Sterile Fly Release Methods for Controlling Screwworm

The sterile insect technique (SIT) is a cornerstone of the U.S. Department of Agriculture's (USDA) strategy to control and prevent New World screwworm (NWS). Effective SIT programs depend not only on producing large numbers of sterile male flies, but also on releasing them efficiently and consistently where they can interrupt the pest's reproduction cycle. USDA uses two main release methods—aerial dispersal and ground release—selected based on terrain, conditions, and response needs. The following overview explains how these methods work and why each plays a critical role in protecting livestock, wildlife, and natural resources.

Sterile Insect Technique Is Safe

Releasing sterile flies is safe, environmentally friendly, and a sustainable, nontoxic alternative to chemical pesticides. Only NWS larvae—not adult flies—cause damage to animals. Sterile adult flies do not produce larvae, so they pose no risk to livestock, wildlife, pets, or people.

When combined with surveillance, movement restrictions, and education and outreach, SIT remains one of the most effective tools available for controlling and eradicating NWS.

How It Works

SIT is a proven method for preventing the spread of NWS. Female NWS flies mate only once in their lifetime. When they mate with a sterile male, they lay unfertilized eggs that do not hatch.

By releasing sterile flies in and around affected areas, USDA increases the likelihood that wild females will encounter sterile males, preventing them from producing viable offspring.

USDA continuously evaluates the location and circumstances of new cases to adjust release efforts as needed, maintaining broad suppression and slowing the pest's spread.

Aerial Dispersal

Most sterile flies are released through aerial dispersal. After sterile pupae hatch at a dispersal facility, the adult flies are loaded into specialized chambers inside an aircraft. These chambers connect to the outdoors through release tubes. When the plane reaches the target area, operators open the chambers, allowing flies to exit through the tubes and disperse over the landscape.

Aerial operations are preferred because they allow for steady uniform dispersal across large areas, including locations that cannot be reached from the ground.

Specialized sterile insect dispersal aircraft being loaded with sterile NWS flies for dispersal. The chamber holds the flies and connects to the auger in the plane and moves the flies directly outside once the plane is in the correct location.

Ground Release

Ground release is used when sterile insects must be deployed quickly or in areas outside the typical range of aerial operations. This can be done using trucks or ground release chambers.

Dispersal from trucks functions much like aerial dispersal. Sterile flies are loaded into chambers mounted on a truck and released into the open air through a tube as the vehicle moves through the target area.

Ground release chambers are specialized covered crates placed directly in targeted locations. Sterile pupae are loaded into trays inside the chamber. The pupae hatch into flies, which then exit through openings in the sides, providing highly localized support where needed.

Flies are dispersed directly into the air from a truck with a sterile fly chamber on the back. They may also be released from ground release chambers—covered crates that allow the pupae to hatch and fly into the open air.

Dyed Flies

Because surveillance must continue in areas where sterile flies are released, sterile NWS flies may be caught in traps or reported by the public. To help officials distinguish sterile flies from wild flies, USDA dyes the sterile pupae. The dye transfers to the adult flies when they emerge. The fluorescent dye glows under UV light and may also be visible to the naked eye. If a sterile fly is captured in a trap, this dye allows animal health officials to quickly identify it and rule it out as a threat.

Shouldn’t I Look for NWS Flies?

Many fly species look similar, so seeing a fly is not cause for concern. Even if you see an NWS fly, it may be a sterile one released to support eradication efforts. Instead of looking for flies, we encourage people to focus on preventing NWS and checking their animals regularly for any signs of infestation.

Learn More

For more information about NWS, visit Screwworm.gov.