

The information was obtained from a survey of the clinical impressions of practicing veterinarians between August 1st to October 31st, 2017, and laboratory data from the Animal Health Laboratory, with input from poultry specialists. It is the intent of this program to advance and protect the health of poultry in Ontario.



Ontario Animal Health Network (OAHN) Poultry Expert Network Quarterly Producer Report

Quarter 4, 2017 (August 1st - October 31th 2017)

Reovirus Update

Overall in Ontario, in broiler flocks, increased numbers of reovirus-associated lameness cases were reported by poultry veterinarians between August and October, 2017 (**Fig A**). The number of reovirus-associated lameness cases started to surge in Q2 2016 (Feb 01 -Apr 30 2016) and continued to increase in Q3 and Q4, 2016. A decrease in reovirus cases was observed in Q1 2017, which was followed by an increase in cases in Q2, Q3, and Q4 2017 (**Fig A**). The major clinical presentations were: lameness, leg deformities, especially splayed legs, and tenosynovitis. In addition, higher numbers of birds were unsuitable for loading at the end of grow - out. Increased culling continued to be the main concern and was highly variable ranging from 2 to 50%, with elevated mortality being less of an issue. The age of the affected flocks was variable. Both horizontal and vertical transmission can occur. Earlier in the year, flocks composed of non-domestic egg source origin (i.e. eggs and chicks) were at higher risk. This fall there have been 3 clusters of cases each associated with a single breeder flock source both domestic and imported.

Genotyping of all reovirus isolates is important to better understand what strains of reovirus are currently in the Ontario broiler population. In response to ongoing concerns about pathogenic strains of Reovirus in Ontario, veterinarians are conducting a base line project to establish the prevalence of clinical cases as well as individual reovirus genotypes within the province. If culling/mortality for lameness and/or splayed legs at 10 days of age or older are more than 2% above standard for the barn, laboratory submission and further testing are indicated. Current genotyping results indicate that there has been a shift in the genetic composition of the variant reovirus strains. New reovirus strains show low similarity to vaccine virus strains and historical avian reoviruses. In 2017 the most prevalent strain became variant D (**Fig B**). The variant D virus strain is highly virulent and can spread through the infected flocks quickly, causing severe clinical signs of lameness and in addition, there are more reports of birds also stalling out resulting in unevenness. Severity of the clinical signs, speed of spread through the flock, and the proportion of chicks affected with these variant reovirus infections are all very unpredictable. Properly implemented biosecurity is the poultry producers' first-line of defense against reovirus infections. Biosecurity protocols should be well thought-out, stringently implemented and continuously followed.

PRODUCER TIPS:

To contain reovirus in the barn once your flock is infected, and to protect your neighbours and your next flock, the following recommendations should be followed:

- **After litter removal** and prior to placing a new flock in an affected barn, ensure that it has been properly **cleaned, disinfected** and **heat treated**. Must use a disinfectant labeled effective to destroy Reovirus. Combination products containing a quaternary ammonium compound plus glutaraldehyde were shown to be effective (e.g. Synergize, Viroid, and Aseptol 2000).
- "Heat treat" the barn **after cleanout** and introduction of new bedding, and in advance of bird placement (to 32°C or 90° F for a minimum of 3 days). Note the floor under the bedding must reach 32°C for this

technique to be effective. The temperature should be measured with an appropriate thermometer (consider an infrared thermometer) at multiple locations along the inside perimeter of the barn at least three times a day. The barn floor should reach 32°C at least 4 days prior to placement in order to ensure at least 24h are available to create a stable barn temperature at an optimal chick range.

- **Before spreading manure** from a Reovirus infected flock or suspect flock, it is important that it is properly **composted** to neutralize the virus. Pile and compost the litter inside the affected barn or in a designated and contained facility/area. You need to check the temperature of the compost pile 3 times a day and ensure the temperature of the compost pile is at least 50°C or 122° F for a minimum of 3 days.
- Do not spread used untreated litter within at least 1 km of a poultry barn. Avoid spreading on very windy days.
- Have an effective **insect** (e.g. darkling beetle) and **rodent control program** as vermin can be vectors of pathogens, and can act as reservoirs by transmitting pathogens to subsequent flocks.

