

## **Investigating the Equine Arteritis Virus seroprevalence in Prince Edward Island**

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The Equine Arteritis Virus (EAV) is a single-stranded RNA virus that can result in respiratory distress, fever, abortion, limb edema, as well as interstitial pneumonia in neonates. Transmission can be respiratory, venereal, in utero, indirectly, or through bodily secretions, spreading readily through populations. This virus is widely endemic in Standardbreds worldwide, providing acquired immunity. Minimal movement, to and from Prince Edward Island (PEI) has led to PEI Standardbreds being relatively unexposed, resulting in widespread susceptibility to the effects of EAV. It is hypothesized that a naïve population to EAV could experience severe EAV signs such as neonatal deaths, abortions, and breeding difficulties. In 2023, Prince Edward Island (PEI) experienced the first of many neonatal deaths from EAV, followed by multiple broodmares with clinical signs. The purpose of this study was to determine the seroprevalence of EAV in PEI, abortion and neonatal death rates, and to determine if the PEI Standardbred population was naïve prior to the outbreak that surfaced in 2023. This investigation conducted extensive blood sampling and testing, on-farm surveys, and examination of historical EAV diagnostic records. Through this, detailed data regarding EAV seroprevalence, yearly live foaling rates amongst contact tracing, breeding, and reproductive status data was analyzed. Along with the diagnostic records and recent blood tests, stored blood samples over the past 25 years in PEI Standardbred equines were tested showing the evolution of the outbreak supporting the determination of a non-endemically infected population and the estimated arrival of the virus to be months prior to the first neonatal deaths. In effect, the naïve population exposed to this virus resulted in decreasing live foal rates, continually rising seroprevalence, and increased abortions. These results emphasize the importance of vaccination and biosecurity to minimize the drastic health and economic effects of the Equine Arteritis Virus in an unprotected population.

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