

Pest Control for Cattle

A guide to ectoparasites,
how they damage your cattle,
and how to effectively combat them.

Introduction

Knowledgeable cattle producers recognize proper management of external pests is critical for optimal animal production and animal welfare. Observing cattle routinely allows producers to recognize slight changes in behavior so they can stay ahead of any threats to the herd. External pests are one of those threats that require vigilance. The main external pests that attack cattle (flies, ticks & lice) are discussed in this brochure along with effective methods to control them.

Damage

Pests that attack cattle can cause a wide range of problems for the animal ranging from mild irritation to death. Persistent pest irritation may compromise animal performance. The chart below lists the damage external pests may cause cattle if left untreated.

1. Slowed growth
2. Decreased lactation
3. Disease transmission (Anaplasmosis, Cattle Fever & Blue Tongue)
4. Degraded hides
5. Anemia
6. Lower weaning weight
7. Increased risk of pink eye

Warning Signs

It's important for producers to look for any signs of pest invasion to stay ahead of the assault. Observable signs of pest invasion may include the following changes in animal behavior.

1. Tail twitching
2. Stomping
3. Rubbing/scratching
4. Hair loss/Dermatitis
5. Standing in groups (bunching)
6. Standing in water
7. Head swinging to dislodge pests for temporary relief

Flies

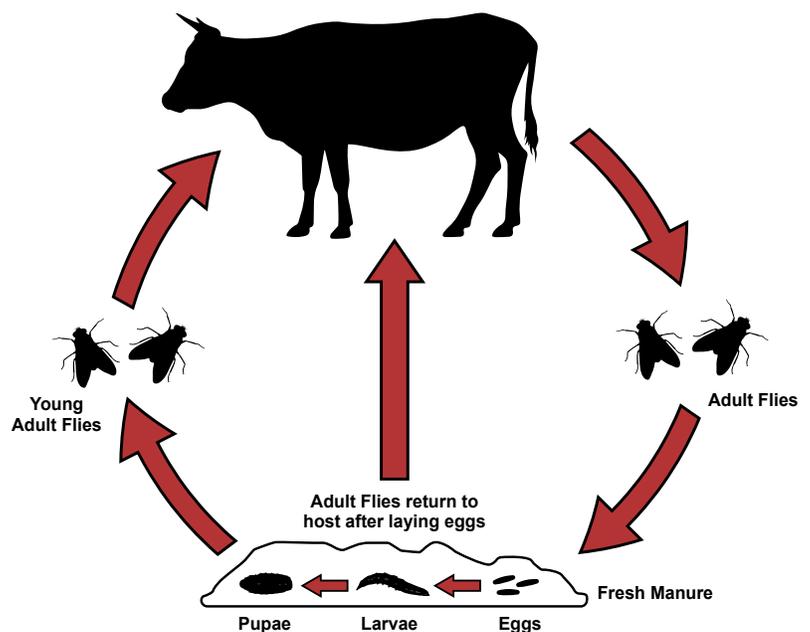
Cattle producers in the U.S. are typically most concerned about Horn Flies or Face Flies. In fact, recent studies estimate the Horn Fly is responsible for \$1 billion in damage to U.S. cattle annually.

Horn Flies are biting flies that are known to take a blood meal every 45 minutes. Control measures should be used to keep Horn Fly counts below the economic threshold of 200 flies per animal. The life cycle of the Horn Fly can be completed in just 7-10 days with their adult stage ranging from 4-6 weeks depending on weather and other factors. The female Horn Fly can produce 360 eggs in her lifetime.