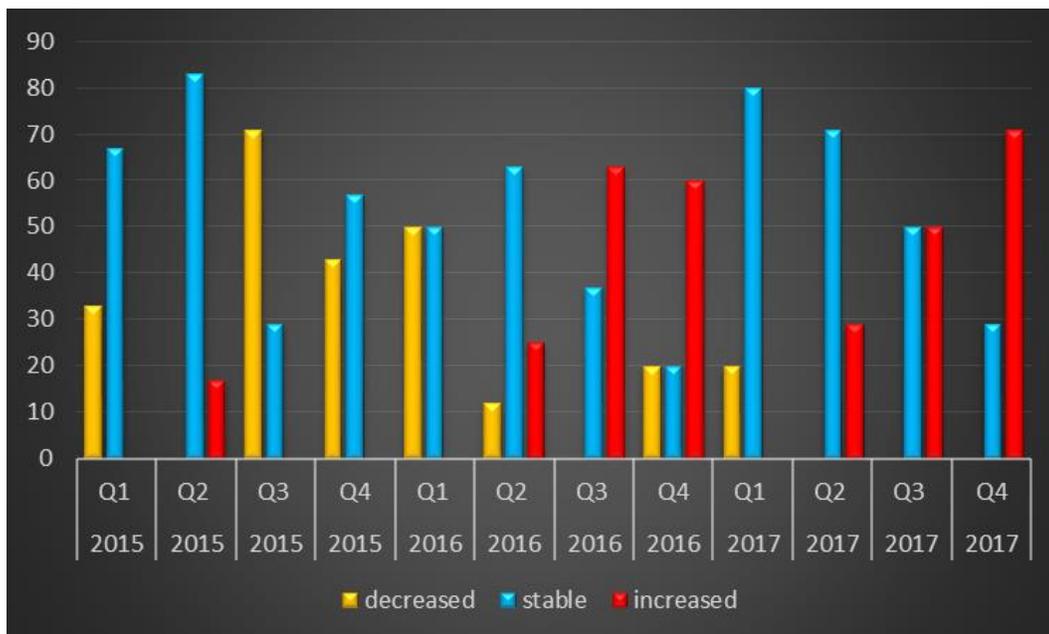
Additional information on biosecurity, composting, and darkling beetle control available at:

