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H5N1 Avian Influenza Reaches 22 U.S. Dairy States as Bulk Milk Surveillance Flags Oregon and Indiana

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Highly pathogenic avian influenza A(H5N1) has now been confirmed in dairy cattle across 22 U.S. states following proactive November 2026 detections in Indiana and Oregon under the U.S. Department of Agriculture's National Milk Testing Strategy (NMTS). The geographic expansion coincides with an acute cluster of bovine and human infections centered in Yakima County, Washington, where more than 30 commercial dairy herds tested positive after the state's first bovine detection on October 8, 2026, and three dairy-farm workers contracted confirmed H5N1 infections -- including a hospitalized patient with underlying health conditions who died on November 1, marking the first reported U.S. human H5N1 fatality of 2026.

Although the Centers for Disease Control and Prevention (CDC) continues to assess the risk to the general public as low and emphasizes that no human-to-human transmission has been documented, the twin trends of interstate dairy spread and severe occupational spillover underscore how persistently clade 2.3.4.4b H5N1 -- specifically genotype B3.13 in cattle -- is circulating at the livestock-human interface.

How the National Milk Testing Strategy Caught Indiana and Oregon

Unlike earlier phases of the U.S. dairy outbreak, which began in March 2024 and relied heavily on voluntary testing of symptomatic cows or pre-movement interstate permits, the November 2026 detections in Indiana and Oregon were triggered by routine bulk-tank and milk-silo surveillance. Under the USDA Animal and Plant Health Inspection Service (APHIS) National Milk Testing Strategy, participating states sample pooled raw milk streams at regular monthly or biweekly intervals, allowing veterinary epidemiologists to detect viral RNA before widespread clinical signs appear on farms.

In early November 2026, routine NMTS sampling confirmed genotype B3.13 H5N1 in an Indiana dairy herd, making Indiana the 21st affected state. Days later, on November 10, 2026, USDA-APHIS confirmed the first Oregon dairy detection in a Morrow County herd that had repeatedly tested negative during prior monthly NMTS cycles. Once a state records a positive bulk-milk screen, the framework advances that jurisdiction into Stage 3 response protocols -- triggering herd quarantines, movement restrictions, contact tracing , and on-farm epidemiological investigations.

| Surveillance Indicator | | Confirmed 2026 Milestone | | Epidemiological Significance |

| Affected U.S. Dairy States | | 22 states (including Indiana & Oregon in Nov. 2026) | | Demonstrates continued interstate persistence of clade 2.3.4.4b |

| Viral Genotype in Cattle | | HPAI H5N1 genotype B3.13 | | Exhibits high tropism for bovine mammary epithelial tissue |

| Yakima County, WA Cluster | | >30 infected herds; 3 confirmed worker cases | | Includes 1 fatality (Nov. 1, 2026) in a hospitalized worker |

| Commercial Milk Safety | | Pasteurization inactivates viral particles | | FDA/USDA affirm retail pasteurized dairy remains safe |

Mammary Tropism, Milking Parlors, and Occupational Spillover

In dairy cattle, H5N1 behaves differently from classical respiratory influenza in birds or humans. Rather than replicating primarily in the upper airway, genotype B3.13 achieves extraordinarily high viral loads inside mammary gland alveoli, shedding large quantities of infectious virus into raw milk while producing comparatively mild respiratory signs -- or transient drops in milk yield and thickened colostrum-like milk -- in infected cows. Histological and lectin-binding studies show that bovine mammary secretory tissue expresses both avian-type alpha-2,3-linked and human-type alpha-2,6-linked sialic acid receptors, creating a permissive cellular niche for viral replication. That tissue tropism turns milking parlors into high-exposure environments: aerosolized milk droplets, contaminated milking-claw liners, and splashes during udder preparation can deliver high-titer inoculum directly to the conjunctiva and upper respiratory tract of farmworkers.

In Yakima County, Washington, all three confirmed human cases occurred in workers with direct occupational exposure to infected dairy cattle. Two workers experienced mild illness -- consistent with the conjunctivitis and mild upper-respiratory symptoms seen in many U.S. dairy-worker infections since 2024 -- while the second reported case, involving a worker with underlying medical conditions, developed severe disease requiring hospitalization and died on November 1, 2026. Public health investigators and agricultural labor advocates have also noted that lack of paid sick leave and immigration-enforcement concerns can discourage symptomatic farmworkers from seeking testing, raising the possibility that mild occupational infections go uncounted across rural dairy corridors.

Food-Supply Barriers and Genetic Risk Monitoring

Federal food-safety agencies stress that commercial milk remains safe because standard high- temperature , short-time pasteurization thermally denatures the viral envelope and hemagglutinin proteins , rendering infectious H5N1 undetectable in retail dairy products even when trace viral RNA fragments appear in bulk raw-milk PCR screens. Regulatory rules also bar milk from clinically ill cows from entering interstate commerce. The primary public-health vulnerability therefore remains raw-milk consumption and unprotected exposure on affected dairy and poultry operations, where concurrent autumn wild-bird migrations along the Pacific Flyway have also sparked new commercial and backyard poultry outbreaks in states including Oregon and Washington.

From a pandemic-preparedness standpoint, every bovine-to-human spillover event provides an opportunity for viral polymerase (such as PB2 E627K or D701N) or hemagglutinin adaptation toward mammalian upper-airway sialic acid receptors (alpha-2,6 linkages). Continuous genomic sequencing of both bulk-milk isolates and human clinical specimens remains essential to verify that circulating viruses have not acquired sustained human-to-human transmissibility or resistance to

neuraminidase-inhibitor antivirals such as oseltamivir. Expanding personal protective equipment access -- including goggles, face shields, and N95 respirators in milking parlors -- alongside on-farm rapid testing and non-punitive medical outreach for agricultural workers will be central to containing transmission across the 22-state dairy footprint.

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