination in late gestation is required every year throughout the cow’s reproductive life. Vaccination timing is critical to stimulating and optimizing antibodies in colostrum. If cows are vaccinated too early in pregnancy, the antibody response may start to fall off prior to the colostrum being made. Vaccinating too late and the colostrum may already be produced before an antibody response is mounted. Which product is chosen often depends on when cattle will be worked; Scour Bos® is administered earlier during pregnancy, ScourGuard® is used latest in gestation and Guardian® is in-between these two options. Obviously not all calves will be born the first week of calving season but plan to give the scours vaccine based on when the first calves of the season are expected. Consider administering an additional dose to those females who have not calved within 2 months of receiving their scours vaccine.

It takes some planning to vaccinate correctly; timing is critically important when selecting the correct product for your operation:

1) For pregnant heifers (or cows) receiving their first or “primary series” of scours vaccine, manufacturers give a date range for one dose and a set date for the other dose that varies depending on vaccine chosen. Note that Guardian is the only one administered subcutaneously.



First Defense®	First Defense® Bolus 5 or 30 Dose	First Defense Technology® 90-Dose Bulk Powder	Dual-Force First Defense® Single-Dose Gel Tube	Tri-Shield First Defense® Single-Dose Gel Tube
Pathogen Prevention				
E.Coli	✓	✓	✓	✓
Coronavirus	✓	✓	✓	✓
Rotavirus				✓

Table 1: Retrieved from : <https://firstdefensecalfhealth.com/dual-force-bolus-gel/>

- Scour Bos<sup>®</sup>9 –Administer the first dose (2 ml IM) 8-16 weeks prior to calving and booster with Scour Bos<sup>®</sup> 4 given 4 weeks prior to calving;
- Guardian<sup>®</sup>- Administer the first dose (2 ml SQ) 12 weeks before calving and the second dose 3-6 weeks later;
- ScourGuard<sup>®</sup> 4KC-Administer first dose (2 ml IM) 6-9 weeks before calving and give the second dose 3 weeks later.

## 2) Cows (Annual revaccination)-

- Scour Bos<sup>®</sup>9 –Administer 8-10 weeks prior to calving season
- Guardian<sup>®</sup>-Administer 5-7 weeks before calving season
- ScourGuard<sup>®</sup> 4KC-Administer 3-6 weeks prior to calving season

If the cow herd is not vaccinated and a calf scours problem develops, several products are available to administer to newborn calves. The First Defense<sup>®</sup> product line includes the Tri-Shield<sup>®</sup> gel tube, Dual-Force<sup>®</sup> gel tube, First Defense<sup>®</sup> bolus and First Defense Technology<sup>®</sup> bulk powder. These products are antibodies given by mouth as quickly as possible after birth. First Defense<sup>®</sup> makes their products by collecting antibody-rich colostrum that is purified and concentrated, then standardized to guarantee antibody levels for each dose. These antibodies bind directly to bacterial and viral antigens, ideally before they can enter and harm cells in a calf's gut. These are not vaccines, so the calves are not required to trigger an immune response for protection. Although these antibodies will provide immediate protection in the gut, they are much more effective when given at the same time as good quality colostrum.

Be aware of the label claims when using First Defense products (see Table 1); not all pathogens are covered by every product. First Defense<sup>®</sup> Tri-Shield<sup>®</sup> gel offers the broadest coverage, specifically aiding in the reduction of mortality (death) and morbidity (sickness) from scours caused by E. coli K99 and coronavirus while also reducing the severity and duration of scours caused by rotavirus. Interestingly, the First Defense<sup>®</sup> gels have an added blue dye that renders the calf feces green, allowing the producer to know the gel has gone through the calf's GI tract. For an economical option, First Defense<sup>®</sup> offers a nutritional supplement powder with the same ingredients as the boluses, and it is shelf stable in a resealable bucket. One level scoop is mixed with fresh or thawed colostrum until completely dissolved and then fed to the newborn calf.

Commercially available vaccines have also been designed to be administered to the newborn calf for protection from certain viruses. Calf-Guard<sup>®</sup>, manufactured by Zoetis, is an older product that contains attenuated (modified live) strains of bovine rotavirus and bovine coronavirus. It can be administered either by injection to a pregnant cow within four weeks of calving or to newborn calves by mouth before nursing to help protect calves from scours caused by rotavirus or coronavirus.