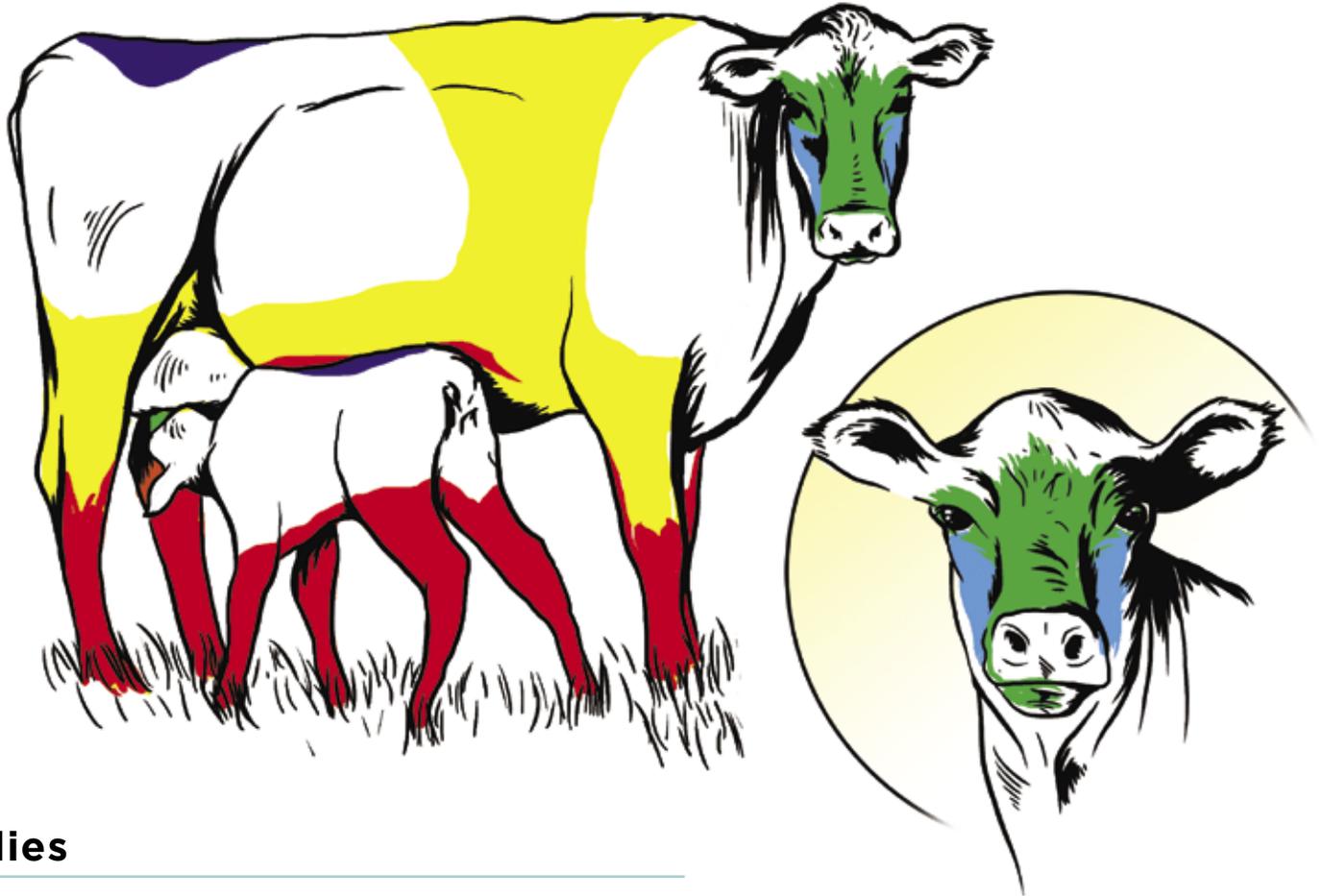
Face Flies are non-biting flies, but they still cause irritation impacting performance. Face Flies feed from moisture around the eyes and nose as well as manure and may transmit pink eye in cattle. Their life cycle can be completed in 10-15 days with their adult stage ranging from 2-3 weeks depending on weather and other factors. The female Face Fly can produce 250 eggs in her lifetime.

Fly Life Cycle

The life cycle of the Horn Fly and the Face Fly are very similar. Adult flies lay eggs in fresh manure. Eggs molt into larvae, then pupae, to emerge as young adults in 1-2 weeks.



Common Locations of Flies on Cattle



Flies



Horn Fly (*Haematobia irritans*)

- #1 problem fly in the U.S.
- Contribute to weight loss up to 50 lbs/head
- Disease vector
- Lays eggs in manure
- Completes life cycle in 2 weeks



Stable Fly (*Stomoxys calcitrans*)

- Contribute to weight loss up to 50 lbs/head
- Disease vector
- Can take 2-3 feedings per day
- Lays eggs in mixture of feed, hay and manure



Horse/Deer Fly (Various species)

- Painful bite
- Contributes to weight loss
- Disease vector



House Fly (*Musca domestica*)

