NEW WORLD SCREWWORM: CONSIDERATIONS FOR SWINE

Swine Health Information Center

The Swine Health Information Center, launched in 2015 with Pork Checkoff funding, protects and enhances the health of the United States swine herd by minimizing the impact of emerging disease threats through preparedness, coordinated communications, global disease monitoring, analysis of swine health data, and targeted research investments.

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Introduction

New World screwworm (NWS) is a parasitic fly whose larvae feed on the living tissue of warm-blooded animals including livestock, pets, wildlife, and people. Larval infestations (myiasis) can occur in any broken or damaged skin and cause rapidly progressing, painful wounds that can lead to serious injury or death.

Although NWS was eradicated from the United States in the 1960s, the increasing number of confirmed cases in Central America and Mexico starting in late 2024 have renewed concern about risks to swine health, human safety, and farm profitability.

In Texas alone, projections estimate that an NWS outbreak could result in more than $1.8 billion in livestock losses (USDA APHIS, 2025). Due to significant animal health and economic impacts, suspected cases of NWS must be reported to state animal health officials and the USDA immediately. For comprehensive information regarding NWS, visit screwworm.gov (https://www.aphis.usda.gov/livestock-poultry-disease/stop-screwworm).

Swine producers can prepare for NWS by understanding the fly's behavior and life cycle, identifying production and housing conditions that increase risk of myiasis, implementing effective biosecurity, environmental, and wound management practices, knowing the response procedures for suspected infestations, and developing a New World screwworm disaster management plan.

New World Screwworm Background and Life Cycle

The NWS adult, although rarely seen by casual observers, is slightly larger than a house fly and is recognized by its metallic blue-green body with three dark stripes running lengthwise down the top of its back behind the head (thorax) (**Figure 1**). Confirmation of this fly is conducted by trained personnel and includes the identification of several other features which require a microscope.

Figure 1: *New World screwworm (Cochliomyia hominivorax; left) is identified by a metallic blue - green body and three dark longitudinal stripes down the back but easily mistaken for the secondary screwworm (Cochliomyia macellaria; right). Both flies are slightly larger than a common house fly. Adult fly color is a poor indicator of fly identification*

and experts should be consulted for a definitive identification (Photo Credit: Texas A&M AgriLife).

sites or tick bites, can provide a suitable site for egg deposition. The eggs hatch within 10 to 12

