

TEXAS A&M AGRILIFE EXTENSION

Products from the past, present and future

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Treatment protocols

CONSIDERATIONS

- Rules & Regulations
- Resistance and Resistance Management

PRODUCT CLASSES & CATEGORIES

- Registered/approved and indicated for NWS in US
- Approved in livestock, but no NWS indication in US
- International livestock use, no US food animal approval

Management of the screwworm

- **Integrated Pest Management**
 - Multiple techniques to reduce a population
 - Reduces chance of resistance development
- **Eradication is goal**
 - **Reporting is critical**
 - Surveillance for adults (SwormLure/rotting liver)
 - Monitoring for larvae (animal examinations)
 - Inspections and limits on animal movement
 - Sterile Insect Technique (SIT)



Photo: Denise Bonilla, USDA



Pesticides are only a tool, not the toolbox

Application and formulations

Surface active:

- Sprays
- Pour-ons
- Ear tags
- Dusts
- Oils

Tend to have:

- Shorter residuals
- Fewer restrictions

Systemic active:

- Injectable
- Pour-on
- Feed through/bolus
- Spray

Tend to have:

- Often longer withdrawal periods
- Milking restrictions

Products available in 1960's and 1970's

Product Name	Active Ingredient(s)	Original Use (Site / Animals)	Registered Target Pests Included Screwworm?	Notes
Franklin Kiltect-100 Screwworm Killer And Fly Repellent	Kerosene (petroleum) hydrodesulfurized; MGK-264; MGK-326; Pine oil; Ronnel; Stabilene (Pomerix)	Horses (wound treatment)	Yes — includes screwworm among maggots, flies, etc.	Approved ~1971; registration cancelled 1986.
Martins US-Eq 335 Screw Worm Remedy For Horses & Mules	Lindane + Pine oil	Horses & Mules (wound / animal treatment)	Yes — screwworm and wound maggots included.	Cancellation in 1999.
K.R.S With Co-Ral (Coumaphos) Spray Foam Insecticide	Coumaphos	Beef cattle, dairy cattle, goats, hogs, horses, sheep; various animal treatment sites (ears, wounds)	Yes — includes screwworm among pests.	Cancelled 1998
Morton Screw Worm Spray	Ronnel + Xylene	Cattle, horses, sheep (wound treatment)	Yes — “screwworm” among target pests (and blow flies etc.).	Cancelled 1989
Morton Screw Worm Spray (Colored Blue)	Ronnel + Xylene	(wound treatment)	Yes — includes screwworm.	Cancelled 1989
Smear K Contains Korlan	Ronnel + Xylene	Animal treatment for cattle, goats, hogs, horses, sheep; wounds / ears etc.	Yes — screwworm included among pests.	Cancelled ~1987.
Kill Ko Korlan Insecticide Livestock Spray	Ronnel + Xylene	Cattle, horses, sheep; wound and ear treatments	Yes — includes screwworm among pests.	Cancelled ~1987.
Coumaphos 25% Wettable Powder Animal Insecticide	Coumaphos 25%	Many animal use sites (cattle, poultry, sheep, etc.)	Yes — screwworm is explicitly listed among the target pests.	Cancelled ~1989.
Oxford Nemesis Water Emulsifiable Insecticide	Aromatic petroleum solvent + Ronnel	Multiple sites: livestock, barns, domestic, etc.	Yes — includes screwworm.	Cancelled mid-1980s (~1986).

Older chemistry reported ineffective

Sevin (carbaryl; 2%)

Dimethoate, 0.25%

Bayer 22408 (Naphthalimide or *O,O*-diethyl *O*-naphthalimido phosphorothioate) poor systemic activity on cattle

Screwworm pesticides available in the 1970s: Beef



1. Co-Ral (0.5% or 0.25% spray; **coumaphos**) every 2-3 weeks; 7/0 d withdrawal
2. Co-Ral 5% dust (0 d withdrawal)
3. Coumaphos 25% Wettable Powder **x-1989**
4. K.R.S. w/Co-Ral spray foam **Lindane** + Pine Oil (Pomerix) – **x-1999**
5. Ronnel (Korlan; **fenchlorphos**) 5% smear or 2.5% livestock “bomb” (space spray) 21 d withdrawal
6. Morton Screw worm spray; Smear K, 2 others: Ronnel (Korlan; **fenchlorphos** + Xylene) 0.5% spray **x-1989**
7. Franklin Kiltect-100 Screwworm Killer and Fly Repellent – Kerosene hydrodesulfurized **1971-1986**
8. Oxford Nemesis (Aromatic petroleum solvent + Ronnel) **x-1986**