- Transmits bacteria and viruses
- Major source of irritation and fly worry



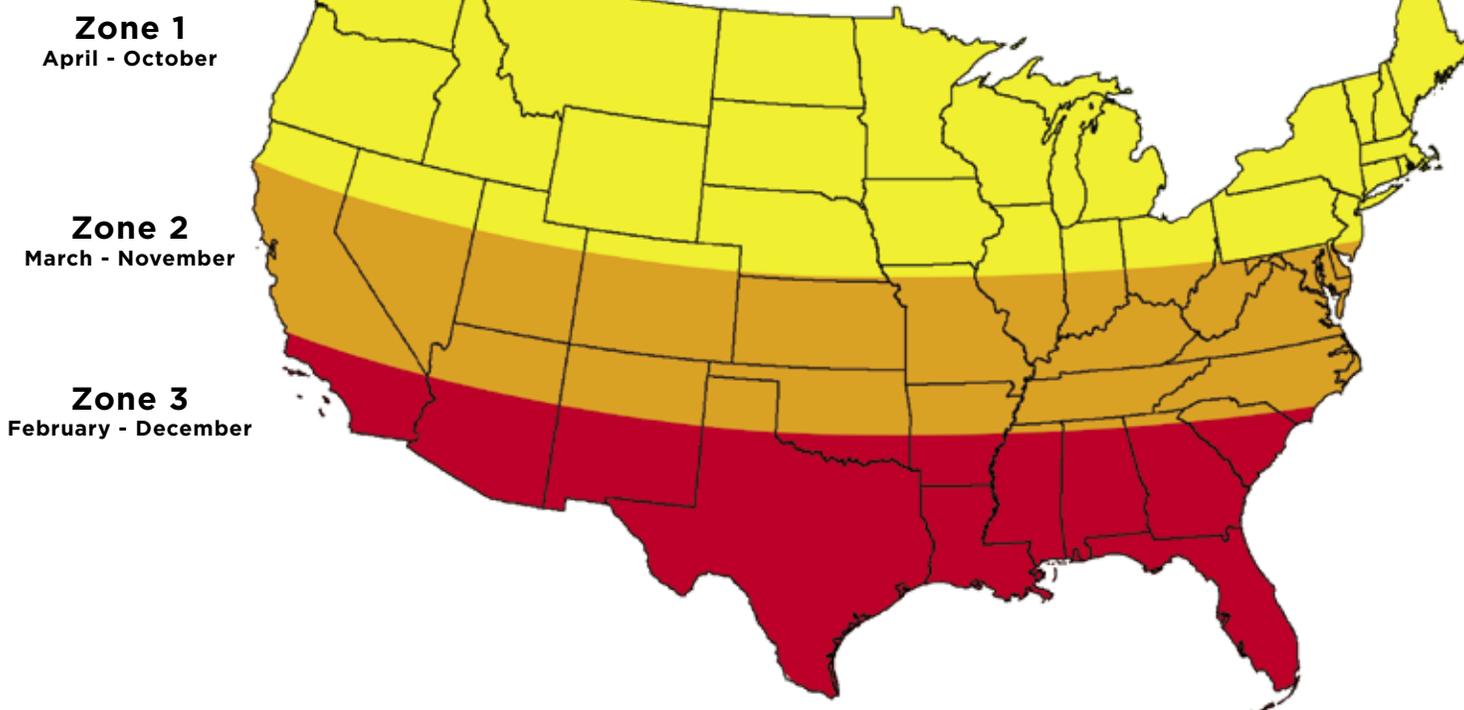
Face Fly (*Musca autumnalis*)

- Feeds on body fluids
- Transmits bacteria that may cause pink eye
- Congregates around wounds, eyes & nose

U.S. Fly Zones

The map below divides the U.S. into three fly control zones. Some of the southern parts of zone three may fight flies 12 months of the year. Producers should be thinking about pest control and which methods they intend to use year-round.