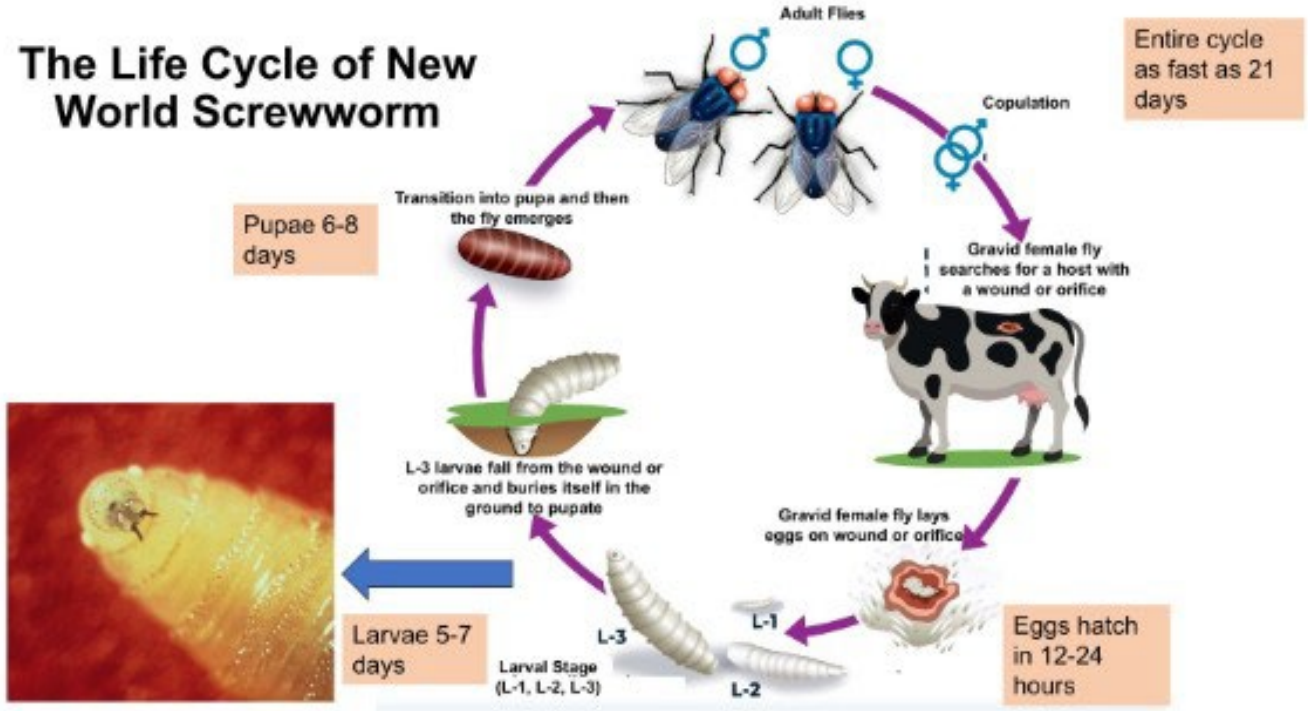

Figure 2: *Life cycle of NWS (Image credit: USDA)*

The life cycle of NWS can be as short as 21 days and requires a susceptible host (**Figure 2**). Adult females lay clusters of 200 to 300 eggs around open wounds, in orifices, or in mucous membranes with sores (**Figure 3**).

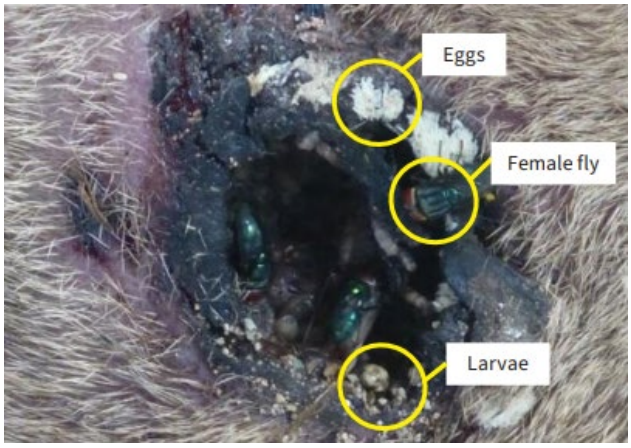

Figure 3*: Various phases of the life cycle of NWS can be identified within one wound site including the white egg packets, the adult fly and larvae that have attached to living tissue. (Photo Credit: USDA) https://www.aphis.usda.gov/sites/default/files/factsheet-nws-private-veterinarians.pdf*

Even small wounds, such as needle injection

hours and the emergent larvae enter the wound and begin feeding on the living flesh. As the larvae grow in size, the animal will experience severe pain and tissue damage. The term screwworm refers to the screw-like shape of the larvae and the way they burrow into flesh (**Figure 4**).

Figure 4*: The New World screwworm larvae reach approximately 2/3 of an inch in length with spines that protrude from the body segments. (Photo Credit: Texas A&M AgriLife).*

The damage caused by the larvae result in dead

tissue and bacterial infections that emit a distinct odor that can attract additional female blow flies, often leading to multiple infestations in the same wound. Larvae feed for 5 to 7 days before dropping to the ground, where they seek a protected site to pupate. Although they commonly burrow underground, soil is not required for prepupal or pupal survival. In colder outdoor environments, larvae may burrow deeper into the group to maintain warmth. However, in warm, humid, and stable settings, such as the inside of a pig barn, larvae could complete this stage of their life cycle in a wide range of protected locations, such as cracks or crevices in flooring, gaps beneath pen hardware or underneath feeders, in organic debris or accumulated feed and manure, or in sheltered spaces under stored equipment or supplies. After a 5-to-7-day period, the adult fly emerges. Adult female NWS flies live 10 to 14 days and are active during the daytime. They do not lay their first batch of eggs for approximately 3 to 5 days. The life cycle is seasonal and temperature dependent, with peak activity between 85^{O} F and 90^{O} F with generally very little activity or dormancy when temperatures are below 60^{O} F.

Adult NWS flies can travel 6 to 12 miles to find a suitable host; however, such long-distance movement is not considered common and occurs only when suitable hosts are scarce. In typical circumstances, daily flight distance depends on host density and environmental conditions and may range from a few yards to a few miles. Transportation of infested animals by humans can allow NSW flies to move long distances in a single day. Pig transporters, including livestock haulers and show pig exhibitors, should closely inspect and monitor their animals when traveling through or returning from areas at risk for NWS infestation.

