As consumers hit the grocery stores to stock up on grilling supplies, shoppers may notice leaving with a thinner wallet than years past. Prices of pork have risen dramatically as a result of an outbreak of a new livestock virus affecting millions of animals; Porcine Epidemic Diarrhea Virus, or PEDV.

Since being identified in the US in 2013, PEDV has had disastrous impacts on the U.S. pork industry. Though the outbreak has occurred nationwide, the size of the hog industry in Iowa and Minnesota have made PEDV particularly hard on those states.

As is the case with much of what the public knows about production agriculture, PEDV is poorly understood by the average consumer. Researchers, producers, and processors alike are all stepping up to minimize the impacts at the plate. Unfortunately higher prices, at least for the near future, seem inevitable.

**What is it?**
PEDV is caused by a form of coronavirus, a family of viruses that are characterized by a crown like projection on their surface. Coronaviruses are relatively common in nature, and can cause health issues in humans and animals alike. It is important to note, however, that **PEDV only infects animals and is non-transferable to humans**, though other human-infectious illnesses, such as the recent MERS virus, hail from the same family. PEDV presents itself like many gastrointestinal infections, with heavy vomiting and as its name indicates, diarrhea. The mortality, particularly among piglets, is very high, reaching 100% in 10-14 day-old piglets. The virus is transferred through a number of different means, including but not limited to; infected pigs, feed, boots, and clothing among other fomites. Until recently, treatment has been limited to supportive therapy, namely attempts to alleviate dehydration.

It is estimated that PEDV has killed over 7 million piglets, or 10% of the U.S. hog population, since its confirmed presence in the U.S. on May 13th, 2013.

Researchers identified another setback earlier this year when they found that farms previously infected could be susceptible to “re-infection,” subjecting the herd to another wave of deadly infections. This factor could worsen the outlook even further, unless research and industry efforts yield gains.

Indeed, gains have been made. New tools have come to market to combat PEDV. On May 28th, Kentucky based animal care products company, Neogen, announced successful trials of two agricultural disinfectants marketed specifically for killing PEDV. Then, on June 16th the USDA conditionally approved the first vaccine for use against PEDV.

**Researching PEDV**
The front line in the fight for PEDV isn’t exactly where your average person on the street would think it would be. The sign outside of Room 120, deep within the complex of the Veterinary Diagnostic Laboratory (VDL) at the University of Minnesota, reads “Molecular Diagnostics.” It’s the first stop on my tour with College of Veterinary Medicine Veterinary Population Medicine’s Chair, Dr. Tom Molitor.

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**PEDV 101**

*By Adam Axvig, Agri-Growth Communications Director*

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Since being identified in the US in 2013, PEDV has had disastrous impacts on the U.S. pork industry. Though the outbreak has occurred nationwide, the size of the hog industry in Iowa and Minnesota have made PEDV particularly hard on those states.
The Duluth Seaway Port Authority (DSPA) is a public agency created by state statute in 1955 to expand and improve facilities at the Port of Duluth-Superior in anticipation of the opening of the St. Lawrence Seaway in 1959. Two years later, with $10 million in public funding, the Port Authority created the 120-acre Clure Public Marine Terminal, the port’s only general cargo facility.

Like port authorities and harbor commissions worldwide, DSPA’s mission is to foster domestic and international trade, advance regional industrial development, and advocate for maritime industry interests here on the Great Lakes and across the U.S.

The Port of Duluth-Superior is the largest tonnage port on the Great Lakes and continues to rank among the top 20 ports in the U.S., handling an average of 38 million short tons of cargo and hosting nearly 1,000 vessel visits each year.

The vitality of this entire region depends on the strength of the Port – and the Port relies on the strength of the industries it serves. Cargo movements through the Port of Duluth-Superior support 11,500 jobs and contribute over $1.5 billion to the regional economy.

Along its 49 miles of waterfront, the Port of Duluth-Superior boasts 20 privately owned/operated bulk cargo docks and one general cargo terminal, plus a marine fueling depot, a shipyard with two dry docks and tug/barge services. Served by four Class I railroads and three major highways, this multimodal hub connects the heartland of North America to the world.

Information for following questions provided by: Ron Johnson, Trade Development Director, Duluth Seaway Port Authority

Scope of organization:
While the Port of Duluth-Superior is an engine for economic growth, the Port Authority has taken a leadership role in driving the region’s industrial development. When established nearly 60 years ago, the Port Authority was tasked with fostering trade, advancing industrial development, and advocating for maritime interests.

Today, the Port Authority operates a Foreign Trade Zone; owns and manages multiple properties including the Clure Public Marine Terminal, Dock C&D and Duluth Airpark; and is in the process of acquiring nearly 130 acres of land in the far western reaches of the city for large-scale industrial development.

How is your organization funded?
Operating revenue for the Port Authority is generated through land and building leases, storage and dockage fees, economic development investments and related financing activities. Additional funding is provided by grants from the state’s Port Development Assistance Program, the City of Duluth tax levy and project-specific federal grants.