Pest Activity



Resistance Management

Combating resistance is part of an effective pest control strategy. Over the years Horn Flies have developed documented biological resistance mechanisms to pyrethroid and organophosphate insecticides and are therefore the main focus of resistance management. Researchers have proven that a properly implemented integrated pest management (IPM) program combats resistance, improves herd health and insecticide efficacy. An effective IPM program should contain the following controls;

1. Chemical – rotation of insecticides
2. Cultural – cleaning premises
3. Biological – fly predators and dung beetles

Economic Impact

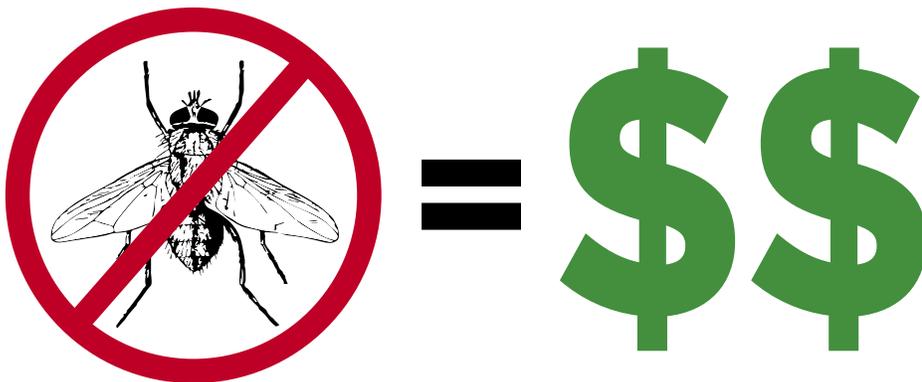


NMSU* Study Shows Value of Horn Fly Control in Cattle

A four-year study was conducted by researchers at New Mexico State University from 2013 to 2016 on rangeland cattle to assess the growth and reproductive performance of cows and calves infested with naturally occurring seasonal populations of Horn Flies versus those animals in an untreated control group. One hundred five Angus Hereford cow-calf pairs were evaluated as a randomized complete block that was replicated across the four years. Cows were randomly allocated to either an untreated control or an insecticide treated herd. The insecticide treatment regimen for the treated cows included Y-TEX XP820 Insecticide Ear Tags and BRUTE Insecticide Pour-on for Cattle when appropriate. Horn Fly populations were monitored throughout each yearly replication. Initial body weights of cows were collected in May with final body weights and calf weaning weights acquired in October of each year. Monthly Horn Fly control ranged from 85.5% to 99.6% throughout the four years.



Bottom Line Results

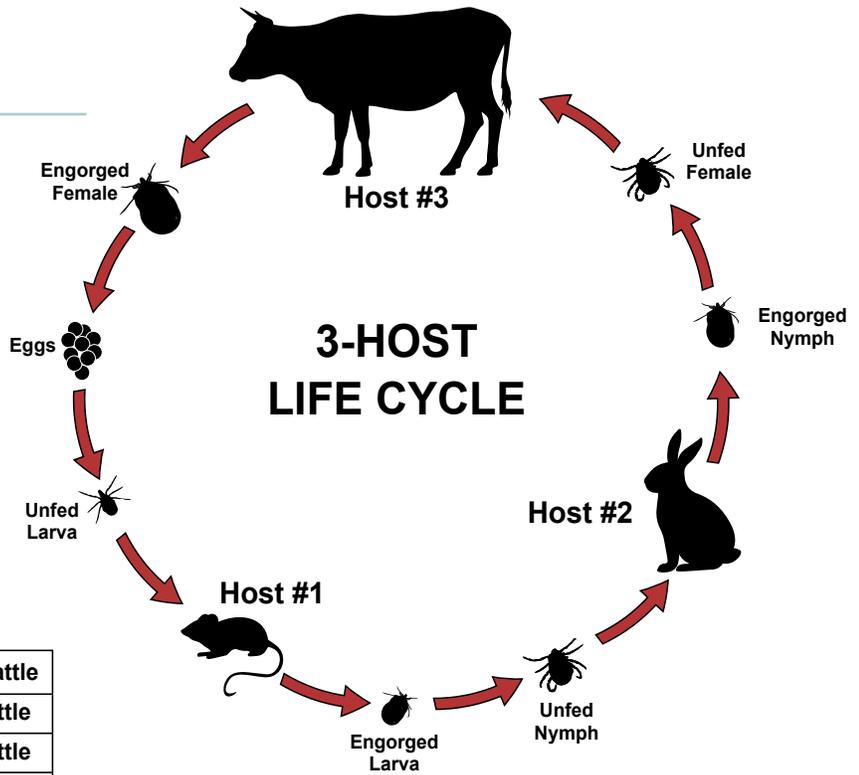


Calves paired with insecticide treated cows weaned **35.9** pounds heavier than calves paired with untreated cows and treated cows gained **60.8** pounds additional weight on average throughout the fly season when compared to untreated cattle.