Clinical Signs and Wound Care

Any break in the skin should be considered a potential risk for myiasis when adult flies are active in an area (**Figure 5**). Adult flies are rarely encountered. Infested wounds are typically where screwworm larvae will be detected. Signs of an NWS infestation on animals can include:

- Wounds with abnormal appearance that progressively worsen
- Wounds with the smell of rotting tissue
- Head shaking and biting or licking at wounds
- Irritated or depressed behavior including loss of appetite
- Visible larvae in wounds
- Death occurring within 7 to 14 days in untreated cases

Figure 5*: A sow with a sutured wound on the ham following an injury. Healing tissue is attractive to NWS flies, which lay eggs in open or healing wounds. Such sites require vigilant observation, treatment, and prompt reporting of any signs of infestation. (Photo: JGW)*

Several factors, including both routine management practices and pig injuries, can cause breaks in the skin and increase the risk of myiasis and should be considered when assessing potential exposure.

- Piglet processing, including ear notching or tagging, castration, tail docking, tattooing, or needle teeth clipping
- Sow/boar adult animal management including vaccination or ear tagging
- Any needle injection, regardless of the size of the needle or route of administration
- Umbilical sites in newborn piglets (**Figure 6**)
- Skin abrasions or wounds from shoulder sores, fighting behavior, group mixing, rough flooring, sharp or broken feeders, pen structures, water drinkers, etc.
- External parasite irritation, including bites from ticks or lice
- Tusk trimming if a bleeding wound is created (**Figure 7**)
- Poor hygiene or wound care that delays healing

Strategies that prevent or minimize skin breaks would also reduce the risk of NWS infestations. When possible, oral medication or vaccines would be preferred over injections. For management practices in which wounds are unavoidable, use methods that cauterize or seal the tissue (such as heated tail-docking tools) to reduce bleeding and exposure of fresh tissue. Additionally, apply topical treatments that promote healing and protect the wound site from fly activity, including commercially available pesticide sprays containing permethrin. Work with your veterinarian to develop an appropriate wound care plan and identify products approved for use in swine.

***Figure 6**: The newborn piglet umbilicus can serve as a potential site for New World screwworm infestation. If screwworms are present in an area, every piglet should be considered at risk and must be monitored closely for signs of infestation. (Photo: JGW)*

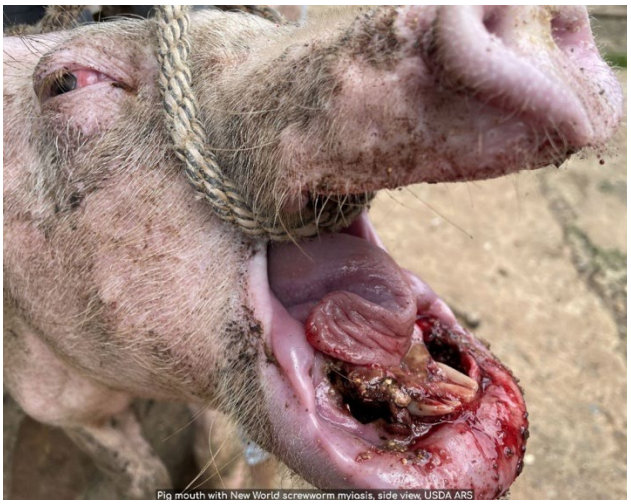

***Figure 7**: A sow with New World screwworm myiasis in the mouth. (Photo: USDA APHIS; available online: https://www.aphis.usda.gov/livestock-poultry-disease/cattle/ticks/screwworm/new-world-screwworm-photo-gallery)*

Always follow veterinary instructions and product label directions for use, dosage, and application sites to ensure safety and effectiveness. Consult with your herd veterinarian if animals treated do not improve, their condition worsens or more animals exhibit signs of infestation.

Click here for a list of FDA approved treatment options

NWS is not a food safety concern, and animals should be processed in accordance with FSIS or State regulations. Pigs previously infested with NWS that have been treated, that are fully healed and have met drug withdrawal times, are safe to be harvested and enter the human food chain. All pigs are inspected both before and after slaughter. Pigs identified at harvest with active infestations would be condemned and removed from further processing. Because NWS larvae only feed on living tissue, there is no risk of contamination of carcasses or pork products at slaughterhouses.

Housing and Environmental Management

Effective housing and environmental management can mitigate the risk of NWS infestation on swine farms. The most effective surveillance programs include careful daily inspection of the environment and housing, along with diligent recordkeeping and monitoring of pigs for wounds or abrasions. In general, pigs with outdoor access likely face greater risk due to the increased opportunity for flies to encounter and access these animals. Rough terrain, wooded areas, or debris common in outdoor environment could elevate potential risk for injury while providing numerous protected sites suitable for larval pupation. Additionally, it may be more challenging to completely inspect an outdoor herd as closely for signs of wounds or maggots without proper handling and containment devices.

