Advancing the Universe of Protection: Ingelvac CircoFLEX® AD

PCV2: A Constantly Evolving Challenge

Porcine circovirus type 2 (PCV2) remains one of the most economically significant pathogens affecting swine production worldwide. Over the past two decades, the virus has undergone notable genotypic shifts, with PCV2a initially being replaced by PCV2b and, more recently, by PCV2d.[1] Today, PCV2d is the predominant genotype circulating in Canada, while PCV2a remains the second most frequently detected genotype.[2]

Researchers have explored the drivers behind these shifts, including the potential influence of vaccine-driven selection pressure. While genotype evolution is likely multifactorial and continues to be investigated, some studies suggest that the widespread, long-term use of PCV2a-based vaccines may have contributed to the emergence and predominance of strains such as PCV2d.[1,3]

Regardless of the underlying cause, the current epidemiological landscape supports vaccination strategies that address predominant genotypes. With PCV2d now established as the dominant field strain and PCV2a continuing to circulate, protection against both genotypes represents a practical approach to the prevention of porcine circovirus-associated disease (PCVAD).

Exploring Genotype-Specific Protection

To better understand the impact of genotype-specific vaccination, a study compared the responses of a non-vaccinated control group and pigs vaccinated with either a PCV2a- or PCV2d-based vaccine following exposure to a dual PCV2d and PRRS virus challenge, a scenario designed to reflect field conditions.



While both vaccines provided protection compared with non-vaccinated pigs, the PCV2d vaccine was associated with numerically higher average daily gain, fewer treatments, and lower mortality.[4] In addition, PCV2d-vaccinated pigs demonstrated lower tissue viral loads, significantly reduced viremia, and less lymphoid depletion, consistent with greater control of viral replication.[5]

Although overall PCV2 antibody levels were similar between vaccinated groups, each vaccine generated higher neutralizing antibodies titer levels against its homologous genotype.[5] These findings suggest that vaccination with a vaccine containing the same genotype as the circulating strain may contribute to improved control of PCV2d replication and could have positive implications for PCV2d circulation at the herd level. This concept was central to the development of a more targeted vaccination approach for North American production systems.

INGELVAC CIRCOFLEX® AD: Protection Designed for Today's PCV2 Reality

The challenge posed by PCV2d is not limited to co-infection scenarios. A recent Canadian field report described a high-health herd in which cross-protection seemed insufficient, with improved control of PCVAD reported after switching to a vaccine containing the same genotype as the circulating field strain.[6]

These findings suggest that, although current PCV2 vaccines continue to provide valuable cross-protection, vaccines targeting the circulating field genotypes may contribute to improved disease control.

Recognizing this need, Boehringer Ingelheim developed and brought to the Canadian market **INGELVAC CIRCOFLEX® AD**, the first and only commercial vaccine in Canada containing both PCV2a and PCV2d antigens in a single formulation. By combining protection against the two predominant genotypes circulating today, **INGELVAC CIRCOFLEX® AD** provides veterinarians and producers with a vaccination option designed to address the current epidemiology of PCV2.

References: 1. Franzo G, et al. *Front Microbiol.* 2024;15:1500498. doi:10.3389/fmicb.2024.1500498. 2. Koszegi M, et al. Can Vet J. 2025;66(4):440-445. 3. Xiao CT, et al. *J Gen Virol.* 2015;96(7):1830-1841. doi:10.1099/vir.0.000100. 4. Kroeger M, et al. *Proc. 56th AASV Annual Meeting.* 2025. doi:10.54846/am2025/50. 5. Kroeger M, et al. *Vaccine.* 2025;60:127303. doi:10.1016/j.vaccine.2025.127303. 6. Desrosiers R, et al. *J Swine Health Prod.* 2026. doi:10.54846/jshap/1449
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