*NMSU does not endorse or promote any marketed horn fly control product or formulation type.

Ticks

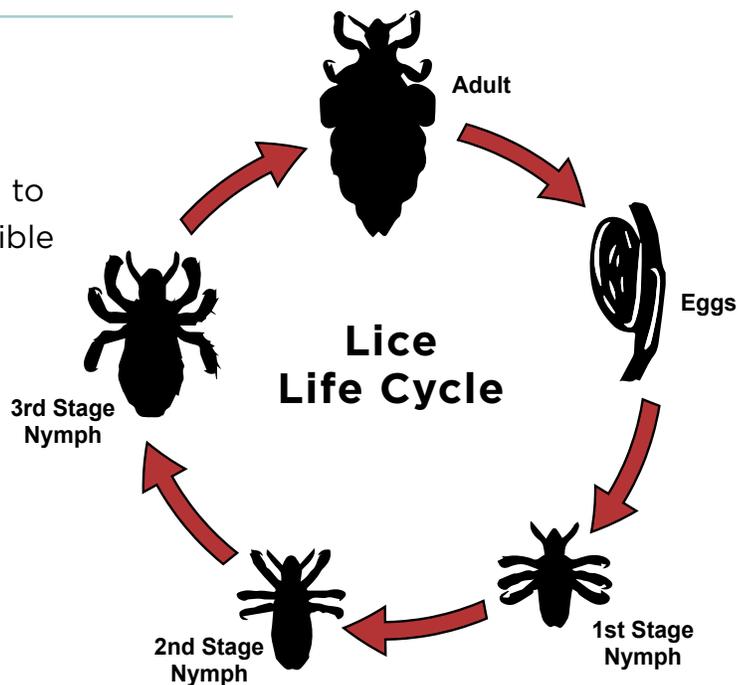
Ticks are blood sucking pests that can transmit disease, impact animal performance and damage hides and ears. Cattle producers are typically most concerned about Lone Star and Gulf Coast Ticks. Severity of infestations by species can depend greatly on geographic location. Ticks life cycle can transpire on one, two or three hosts.



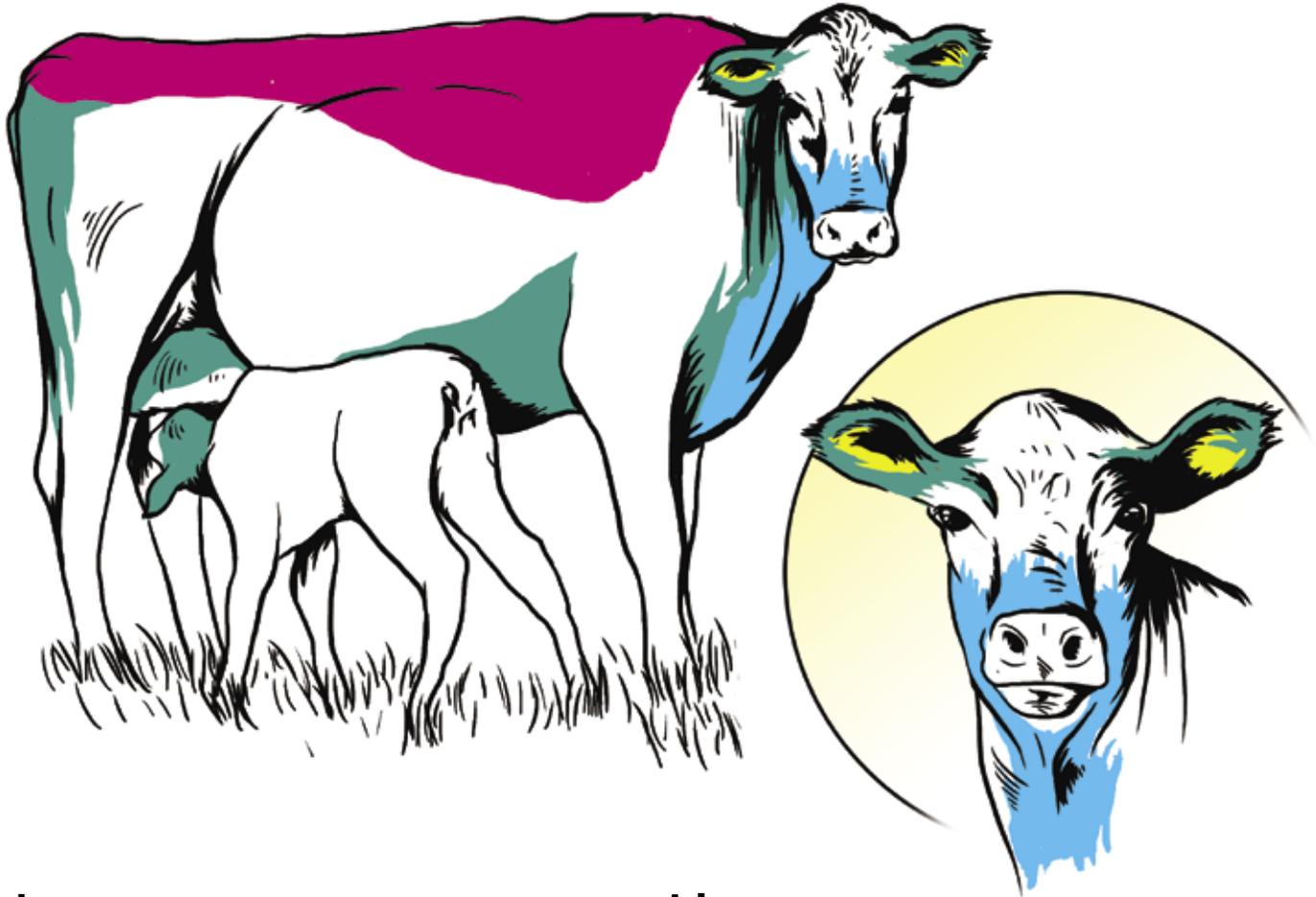
Lone Star	3 host tick	all phases may occur on cattle
Gulf Coast	3 host tick	adult stage primarily on cattle
American Dog	3 host tick	adult stage primarily on cattle
Cattle Fever	1 host tick	all phases on cattle
Spinose	1 host tick	all phases on cattle