<http://www.omafra.gov.on.ca/english/livestock/poultry/facts/16-047.htm>

<http://www.omafra.gov.on.ca/english/engineer/facts/09-017.htm>

<http://www.omafra.gov.on.ca/english/livestock/poultry/facts/16-053.htm>

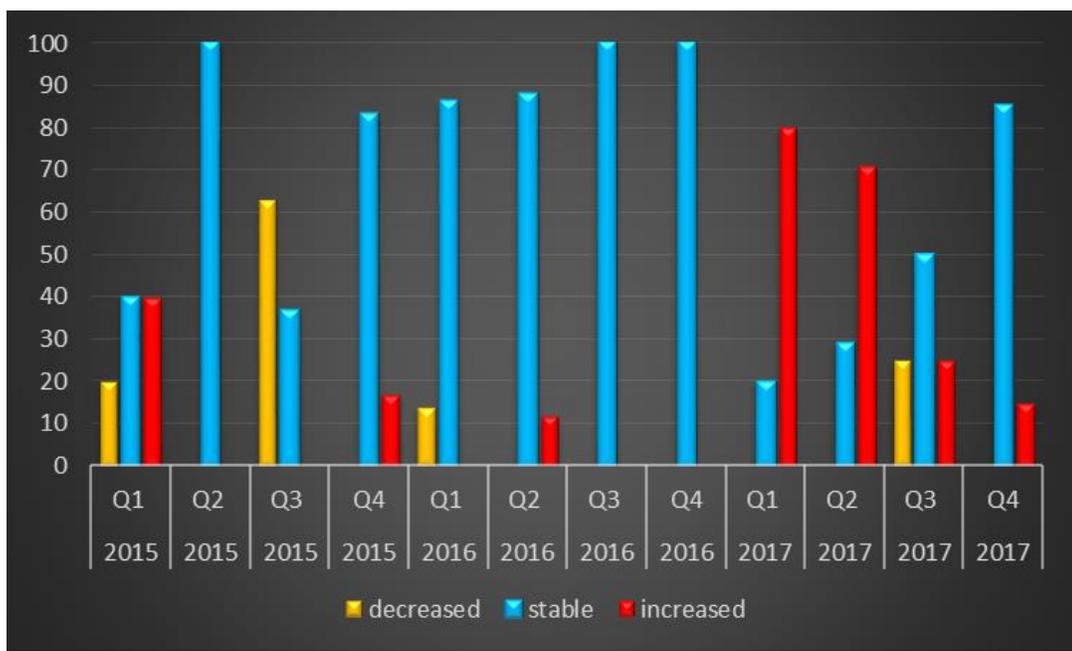
Fig A) Trend of reoviral-associated lameness in broilers between January 2015 and October 2017 based on the clinical impression survey of Ontario poultry veterinarians ^{a)}



^{a)} The bars represent the proportion (%) of veterinarians who report the number of cases seen in a quarter as decreased, stable or increased compared to historical expected numbers of cases.

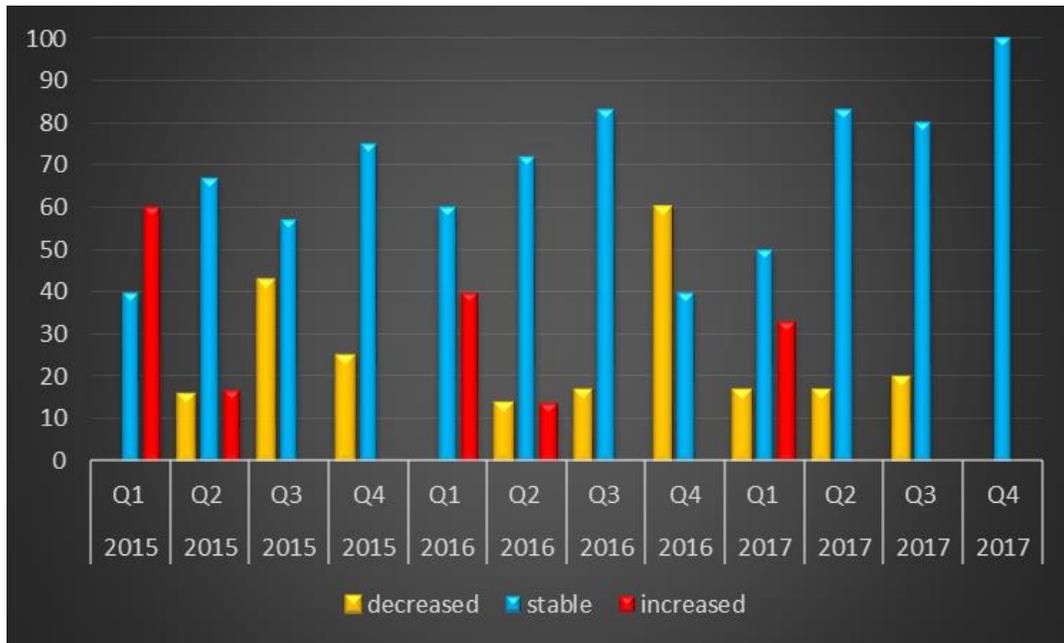
- Minimize visits to other poultry production sites and avoid any co-mingling of birds.
- Avoid exchanging equipment with other poultry production sites.
- Ensure all vehicles/farm equipment that access the barn vicinity are clean and that the laneway is restricted/secured.
- If possible, have a pressure washer or a hose available to wash tires and equipment, and make this available to all service vehicles and visitors.
- If possible, “heat treat” the barn/litter after cleanout and introduction of new bedding, and in advance of bird placement (to 32°C or 90° F for a minimum of 2-3 days). Note the floor under the bedding must reach 32° C for this technique to be effective. The temperature should be measured with an appropriate thermometer (consider an infrared thermometer) at multiple locations along the inside perimeter of the barn at least three times a day.

