

Indigenous African Swine Fever (ASF) Vaccine Developed by ICAR Bolsters India's Biosecurity

Union Agriculture Minister Shivraj Singh Chouhan, in the Presence of Union Minister Rajiv Ranjan Singh, dedicates Vaccine to the Nation at this Year's ICAR Foundation Day

A major step towards Atmanirbhar Bharat in veterinary vaccine development, with the potential to position India as a global supplier of affordable ASF vaccines

प्रविष्टि तिथि: 04 AUG 2026 4:14PM by PIB Delhi

African Swine Fever (ASF), caused by the African Swine Fever Virus (ASFV), is one of the most devastating trans-boundary animal disease affecting domestic and wild pigs worldwide. Characterised by high fever, haemorrhages and mortality rates that may approach 100 per cent, the disease has caused severe socio-economic losses to the global pig farming sector. Since its first detection in India in 2020, ASF has spread to several States and Union Territories, resulting in massive pig mortality, disruption of pig production, restrictions on animal movement and trade, and significant livelihood losses for smallholder pig farmers, particularly in the North-Eastern region. In the absence of an effective treatment or a commercially approved vaccine in India, disease control has largely relied on rapid diagnosis, culling of infected animals and strict biosecurity measures.



The economic impact of ASF outbreaks in India has been significant. During the initial outbreaks in Assam in 2020 and 2021, pig mortality and culling resulted in estimated losses of approximately ₹276 crore. In Mizoram, ASF outbreaks have reportedly affected more than 11,382 households up to 2025, resulting in an estimated financial loss of approximately ₹982 crore. These outbreaks have highlighted the urgent need for an effective indigenous solution to strengthen disease preparedness, protect farmers' livelihoods and build resilience in the country's pig farming sector.

Addressing this critical challenge, scientists at ICAR–National Institute of High Security Animal Diseases (ICAR-NIHSAD), Bhopal, have developed India's first indigenous MA-104_Cell_Line-Based Live Attenuated African Swine Fever (ASF) Vaccine for pigs. Developed using a novel attenuated ASFV Genotype II virus with unique gene deletions in the MA-104 cell line, the vaccine is a major breakthrough in veterinary research and is well suited for large-scale production.

The vaccine has successfully undergone comprehensive laboratory evaluation, including sterility, purity, safety, genetic stability, immunogenicity, protective efficacy and virulence reversion studies. It was also field validated in collaboration with the Department of Animal Husbandry & Dairying (DAHD), Ministry of Fisheries, Animal Husbandry & Dairying, Government of India, further establishing its safety and efficacy under field conditions. The vaccine is recommended for healthy pigs above eight weeks of age and is administered as a 1 mL intramuscular injection, followed by a booster dose 14 days after the primary vaccination.

The indigenous vaccine is expected to substantially reduce pig mortality, minimise economic losses and improve the livelihoods of pig farmers across the country. By providing an effective preventive tool against one of the world's most destructive livestock diseases, it will significantly strengthen India's animal health security and support the sustainable growth of the pig farming sector.

Dr. M.L. Jat, Secretary, DARE and Director General, ICAR said that this breakthrough marks the dawn of a new era in veterinary science. It reflects India's growing scientific capability to develop world-class animal health solutions and paves the way for a new generation of indigenously developed vaccines and innovative technologies that will strengthen livestock health, enhance disease preparedness, and support the nation's food and biosecurity.

At present, only a couple of commercially licensed ASF vaccines are available in Vietnam. These vaccines are produced using patented proprietary cell lines. In contrast, the indigenous vaccine developed by ICAR-NIHSAD uses the widely available MA-104 cell line, making it a major technological breakthrough. This eliminates dependence on proprietary manufacturing platforms, enables large-scale vaccine production and significantly brings down manufacturing costs.

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(रिलीज़ आईडी: 2294280) आगंतुक पटल : 2919

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