Lice

Biting and sucking lice reside on cattle year-round but flourish in cooler temps when cattle hair grows thicker for winter protection. Severe infestations cause mild to extreme irritation and can lead to irreversible damage to the hide. Cattle producers typically use pour-on insecticides in the fall as a protection against lice or in the spring to treat infected animals. Infected cattle may cause damage to fencing and equipment as they seek relief from the pest.



Common Locations of Ticks & Lice on Cattle



Ticks

- Impede weight gain and milk production
- Contribute to Anemia
- Cause damage to ears and hides
- Transmit disease



Spinose Ear Tick
(*Otobius megnini*)
In ear canal only



Lone Star Tick (shown)
(*Amblyomma americanum*)
Gulf Coast Tick
(*Amblyomma maculatum*)
Cattle Fever Tick
(*Rhipicephalus annulatus*)
American Dog Tick
(*Dermacentor variabilis*)

Lice

- Impede weight gain and milk production
- Spend lifetime on animal
- Cause hide damage and hair loss
- Increase damage to fencing and facilities

Biting Lice



Cattle Biting Louse
(*Damalinia bovis*)

Blood Sucking Lice



Long-nosed Louse (*Lingonathus vituli*)
Short-nosed Louse
(*Haematopinus eurysternus*)
Little Blue Louse (*Solenopotes capillatus*)

The most common methods for controlling external pests are listed below.

Ear Tags

Insecticide Ear Tags provide the best return on investment for the cattle producer. Insecticide Ear Tags should be applied to be present on cattle when pest populations peak then removed at end of label claim period. Producers should rotate chemical class every year to keep pests from developing resistance mechanisms to the ear tags active ingredients.

Spray

Livestock sprays are commonly used by producers because of perceived value or preference to not run animals through a chute to apply insecticide ear tags. Sprays typically provide a few weeks control between applications. Producers will find best results when sprays are applied per label directions and with a pressurized sprayer.

Pour-On

Allows for a more precise application of insecticide for several weeks control. Products range from low concentration/high volume treatments to high concentration/low volume treatments. Dose is determined by animal body weight. High concentration treatments typically reduce run-off and provide longer control. To help keep Horn Flies and other pests in check, supplement your insecticide ear tag program with a pour-on treatment to extend fly control until the first killing frost and manage lice populations through the cooler winter months.