Fig C) Trend of Infectious bronchitis virus (IBV) infections in BROILERS between January 2015 and October 2017 based on the clinical impression survey of Ontario poultry veterinarians ^{a)}



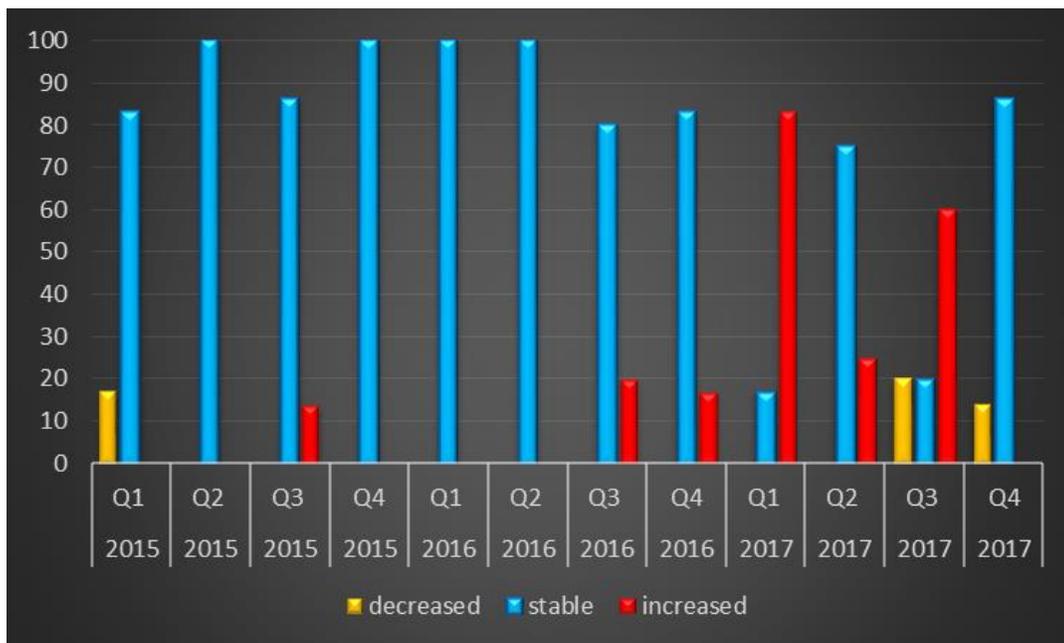
^{a)} The bars represent the proportion (%) of veterinarians who report the number of cases seen in a quarter as decreased, stable or increased compared to historical expected numbers of cases.

Fig D) Trend of Infectious bronchitis virus (IBV) infections in BROILER BREEDERS causing production loss and abnormal eggs between January 2015 and October 2017 based on the clinical impression survey of Ontario poultry veterinarians ^{a)}



^{a)} The bars represent the proportion (%) of veterinarians who report the number of cases seen in a quarter as decreased, stable or increased compared to historical expected numbers of cases.

Fig E) Trend of Infectious bronchitis virus (IBV) infections in LAYERS causing production loss and abnormal eggs between January 2015 and October 2017 based on the clinical impression survey of Ontario poultry veterinarians ^{a)}



^{a)} The bars represent the proportion (%) of veterinarians who report the number of cases seen in a quarter as decreased, stable or increased compared to historical expected numbers of cases.

Fig F) Distribution of IBV strains from IBV-positive samples from broilers, broiler breeders and layers tested at the Animal Health Laboratory between 2012 and October 2017.