Others:

- Pine tar oil
- Benzol
- Chloroform, kills but irritates the wound
- Smear 62 (benzol, diphenylamine, turkey red oil (wetting agent), lampblack (thickening agent) – reapply weekly until healed
- EQ-335 3% Lindane, pine oil (35%) **x-1999**



Screwworm pesticides available in the 1970s: Dairy

Smear 62 (benzol, diphenylamine, turkey red oil (wetting agent), lampblack (thickening agent) – reapply weekly until healed

Lindane 3% (0 d withdrawal)

Screwworm pesticides available in the 1970s: **Sheep and Goats**



Smear 62 (benzol, diphenylamine, turkey red oil (wetting agent), lampblack (thickening agent) – reapply weekly until healed

Lindane (3%)

EQ-335 3% Lindane, pine oil (35%)

Ronnel (Korlan) 5% **fenchlorvos** smear or 2.5%, “livestock bomb”) 84/21 d withdrawal

Ronnel (Korlan) 0.5% spray

Co-Ral (0.25% spray; coumaphos) every 2-3 weeks; 15 d withdrawal

Others:

- **Dichlorvos**
- **Pine tar oil**
- **Benzol**
- **Chloroform, kills but irritates the wound**

Screwworm pesticides available in the 1970s: **Swine**



Smear 62 (benzol, diphenylamine, turkey red oil (wetting agent), lampblack (thickening agent) – reapply weekly until healed

Lindane (3%), chlorinated hydrocarbon

EQ-335 3% Lindane, pine oil (35%) 0 d withdrawal

Ronnel (Korlan) 5% **fenchlorvos** smear or 2.5% livestock “bomb” (space spray) 21 d withdrawal

Ronnel (Korlan) 0.5% spray

Ronnel (Korlan) 5% smear or 2.5%) 45/0 d withdrawal

Ronnel (Korlan) 0.5% spray

Others:

- **Dichlorvos**
- **Pine tar oil**
- **Benzol**
- **Chloroform, kills but irritates the wound**
- **Data from Ridgway and Garner, TAMU Extension**

Pesticide use considerations: EPA 2ee

Other Pesticides That May Have Utility Against Screwworm

FIFRA section 2(ee) allows a user to **apply** “a pesticide against any target pest **not specified on the labeling** if the application is to the crop, animal, or site specified on the labeling, unless the Administrator has required that the labeling specifically state that the pesticide may be used only for the pests specified on the labeling after the Administrator has determined that the use of the pesticide against other pests would cause an unreasonable adverse effect on the environment” (7 USC 136(ee)). In addition, all other requirements in FIFRA section 2(ee) and the label must be met. States may further restrict the use of pesticides under FIFRA section 2(ee). For example, a state could ban the use of a product on target species that are not listed on the label. For additional information on the use of pesticides under FIFRA section 2(ee): <https://www.epa.gov/pesticide-labels/pesticide-labeling-questions-answers#exception>.

There are many products currently registered for control of other blow fly species in the family Calliphoridae, which means these products met EPA’s efficacy data requirements for blow flies under 40 CFR 158.1752. Many blow flies can cause secondary myiasis. **The efficacy of these products against New World screwworm is unknown; however, these products may have utility as part of an integrated pest management program.**

Several example products containing different active ingredients that are registered for controlling blow flies on livestock or on environmental surfaces in and around animal areas are listed in Table 2. The full list of products registered for controlling, trapping, and repelling blow flies may be found using EPA’s APPRIL database: https://ordspub.epa.gov/ords/pesticides/f?p=APPRIL_PUBLIC:2:.....

