It has all the makings of a limited television series on Netflix, and it starts with 2 Iowa State University (ISU) alumni. Veterinarians, diagnosticians, and producers were baffled early this year when dairy cattle in multiple Texas herds were suddenly producing less milk. What milk was produced was abnormal and thick. The cows had also seemingly lost their appetites.

Enter ISU DVM graduate No. 1: Dr. Barb Petersen, the owner and operator of Sunrise Veterinary Service, an ambulatory veterinary practice serving dairy and beef cattle in the Texas panhandle.

“I had a client with cows presenting very thick, yellow milk, and they were experiencing lower milk production,” Petersen said. As the calendar turned to spring, other dairy clients were noticing the same things. At first, Petersen thought the cause might be the herds’ feed, but tests produced no definitive results. But like a good private investigator, Petersen continued to investigate. Clients were reporting sick and dying birds, followed by ill and dead cats at the dairies.

“The cats really threw me for a loop,” Petersen said. “They were blind, stumbling, circling, not grooming themselves, and had a discharge coming from their eyes and nose.”

Enter ISU graduate No. 2: Dr. Drew Magstadt, clinical associate professor and diagnostic pathologist at ISU’s Veterinary Diagnostic Laboratory (VDL). Magstadt was aware of what was happening in Texas but was stumped by what was causing the issues. Wanting to learn more, Magstadt joined a USDA conference call that Petersen happened to be on.

“Afterwards, Barb and I connected for a one-on-one discussion,” Magstadt said. “It was her observation about the cats at the dairies that led us to test for highly pathogenic avian influenza (HPAI).”

Since bird flu was already known to be detected in Texas and cats were known to be susceptible to avian influenza, Magstadt wondered whether that could be the cause. Petersen sent milk and tissue samples to ISU, and it did not take long for Magstadt and the VDL team to confirm the theory. The cows’ milk tested positive for influenza A.

People come to the VDL with questions that we try to answer,” Magstadt said. “In these situations, it’s a little bit like detective work. You find that one piece of information to solve the problem. In this case, it was the cats. Before, Barb observed that we had no reason to test the milk.”

Since this discovery, ISU College of Veterinary Medicine faculty, staff, and students have gone into research mode. More than 20 individuals are currently involved in the project, trying to answer questions about HPAI, with several collaborating projects with research scientists at the USDA in Ames. There are also others across the ISU campus in other colleges as well. The studies range from understanding the epidemiology of the disease, to how the disease is transmitted, to disease pathogenesis, to developing vaccine candidates.