	2012	2013	2014	2015	2016	2017
4/91	78.57%	40.00%	33.33%	7.41%	6.61%	3.56%
CA 1737	14.29%	4.00%	9.52%	18.52%	19.83%	9.78%
Conn	0.00%	4.00%	4.76%	11.11%	4.96%	5.33%
DE072	0.00%	0.00%	0.00%	5.56%	0.83%	0.44%
DMV	0.00%	0.00%	0.00%	1.85%	24.79%	46.67%
GA2012	0.00%	0.00%	0.00%	0.00%	2.48%	0.00%
Mass	7.14%	32.00%	42.86%	48.15%	30.58%	24.89%
NT	0.00%	0.00%	9.52%	3.70%	3.31%	8.00%
PA Wolg 98	0.00%	4.00%	0.00%	3.70%	3.31%	0.00%
Qu-MV	0.00%	16.00%	0.00%	0.00%	3.31%	1.33%



Poultry Veterinarian Survey Highlights

Broilers

- The number of **IBV** infections remained stable for this quarter. A number of flocks were serologically positive with high titers, and an increase in clinical cases (respiratory signs and stalling out) has been noted. In addition to respiratory signs, a stalling out syndrome is being reported at about 28 days of age. Chickens have decreased feed and water consumption, may flush causing the litter to be wetter, slowdown in growth temporarily, resulting in increased unevenness in the flocks, for the affected birds are unable to catch up. The DMV variant has been identified in some affected flocks. As cooler weather settles in and barns are less well-ventilated, an increase in the number of IBV cases is expected.
- **Late systemic bacterial infections** (>14 d old) and **early systemic bacterial infections** (<14 d old) with *E. coli* involvement remained stable.
- **Lameness of viral origin** has increased dramatically this quarter. Three reovirus related clusters, each sourced from single imported or domestic breeder flocks have been identified.
- **Lameness of bacterial origin** with *Enterococcus cecorum* and *E. coli* involvement continues to be reported.
- One case of **lameness - nutritional origin** (calcium deficiency) was reported.
- Intestinal conditions including **coccidiosis** and **necrotic enteritis** were reported in ABF flocks.
- Occasional cases of **inclusion body hepatitis** continue to be seen in a few birds.
- Some flocks have elevated titers to **Infectious bursal disease virus (IBDV)** with or without secondary production problems. Disinfection and vaccination are useful strategies.
- Condemnation issues remained stable for this quarter, cellulitis being the main cause.

Broiler-Breeders

- **IBV** infections in broiler breeders were stable. A small number of flocks experienced mortality and decreased production; DMV and California strains were isolated from these outbreaks.
- **Bacterial, and developmental lameness** cases remained stable. Bacterial lameness cases were associated with *Staphylococcus aureus* and *Enterococcus cecorum*.

- Three broiler breeder flocks, epidemiologically linked to 3 separate **outbreaks** in broiler flocks with reovirus-associated lameness. Affected broiler breeder flocks do not exhibit clinical signs, so evidence is largely epidemiologically based.
- An increase in **early bacterial infection (<14 d old)** cases have been reported this quarter. Most commonly *E. coli* was isolated, and less frequently *Staphylococcus aureus*. One case of early systemic bacterial infection in a young breeder flock was associated with variant DMV-IBV infection.
- **In-lay bacterial septicemia** has remained stable. Mostly *E. coli* in pure culture or less often, in mixed culture with *E. cecorum* or *S. aureus* were identified.
- Two cases of cecal **coccidiosis were noted**, and one of these cases was followed by increased numbers of birds with intussusceptions.
- **Disease related hatchability issues were stable**. Three cases of **white chick syndrome** and one **IBV** California strain associated with these issues.
- **Aggression** with very severe **cannibalism** in breeders starting around 22 weeks of age has been reported in a few cases. Light intensity in one case and too high male ratio have been reported as causes of aggression and cannibalism.
- One case of **fowl pox** in a flock prior to vaccination at 11 weeks of age has been reported.