If the use against additional target pests is not prohibited on the label or by state regulations, companies may recommend their registered pesticides for use against New World screwworm with FIFRA section 2(ee) recommendations or bulletins. For example, additional products registered for other flies and other invertebrate pests may have utility against New World screwworm.

USDA is not recommending or endorsing the use of any specific product for the control of New World screwworm under FIFRA section 2(ee). Users are responsible for ensuring their product’s container label and state regulations allows for their intended use and application methods under FIFRA section 2(ee).

Additional considerations

There are some very promising products in the pipeline, some of which are available in South America and Australia.

Many of these have residue testing data to back them up, and a few have some screwworm data.

Companies will likely want some sort of indemnification from FDA for future court challenges before they would consider allowing the products to be sold for screwworm use without full label approval being given.

- Would known data be sufficient to allow for indemnification
- What would withdrawal periods look like? Taken from current foreign uses?

Potenital products:

Examples of federally registered products labeled for control of blow flies.

Product Name*	EPA Registration Number	Registrant	Active Ingredient(s)	Applicable Labeled Use Site(s)
ULD® BP-50 Insecticide Alternate brand name: ULD® BP-50 Contact Insecticide Formula 1	1021-2836	McLaughlin Gormley King Company, D/B/A MGK®	Pyrethrins Piperonyl butoxide	Cattle and horses; Inside stables, livestock and poultry housing, loafing sheds, milk rooms, rabbit houses, research animal areas, and zoos
Ecto B715 Insecticide	67505-10	Ecto Development Company	Permethrin Piperonyl butoxide	Cattle, sheep, goats, and swine
Permethrin 10 EWC AKA: Martin's Permethrin 10% Multi-Purpose Insecticide Permethrin Martin's Horse & Stable Spray Vector-Ban Misting Insecticide for Residential Systems & Barns	53883-72	Control Solutions, Inc.	Permethrin	Swine

Potential products:

Examples of federally registered products labeled for control of blow flies.

Product Name*	EPA Reg Number	Registrant	Active Ingredient(s)	Applicable Labeled Use Site(s)
Tempo® SC Insecticide Alternate brand name: Tempo® SC Ultra Insecticide	101563-86 (transferred from 432- 1363)	Environmental Science U.S., LLC	Beta-cyfluthrin	Inside and outside livestock and poultry housing and pet kennels
Pestie Home Barrier E1	100947-2	Pestie, Inc	Esfenvalerate Prallethrin Piperonyl butoxide	Inside and outside livestock and poultry housing
F7180-13 Insecticide	279-3635	Environmental Science U.S., LLC (Sold by FMC Corporation)	Acetamiprid	Inside stables, livestock and poultry housing, loafing sheds, milk rooms, rabbit houses, research animal areas, animal transport vehicles, slaughterhouses, aviaries, and zoos
PT® Alpine® II Pressurized Fly Bait	7969-429	BASF Agricultural Solutions US LLC	Dinotefuran	Inside livestock and poultry housing
DeltaGard Fly Insecticide Alternate brand names: DeltaGard Fly Space Spray	432-1602	Environmental Science U.S., LLC	Deltamethrin	In and around livestock and poultry housing and ranges, animal quarters, and zoos

Currently available products (Sept. 2025)

Product Name*	EPA Reg. Number	Registrant	Active Ingredient(s)	Applicable Labeled Use Site(s)
CT Residual Spray	47000-100	Chem-Tech, Ltd.	Permethrin	Beef cattle, dairy cattle, horses, sheep, goats, swine
Bull Run Fly Attractant <i>Alternate brand names: Bull Run Large Fly</i>	84565-2	Bull Run Scientific, VBT	Sucrose Indole Yeast Egg solids Trimethylamine	Trap attractant
Fly Attractant-1 <i>Alternate brand names: Disposable Big Bag</i>	84565-8	Bull Run Scientific, VBT	Sucrose Indole Yeast Egg solids Trimethylamine	Trap attractant
F6570 EW Master Insecticide	101563-304	Environmental Science U.S., LLC	Zeta- Cypermethrin	Around structures, lawns
F6578 EW Insecticide	101562-306 (transferred from 279-3349)	Environmental Science U.S., LLC	Zeta- Cypermethrin	Indoor areas
EP152 EW Insecticide	101563-358	Environmental Science U.S., LLC	Zeta- Cypermethrin	Outside surfaces of buildings, perimeter treatments, lawns