What is new with your organization?
We are making a major investment in this region’s multimodal transportation system with the redevelopment of Dock C&D – a 28-acre site that once contained the old Cargill grain elevator. With news of a $10 million federal grant being awarded to this project, the Port Authority is moving forward with a major adaptive reuse and redevelopment project to resurrect a dying dock and put it back into service. Once complete, the new platform will markedly expand the Port’s general cargo handling capacity and afford much needed waterfront space on which to encourage new industrial development.

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Within the room, busy white-coated VDL staff dart in-and-around carts packed with vials and racks. This is the final destination for thousands of samples from diseased animals across the nation, PEDV infected pigs among them.

The room is a fitting destination as it was in this very building that the first successful test for PEDV, the same test the staff are processing, was developed. The process for confirming PEDV begins here, with rooms down the hall outfitted for further statistical analysis and tissue storage. Rapid Agriculture Response Funds, allocated by the State of Minnesota through the University, enabled the University to develop the crucial first weapon against PEDV, an accurate, mass-producible test for assessing the scale and spread of the PEDV outbreak.

With essential tools in place to assess where PEDV was occurring, and an idea of the scale of the outbreak, College of Veterinary Medicine (CVM) researchers have since trained their focus on identifying how the disease is transmitted, what treatment options may exist for the already-infected, and partnering with organizations like the USDA and the National Pork Board to provide updates and educate veterinarians and producers in the field to help curtail further spread of the virus.

Included in the 2014 bonding bill passed by the Minnesota Legislature was $200,000 for the University of Minnesota to continue PEDV research. Currently, the CVM is considering which PEDV research focus would be the best use of that investment.

**USDA Announces Appropriation**

On June 5th, the United States Department of Agriculture (USDA) took an important step in the fight against PEDV, announcing an appropriation of $26.2 million to combat PEDV. Included in that $26.2 million is:

- $3.9 million to be used by USDA’s Agricultural Research Service (ARS) to support the development of vaccines
- $2.4 million to cooperative agreement funding for states to support management and control activities
- $500,000 to herd veterinarians to help with development and monitoring of herd management plans and sample collection
- $11.1 million in cost-share funding for producers of infected herds to support biosecurity practices.
- $2.4 million for diagnostic testing
- $1.5 million to National Animal Health Laboratory Network diagnostic laboratories for genomic sequencing for newly positive herds

(Source: [USDA](https://www.usda.gov))

In addition to the federal funding, USDA issued a Federal Order requiring that all new PEDV cases be reported to USDA Animal and Plant Health Inspection Service (APHIS) or state animal health officials.

**Industry Cooperation and Response**

Pork producers across Minnesota responded immediately to combat the spread of PEDV. According to Dave Preisler, Executive Director of the Minnesota Pork Board, immediate efforts focused on stepping up biosecurity measures to restrict all practicable avenues of infection. To date, biosecurity remains the best tool available for producers combating PEDV. Vaccination doses, while granted conditional USDA approval, are still limited in their supply and uncertainty persists regarding their effectiveness. Both Preisler and Molitor expressed reserved optimism that vaccines will be successful in the fight against PEDV.

Producers have continued to cooperate with the USDA and research facilities like the VDL to combat PEDV. Current data suggest that PEDV may be easing its grip on the nation’s hogs, but we won’t know until later this year when data are gathered after PEDV’s seasonal high cycle. For the near future, that summer grill-out will continue to cost a bit more than years past.
The project has several components including: dock reconstruction (replacing corroded sheet piling and deteriorated wooden dock walls to re-establish the pier’s structural integrity); augmenting the dock’s heavy-lift capacity; resurfacing the property; constructing a Ro-Ro dock; making safety and security enhancements; and installing road/rail infrastructure to connect its 28 acres to existing landside freight corridors. The total price tag of the project is $16 million. In addition to the $10 million TIGER grant, costs will be covered by nearly $3 million from the Minnesota Port Development Assistance Program, with the balance committed by the Port Authority.

What are key trends affecting your industry? How so?
We are a natural resources based region so our cargo volumes are dependent on the state of the national and world economy. Iron ore pellets, coal, grain and other bulk commodities like limestone, cement and salt will continue to make up the majority of our tonnage. Duluth has also established a global reputation for seamless transport of heavy lift/dimensional/oversized and other project cargoes for the mining, oil/gas production, construction, wind energy, pulp/paper and power generation industries.

What are your legislative priorities?
• Successful appropriation and allocation of federal funds for projects on the Great Lakes Navigation System to be undertaken according to directives set forth in WRRDA legislation passed in 2014 (Water Resources Reform Development Act).
  • To encourage continued collaboration among state and federal agencies to harmonize ballast water regulations across the Great Lakes-St. Lawrence Seaway System.
  • To encourage federal funding to maintain and rehabilitate lock infrastructure at Sault Ste. Marie, Michigan (the Soo Locks) – and the Eisenhower and Snell locks along the St. Lawrence Seaway – asset renewal projects critical to cargo transport to and from the Port of Duluth-Superior.
  • Continued support of Minnesota’s Port Development Assistance Program.