Indoor housing does not eliminate the threat of NWS infestation. Although, confinement-raised pigs are at lower risk since blow flies prefer to live outside. But the stable warm and humid environment of pig barns is a good climate for fly development if given the opportunity. Dry locations such as cracks in flooring, gaps beneath equipment, dried manure or feed, and other sheltered spaces can offer ample substrate for larvae to pupate. It is important to understand that traditional manure-based fly control methods, such as in-feed larvicides or manure pit applications, are ineffective against NWS. NWS does not use manure in its life cycle nor encounter it and these pesticides do not move into the animal tissues where the screwworm feeds.

For both indoor and outdoor operations, regular monitoring and early detection are essential. Fly traps are a tool for observing fly presence but are not useful for this fly, as they are not attracted to typical fly traps.

Environmental controls to maintain clean and safe flooring, feeders, penning, and equipment can reduce the likelihood of injuries that could attract flies. Good management of pen stocking density and group mixing is an important consideration in minimizing skin breaks that could serve as egg-laying sites.

Good farm biosecurity is a cornerstone of NWS prevention. Maintaining a clear line of separation between the farm and the surrounding areas can reduce contact with wildlife that may be infested with the fly. The adult NWS flies can travel 6 to 12 miles in search of a host but will settle on the first available. Hence a well-maintained buffer has the potential to lower the risk of infestation.

Response Protocols to Suspected Infestations

Any suspected cases of NWS must be reported immediately to your veterinarian and to state animal health officials (a directory of state animal health officials is available through USAHA: https://usaha.org/saho/). For detailed

guidance on reporting, investigation, and response procedures, refer to the USDA New World Screwworm Response Playbook located on the USDA Screwworm.gov website found here: (https://www.aphis.usda.gov/sites/default/files/nws-response-playbook.pdf). Trained professionals will confirm NWS based on specific characteristics of the larvae removed from your animals (**Figure 8**).

***Figure 8**. Treating the ear of a pig infested with New World screwworm. (Animal and Plant Health Inspection Service, United States Department of Agriculture. "Slide of treating ear of infested pig." Special Collections, USDA National Agricultural Library. Accessed October 13, 2025, https://www.nal.usda.gov/exhibits/speccoll/items/show/7322.)*

Rules for collecting larvae for diagnostic confirmation may vary by state. Producers may be allowed to collect samples themselves, or this may be restricted to veterinarians or authorized regulatory officials. Producers should therefore plan to involve their veterinarian as soon as NWS is suspected and maintain open communication throughout inspections, sample collection, and follow-up action to ensure rapid detection and eradication. To reduce severity and unintended dispersal, suspect infested animals should be quarantined and never be transported off the premises as this could greatly increase the spread of the fly and start another potential outbreak. For situations where controlled animal movement may be necessary during an outbreak response, producers and veterinarians should refer to the New World Screwworm National Continuity of Business Standardized Animal Health Certificate Guidance, which outlines the criteria and documentation required to support safe, permitted movements (https://www.aphis.usda.gov/sites/default/files/nws-national-cob-movement-requirements-2025.pdf).

Takeaways

- New World screwworm poses a severe threat to swine health and farm profitability, causing rapidly progressive, painful myiasis in any wound and requiring immediate care and reporting to state and federal animal health authorities.
- Prevention depends heavily on minimizing wounds, since even small breaks in the skin such as injection sites or abrasions can serve as egg-laying sites for NWS.
- Both outdoor and indoor production systems carry unique risks:
    - Outdoor pigs face greater opportunities for exposure to flies and environmental hazards that create wounds and provide pupation sites.
    - Indoor systems can still fully support the NWS life cycle due to warm, stable barn conditions and numerous protected microhabitats for larval development.
- Traditional manure-based fly control does not work against NWS because the larvae develop only in living tissue.
- Rapid detection and coordinated responses are essential, including daily environmental/wound surveillance,

immediate veterinary involvement, and strict quarantine of suspect animals to prevent spread.

Conclusions

Managing the risk of NWS requires inspecting every pig every day for signs of wounds and infestations. Proper wound care and prevention are critical, as even small skin breaks or natural openings can serve as sites for egg-laying and larval development. Newborn piglets will be highly susceptible and must be tended to within hours of birth and watched until wound sites are healed. Sows should also be watched closely for several days post farrowing as the birthing process can result in wounds to mucus membranes. Well maintained housing and environmental management that decreases the potential for pig injury is essential to reduce risk, as is a good farm biosecurity program that provides a buffer between domestic swine and affected wildlife. Rapid detection and reporting to veterinarians and state animal health officials will be key to promptly eradicate NWS populations. By combining careful management and monitoring, producers can protect pig health, reduce economic losses, and minimize the risk and consequences of NWS infestations.

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