Currently available products (Sept. 2025)

Product Name*	EPA Registration Number	Registrant	Active Ingredient(s)	Applicable Labeled Use Site(s)
Fyfanon® ULV AG	279-3540	FMC Corporation	Malathion	Pasture and rangeland
Claire® Bed Bug, Lice and Dust Mite Spray	706-110	PLZ Corp	Permethrin	Beef cattle, horses, sheep
PRAMEX® Multi-Use Insecticide Spray 30231	1021-2685	McLaughlin Gormley King Company, D/B/A MGK®	Permethrin	Beef cattle, horses, sheep
887 Multi-Use Insecticide Spray	10900-86	Sherwin-Williams Consumer Brands Group	Permethrin	Beef cattle, horses, sheep
Co-Ral® Coumaphos Flowable Insecticide	11556-98	Elanco US, Inc.	Coumaphos	Beef cattle, non-lactating dairy cattle, horses
Permethrin Insecticide Spray				Beef cattle, dairy cattle, sheep, goats, hogs, and horses
Alternate brand name: Catron® IV	11556-171	Elanco US, Inc.	Permethrin	
Eradicator II Multi-Purpose Insect Spray	44446-80	QuestSpecialty Corporation	Permethrin	Beef cattle, horses, sheep

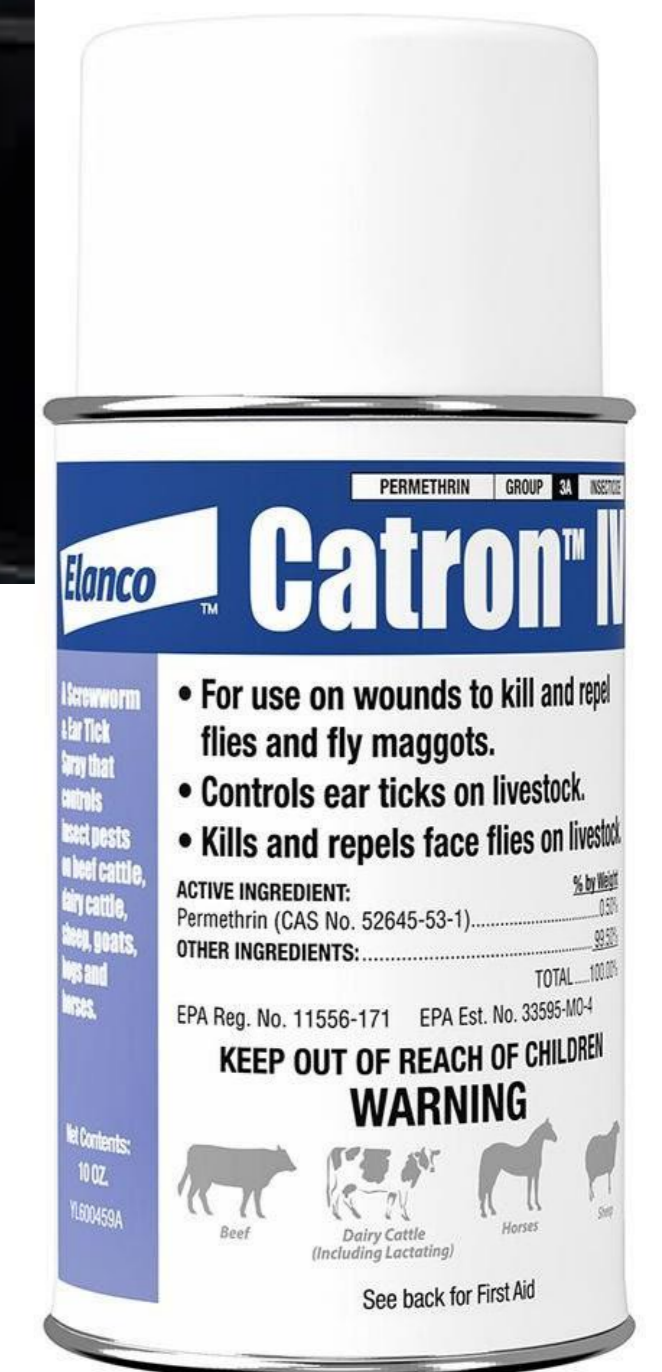
Botanicals: Not a good track record- worth the risk???