Figure 1: Retrieved from <https://www.merck-animal-health-usa.com/species/cattle/products/bovilis-coronavirus>

A brand-new product, Bovilis® Coronavirus (Merck), is an intranasal vaccine administered to healthy calves 3 days of age and up to reduce the duration and severity of diarrhea due to bovine coronavirus (Figure 1). To protect against Clostridium perfringens Type C, Colorado Serum Company produces a C. perfringens Types C & D antitoxin (Figure 2) labeled for prevention lasting approximately 3 weeks after 10 ml administration SQ at birth. However, there is limited availability of this product because of stringent testing requirements in equine donor animals as this product is made from equine serum.



Figure 2: Retrieved from <https://colorado-serum-com.3dcartstores.com/cd-antitoxin>

Preventing calf scours is much more about management than simply administering a vaccine. Cow nutrition during and after gestation, careful monitoring of the calving process, and environmental factors all contribute to a successful start. The cows' diet must provide adequate energy, protein and trace minerals to meet her needs during gestation and lactation, especially during winter.

Remember up to 80% of fetal growth occurs in the last 50 days of gestation and colostrum production ramps up during the final 4-6 weeks of pregnancy. Monitor body condition scores and be ready to offer supplemental feed to maintain a BCS at calving of 5 in mature cows and 6 in heifers. A nutritionally deprived dam will produce poor quality and quantity of colostrum, have less energy to deliver a calf quickly, and will be slow to rebreed. Calves born to energy deficient dams will be slow to stand and nurse.

Monitor and be ready to assist with calving early as necessary, especially with heifers. Make sure calves start nursing as soon as possible after calving, keeping in mind that calves should stand within 30 minutes of delivery and nurse within 30 minutes of standing. If in doubt, use a good quality colostrum replacer and feed the calf at least twice during the first 6 hours of life. Once the calf has received colostrum, it is still important to prevent the “bad bugs” (pathogens) in the environment from overwhelming the calf's immune system. Over time, calves infected earlier in the calving season are “pathogen multipliers” and become the primary source to younger calves. Calf scour pathogens will build up exponentially in the environment as the calving season progresses.

Poor sanitation, cold, wet weather and overcrowding all contribute to a higher risk of disease, especially conditions in calving and maternity areas. Exposure to bacteria, viruses, and protozoa occurs through direct entry of manure to the mouth of a calf by contact with manure-contaminated teats, soiled bedding, and through self-grooming. Calving in the same area for an extended period of time greatly increases the disease risk to the youngest calves, especially in wet or muddy conditions. If possible, pregnant cows close to calving should be rotated onto clean pastures while cow-calf pairs remain on the old pasture. If calving in a barn or shed, the calving area should be kept as clean and dry as possible with frequent changes of bedding to remove the build-up of organisms. Make every effort to get the cow and newborn calf out of the barn quickly to lessen the chances of infection. Even the best calving management practices will have no effect if the first thing a calf ingests is manure from the calving area. Consult with your veterinarian on ways to address a calf scours problem and the best choice of vaccines for your operation.



The UK Veterinary Diagnostic Laboratory has an excellent test to diagnose the cause of calf diarrhea. A small sample of scours (in a leakproof container) from a calf that has not been treated for diarrhea with antibiotics is the best sample to run the test. The “Calf Diarrhea Panel” is a PCR assay that detects the nucleic acids in bovine coronavirus, rotavirus, E. coli K99, Salmonella and Cryptosporidium. Results are available within 2-3 days and costs \$62.75 + \$10 Accession Fee. Visit the website at <https://vdl.uky.edu/> for more information or call (859) 257-8283.



Scan QR code to go to UK Beef Cow Forage Supplementation Tool.

\*The products described are for educational purposes only and should not be considered an endorsement by the University of Kentucky.

# UPCOMING EVENTS

## **Winter Wheat Meeting**

*February 4, 2025*

## **2025 Kentucky Crop Health Conference**

*February 6, 2025*

## **Drone Sprayer Training**

*March 20, 2025*

## **Italian Ryegrass Control Field Tour**

*March 27, 2025*

## **Soil Properties Workshop (Richmond, KY)**

*April 10, 2025*

## **Wheat Field Day**

*May 13, 2025*

## **Crop Scouting Workshop**

*May 15, 2025*

## **Planter Clinic**

*June (TBD):*

## **Pest Management Field Day**

*June 26, 2025*

## **Corn, Soybean & Tobacco Field Day**

*July 22 or July 29, 2025*

## **KY High School Crop Scouting Competition**

*July 24, 2025*

## **Field Crop Pest Management and Spray Clinic**

*August 28, 2025*

### **Cooperative Extension Service**

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