Layers

- Clinical cases of **IBV** in mature laying flocks decreased in this quarter.
- False layer syndrome secondary to IBV infection is being reported across North America. It appears that this syndrome is not associated with just one strain of IBV. The problem lies in detection of the IBV, for chicks are infected early in life so timing of testing is critical.
- **Bacterial peritonitis/salpingitis** due to *E. coli* became stable.
- **Infectious laryngotracheitis (ILT)** was diagnosed in a commercial layer flock that had been previously vaccinated. The vaccine strain was detected, so vaccination failure was suspected.
- One flock suffered an aggressive vaccine response resulting in increased mortality following vaccination with an IBV/APMV-1 vaccine at 10 weeks of age.
- One practitioner reported an increase in **coccidiosis** and necrotic enteritis. Coccidiosis/NE are diseases with a cyclical nature and tend to be seen more often in wetter and cooler weather.

Turkeys

- **Early (<14 d old) and late systemic bacterial infections (>14 d old)** were stable. *E. coli* was isolated from a few cases. Pure *Salmonella* spp. septicemia or mixed bacterial septicemia cases with both *E. coli* and *Salmonella* spp associated with early mortality were described by 2 practitioners. *E. coli* septicemia resulting in hard liver and *E. coli*- induced airsacculitis were reported in older flocks.
- Increase in the number of **Erysipelas** cases has been reported.
- An increase in **Mycoplasma** cases was reported, however no details regarding species were provided. This is the second quarter for this increase to be noted in the clinical impressions survey.
- One case of **ORT** in 25-week-old toms was reported by a practitioner.
- Increase of **necrotic enteritis** and **coccidiosis** was noted in flocks raised without antibiotics.
- Two cases of **histomoniasis (blackhead)** on the same farm in 8-12-week- old birds were reported.
- A case of low pathogenicity avian influenza **H1N1** was diagnosed in a turkey flock.

We thank the following poultry veterinarians who completed the veterinary survey: Dr. Elizabeth Black, Dr. Peter Gazdzinski, Dr. Shahbaz Ul Haq, Dr. Kathleen Long, Dr. Rachel Ouckama, Dr. Mike Petrik, Dr. Cynthia Philippe, Dr. Joanne Rafuse, Dr. Fernando Salgado-Bierman, Dr. Ben Schlegel, Dr. Lloyd Weber, and Dr. Alex Weisz.

Updates

- The federal government made regulatory changes to address antimicrobial resistance. By December 2018, growth promotion claims will no longer be allowed on the labels of veterinary products containing antimicrobials that are important to human medicine, and veterinary prescriptions will be required for the purchase of antimicrobials that are important to human medicine. Antimicrobials in mixed feed will still be available at feed mills and will also require a veterinary prescription. After November 13, 2017, no medically important antimicrobials will be authorized for importation for own use. Ionophore products and coccidiostats will NOT be affected by this change. OMAFRA is proposing to make changes to Regulation 730 under the Livestock Medicines Act (LMA), including removal of medically-important antimicrobials from the list of drugs available for sale from provincially licensed Livestock Medicines Outlets. The proposed amendments on the Ontario's Regulatory Registry are available at <http://www.ontariocanada.com/registry/view.do?postingId=25272&language=en> (It has been posted for 60 days on the registry for public comment in both English and French) (November 15, 2017 January 15, 2018). If you would like to provide feedback on the proposed amendments, a comment button is provided on the Regulatory Registry or e-mails can be sent to antimicrobialresistance@ontario.ca. Please refer to the registry posting for complete contact information.
- Beginning in early December and continuing into 2018, the Poultry Industry Council and OMAFRA are delivering producer update sessions to keep Ontario poultry producers and industry representatives up to date and informed on relevant topics and emerging issues. For more information and to register for the Producer Updates, go to: <http://www.poultryindustrycouncil.ca/education-extension-events/producer-updates/>
- Poultry Health Research Network lectures can be accessed on the PHRN website or on the PHRN YouTube channel: <https://www.youtube.com/user/PoultryHRN>

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