Examples of minimum risk pesticide products labeled for control of flies (adults) or flying insects

Product Name*	Company	Active Ingredient(s)	Applicable Labeled Use Site(s)
Essentria® IC Pro	Central Life Sciences	Sodium lauryl sulfate Geraniol Clove oil Cornmint oil	Agricultural buildings, barns, dairy foundations, livestock facilities, trucks, trailers
Arkion Fly and Tick Spray	Arkion Life Sciences	Castor oil Geraniol Clove oil Peppermint oil	Beef cattle, dairy cattle, horses, and surrounding areas

Products – Approved and Indicated for NWS

- See APHIS list
- 2 products
 - **Coumaphos** (restricted use formulation; organophosphate)
 - **Permethrin** (various sprays; pyrethroid)
- Therapeutic (treat infestation)
 - Rapid effect
 - Less effective on deep wounds or larvae pockets
- Residual activity
 - 10 to 20 d or 'up to 4 wks'
 - Residue on hair and skin



Management (IPM)

- Well managed operations have fewer issues (reports from S. and C. America)
- Routinely inspect livestock for maggots
- Prevent wounds
 - Facility Maintenance to prevent injury
 - Attention to production practices like ectoparasite management – tick bites allow oviposition
 - Timing and observation/follow-up of other practices
- Treat wounds promptly
 - Treat umbilicus of all newborns and all other animals' wounds with products to hasten drying and healing
 - Use pesticides appropriate for NWS
 - Catron IV
 - Screwworm fly spray
 - ProZap Screw Worm Aerosol



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**Report any mammals or birds
(wild, livestock or
domesticated) that have signs
of**

- Irritated behavior,
- head shaking,
- Smell of decay but alive,
- Evidence of fly strike and/or the presence of fly larvae (maggots) in wounds



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Monitoring and planning



Photo: Denise Bonilla, USDA

Monitoring wounds is key to keeping NWS in check. Must be made a daily part of activities on ranches

Develop a plan for different activities

Dehorning, castration, birthing – what are the protocols that will be followed.

Employee training

Direct assignments with employees held responsible for animal health

Are animals approachable and accessible for evaluation?

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Be proactive, rather than reactive



- What activities can be avoided that will lead to wounds (facility maintenance, aggressive dogs, animal handling, sire choices)
- Can animals be **pre-treated with a systemic insecticide to prevent infestations** (i.e. at castration or dehorning)?
- Are facilities capable of holding and treating animals for easy access?
- Is animal disposition such that they can be worked without further injury?
- Level of veterinary care available?
- Are treatment products on-hand?
- Delays in treatment can be fatal.

Gather resources

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The screenshot shows a web browser window with the URL agriflifeextension.tamu.edu/new-world-screwworm. The page features a dark navigation bar with the Texas A&M AgriLife logo, a 'tamu.edu' link, and links for 'Staff Directory', 'Contact', and 'Giving'. A 'SITE SEARCH' field is also present. Below the navigation bar is a main menu with links for 'ABOUT', 'NEWS & EVENTS', 'PROGRAMS & SERVICES', 'EDUCATIONAL MATERIALS', 'EXTENSION TOPICS', and 'COUNTY OFFICES'. The main content area has a dark red background with a topographic map pattern on the left, where the text 'NEW WORLD SCREWORM' is displayed in large white letters. On the right, there is a close-up photograph of a screwworm fly on a green leaf. A red 'Feedback' button is visible in the bottom right corner of the image area.

