Chances are, you've never heard of the "screwworm fly." But ask a retired cattle rancher and you'll hear about the horrific damage this pest once caused in Kansas and other livestock states.

"Screwworm flies" are attracted to an open wound on an animal...and they make this wound much worse. The flies—no bigger than an ordinary housefly—are attracted to cuts in living tissue. Even a small scratch from barbed wire creates an opening for these insects to lay their eggs.

The maggots that hatched out bored head-first into the wound, earning their name: "screwworm." These larvae in turn secreted chemicals that enlarged the wound. That allowed more flies to come and lay eggs. This is how a minor cut could end up killing a large animal. Ask anyone raising cattle as recently as the 1960s and they can tell you...the animal's death was agonizing.

Cattlemen could use insecticides and dips, but the screwworm fly lived on wild animals too. Some studies showed that these flies could kill three out of four baby white-tailed deer.

Between insecticide resistance and this reservoir of wild hosts, the screwworm was firmly entrenched across the southern United States...and spread northward each summer.

But then "science" came to the rescue.

A young entomologist, Edward Knipling and his colleague Raymond Bushland recognized that the female screwworm fly had a vulnerability: she only mated once.

In 1937, they published their theory...that by raising huge numbers of sterile flies and releasing them, it might be possible to drive this fly to extinction.

Despite billions of dollars spent killing insects with pesticides, insects always evolved strains that were resistant. But they wouldn't be able to evolve an alternative to their own reproduction.

After World War II, Knipling and Bushland returned to the screwworm problem but their bosses in the USDA were committed to pesticides.

Undaunted, Knipling moved ahead. First, he had to determine the correct dosage of radiation to **sterilize** the flies without affecting their ability <u>to attract mates</u> in the wild.

A small field trial conducted on an island off the coast of Florida was a successful start. A larger effort on an island in the Carribean was even more successful; it completely eradicated the screwworms in less than 6 months. The sterile-release technique was proven.

The large-scale effort to wipe out screwworms in the United States began in Florida in 1958.

You had to raise flies...to kill flies. The federal government built factories to raise the 140 million flies that had to be sterilized and air-dropped **<u>each week</u>**. Raising and feeding the flies was a massive effort. When they matured, they were zapped with radiation—more than enough to cause them to be sterile—but not **too much** to affect their mating behavior.

These sterile flies were then packaged and dropped by a special fleet of cargo planes, flying a precise pattern that moved Westward, pushing back the front lines of the screwworm range.

Today, the U.S. and Mexico maintain a fly factory to maintain the barrier in Panama. This sterile release technique is also used for other insects that only mate once, most notably the Mediterranean fruit fly or MedFly.

Knipling and Bushland received the World Food Prize in 1992 for their perseverance in pushing their wild idea and overcoming all of the technical and engineering problems to make this work.

Today, with the eradication of the screwworm fly, our white tail deer are a lot more common...and our livestock industry benefits by more than $900 million dollars a year.

But to really understand the debt we owe these researchers, you will have to talk to a retired cattleman to know what it was really like when screwworm flies...were at home on the range.