NEW WORLD SCREWORM



Feedback

STAY INFORMED

- [Texas A&M AgriLife Experts Draw on Past Success to Tackle Screwworm](#)
- [Uvalde County New World](#)

In response to the increased activity in Mexico regarding New World screwworm, Texas A&M AgriLife brings together its research, teaching and extension expertise to help



Suspected Cases

Immediate Actions

If you suspect screwworm infestation:

- 1. Contact Authorities:**
 - Texas Animal Health Commission (TAHC) for livestock and pets: [800-550-8242](tel:800-550-8242)
 - Texas Parks and Wildlife Department (TPWD) for wildlife: [512-389-4505](tel:512-389-4505)
- 2. Notify your private veterinarian.**
- 3. Do not delay reporting.** Early detection limits spread and minimizes long-term consequences.
- 4. Contact Texas A&M AgriLife Extension Agent**

It is mandated by law to collect and submit the maggots for identification to USDA's National Veterinary Services Laboratory in Ames, Iowa.



TEXAS
ANIMAL HEALTH
COMMISSION

Report Suspicions to a TAHC Region Office

AMARILLO REGION 806.641.7000

REGION MANAGER, TY MCCOY

BEEVILLE REGION 361.358.3234

REGION MANAGER, TY BILLINGS

GIDDINGS REGION 979.212.5440

REGION DIRECTOR, DR. RICHARD MYRICK

REGION MANAGER, RYAN BROCKENBUSH

LAREDO REGION 956.568.5741

REGION DIRECTOR, DR. SANDRA LEYENDECKER

REGION MANAGER, RENE GARZA

CATTLE FEVER TICKS MANAGER, ELI BENAVIDEZ

STEPHENVILLE REGION 512.556.6277

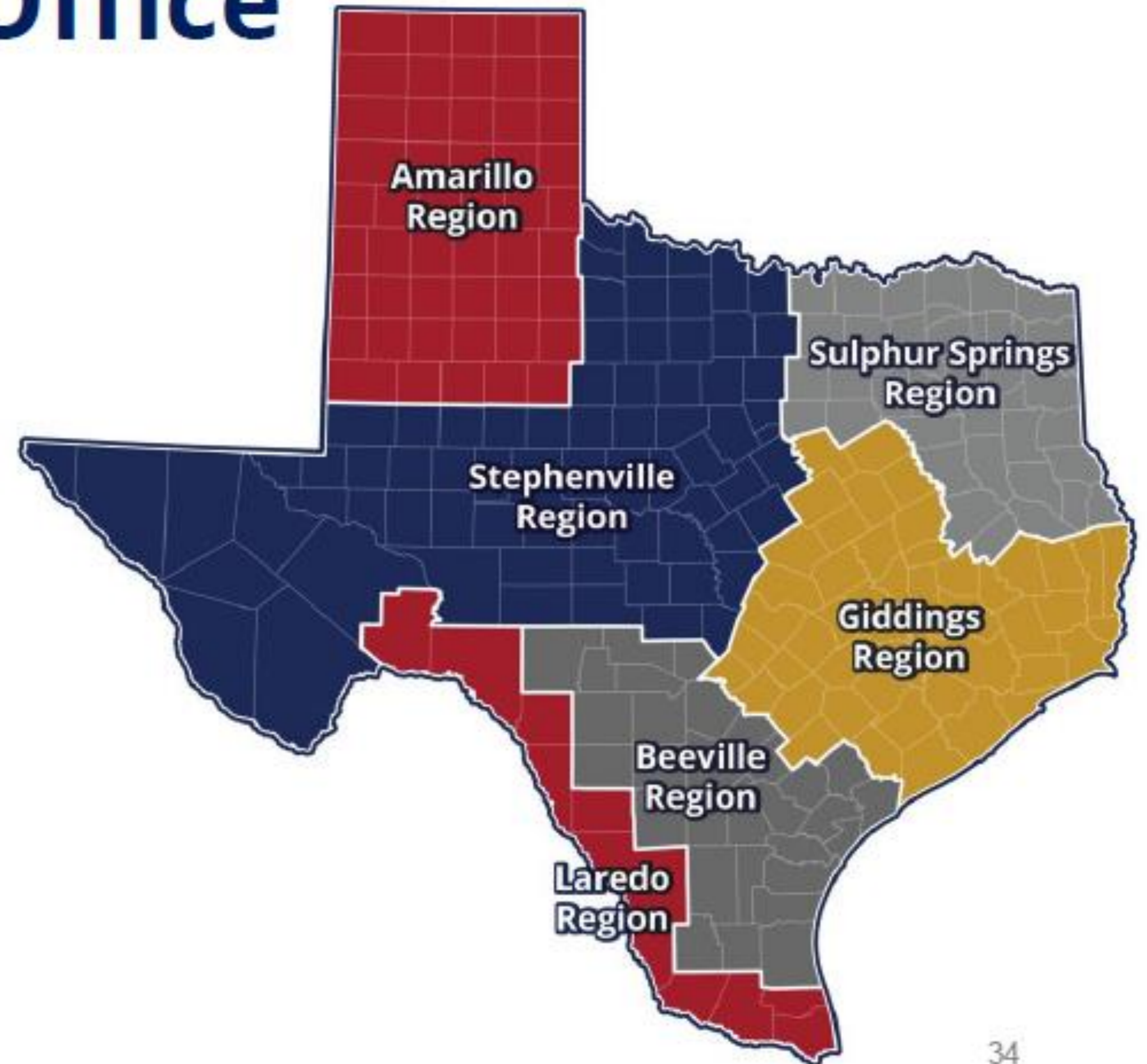
REGION DIRECTOR, DR. DUSTIN DORRIS

REGION MANAGER, TREVOR POWE

SULPHUR SPRINGS REGION 903.919.3748

REGION DIRECTOR, DR. HANK HAYES

REGION MANAGER, BILL CURRY



New World screwworm

Phillip Kaufman¹, Sonja L. Swiger¹, Andy Herring²

Background

The New World screwworm (NWS, *Cochliomyia hominivorax*) is a parasitic fly native to the Western Hemisphere. It lays eggs in the living tissue of fresh wounds in warm-blooded animals. The larvae (maggots) feed on the host's flesh, causing severe wounds and often death if untreated. The pest was eradicated in the U.S. in the 1960s. Since then, it occasionally reemerges and has resurfaced in Central America and Mexico. They are controlled only through the release of sterile males, known as the sterile insect technique (SIT). This approach, along with regular active surveillance and livestock inspections, has proven highly successful. As of May 2025, renewed attention to this parasite is crucial, as it may pose future risks to livestock and wildlife.

Signs of New World screwworm in animals

The name screwworm refers to the feeding behavior exhibited by the maggots as they burrow (screw) into the wound. These maggots and their feeding cause extensive damage by tearing at the hosts' tissue with sharp mouth hooks. The wound will become larger and deeper as more and more eggs hatch and larvae feed on the living tissue. This results in serious and often deadly damage to the animal if not discovered and treated.



Figure 1. Screwworm infestation in dog

Continual and regular monitoring and evaluation of all livestock are important for herd and flock biosecurity and health considerations. Producers should be alert for possible signs associated with potential infestation including:

- Foul-smelling wounds with visible maggots
- Animals biting or licking at wounds
- Lesions in navels, ears, dehorning or branding sites
- Unusual restlessness or lethargy



Figure 2. Screwworm larva

In the New World screwworm, the larval stage (Figure 2) is responsible for inflicting significant injury and economic loss. These larvae inhabit the wounds of living animals, where they cause extensive tissue damage. Mature larvae can reach 17 mm in length (2/3 of an inch) and have spines that protrude from the body and wrap around in a spiral giving them the name screwworm. Official identification of larvae is based largely on the presence or absence of dual internal breathing tubes. Confirmation of the fly identity can be determined only by a trained individual. Specimens must be submitted to Texas Animal Health Commission.

Suspicious cases must be reported

Immediately isolate any suspected animals and contact:

- Your local veterinarian
- Texas Animal Health Commission: 1-800-550-8242
- U.S. Department of Agriculture Veterinary Services: (512) 383-2400

To prevent unintentional spread, avoid transporting any suspected animals until advised.

Thank you!



Website

<http://livestockvetento.tamu.edu>

<https://agrilifeextension.tamu.edu/new-world-screwworm/>

Rules & Regulation

- Label violations in food animals
 - Food products 'unsafe', 'adulterated'
 - Condemned, cannot enter food chain
 - Violative residues are evaluated in commercially processed animals
- Challenge with harvested wildlife
 - Must meet withdrawals, other label requirements
 - Approvals typically require extended withdrawal, proof of target delivery



Resistance

- Pesticide/Drug resistance a persistent concern
- Can develop in non-target, but other important pests
- Must consider spectrum of use and indication
- Resistance profile may be unique to a particular or local population...or widespread?
- Resistance is hastened by...
 - Sub-therapeutic dosage
 - Continuous exposure
 - Persistent use of single molecule
 - Faster generation turnover
- Can be slowed or reversed by...
 - Product rotation
 - Periodic withdrawal
 - Multiple unexposed generations

US Livestock Approved – No NWS Indication

- Extra-label use, or ancillary benefit?
- Likely already in use as part of base parasite control program
- Veterinary engagement important (and part of BQA requirement)
- Know what to ask!

US Livestock Approved – No NWS Indication

- Other EPA registered products
 - Other organophosphates, such as diazinon, pirimiphos
 - Other pyrethroids, such as zetacypermethrin, lambda-cyhalothrin
 - May be in sprays or ear tags
- Abamectin
 - Only EPA registered macrocyclic lactone
 - In US only available in eartags
- Few with demonstrated efficacy
 - 1970-'s, successful use of OP tags to control ear ticks; resulted in 100% control of NWS
- Most products in these classes are associated with rapid resistance development
- Ear tags have long duration...for some indications
- Feed through IGR unlikely to have efficacy for NWS

US Livestock Approved – No NWS labeled use

- Macrocyclic lactones
 - Milbemycins (moxidectin)
 - Lower efficacy against insects and larvae
 - Demonstrated lower efficacy against NWS
 - Avermectins
 - Abamectin
 - Doramectin, ivermectin –
 - Both initially highly effective
 - Both excreted in milk
 - Doramectin longer duration of control
 - Efficacy is highly suspect and not reported widely
 - Eprinomectin – few reports, lower duration for OWS

International Use – Not Approved/Available

- Isoxazolenes
 - This class used in pets in US
 - Includes fluralaner (Bravecto), esafoxalaner, lotilaner, sarolaner
 - Only fluralaner used in livestock (Exolt; Brazil MX, Aus)
 - 100% effective to d 7 for prevention; therapeutic effect by d 3
 - Total duration unknown (CFT >42 d)



International Use – Not Approved/Available

- Benzoylureas
 - Fluazuron and navaluron (Brazil and Australia) used for tick control.
 - Demonstrated efficacy against NWS, limited published data
- Pyrimidines
 - Dicyclanil (CLiK) is marketed for blowfly strike (wool maggots) in sheep in Aus, NZ (at least).
 - For direct wound treatment in cattle, over 93% efficacy to d 25 (Argentina, 1998)
 - For OWS (Australia, 2014) and flystrike (S. Africa, 2000) 100% preventive efficacy for up to 9 weeks, over 80% by 25 wks



International Use – Not Approved/Available

- Phenylpyrazole
 - Fipronil (Frontline for pets in the US) pour on formulation (Topline) available internationally
 - Preventive efficacy of 95% up to 17 d following castration, dropping to 50% by d 28.
 - 100% efficacy in therapy within 3 d
 - Withdrawal varies from 25-148 days (Brazil, pour on) and 10-50 for spray, no dairy use.
- Others...
 - Several other combinations products, varied formulations (higher concentration, typically)
 - Notable – Spinosad, Negusant (coumaphos + propoxur). Both proven effective, therapeutic.





Products used in Costa Rica Pacto (orange bottle) curabichera (red bottle)

Silver sulfadiazine (antimicrobial)
Aluminum (AluShield: Protectant)
DDVP (organophosphate)
Cypermethrin (pyrethroid)

Pacto contains:
Chlorpyrifos (organophosphate)



Bactrovet Plata AM

Silver sulfadiazine (antimicrobial)

Aluminum (Protectant)

DDVP (organophosphate)

Cypermethrin (pyrethroid)



Wrapping Up

- Few products currently labelled in the US
 - Many developed after NWS eradication
 - Difficult to impossible to do domestic trials
- Several endectocides may have efficacy; unknown resistance profiles in emergent flies
- Part of a current program or specifically targeted?
 - If same route, dosage, etc., likely ancillary benefit