Backrubber/Oiler

Producer selects insecticide concentrate of choice and mixes it with mineral oil or diesel fuel for season long control. Most effective in forced-use situations where cattle must walk under the unit to get to water or mineral. Requires weekly maintenance.

Air Gun

Delivers capsule of concentrated insecticide for several weeks control of pests. Animals can be treated in the field without restraint.

Dust Bag

Producer hangs dust bag in restricted passage such as a narrow gate or doorway for season long control. Most effective in forced-use situations where cattle must walk under the dust bag to get to water or mineral. Requires weekly maintenance.

Oral

Insecticides can be added to feed or via bolus to disrupt the fly life cycle. If used properly the maggots developing in the manure will not reach adulthood. The biggest challenge with feed-through control is getting a balanced level of control in every animal. Additionally, producers must still address pests that may migrate to their herd from outside the controlled herd.

Biological

Parasitic Wasps and Dung Beetles are the most common forms of biological fly control for cattle. Requires optimal environmental conditions to be most effective.

All methods of control have features and benefits that may fit into the optimal IPM program for any given situation. Producers must monitor pest populations, know which pest they are targeting and observe the herd routinely to determine if what has been chosen is working or if changes are necessary.

Insecticide Ear Tag

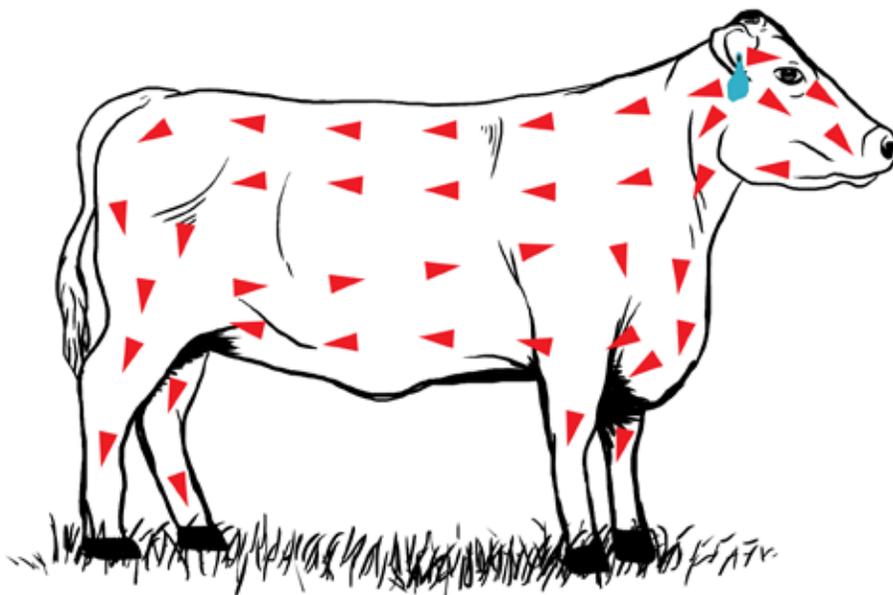


TRI-ZAP®
Insecticide Ear Tag

Insecticide Ear Tag

Insecticide ear tags for cattle are molded with a slow release, contact insecticide and are the most cost-effective pest control option for cattle. The insecticide starts to release from the tag when applied to the animal and small volumes are released constantly over the 3-5 month efficacy claim period.

The active ingredient is then transferred over the animal via their hair follicles and the natural grooming and contact habits within the herd. Due to the small doses released daily, active ingredients are not absorbed into meat or milk.



Insecticide Ear Tag Management

- Always read and follow label directions
- Tag every animal
- Use correct number of tags per head (1 or 2)
- Store and dispose of used tags per label directions
- Follow recommended insecticide ear tag rotation program getting neighbors to participate in like program
- Remove tags after 4-5 months or as tags lose control

Insecticide Ear Tags

Y-TEX offers cattle producers the most innovative insecticide tag formulations in many different chemical classes. Producers can choose from synergized pyrethroids, organophosphates, macrocyclic lactones or a combination of these active ingredients to fit their specific needs and budget.

TRI-ZAP®



9.5g

ACTIVE INGREDIENTS:	BY WEIGHT
Zetacypermethrin (F2700)	3.17%
Abamectin	6.00%
Piperonyl Butoxide	20.00%
OTHER INGREDIENTS	70.83%
TOTAL	100.00%

MAX40™



15g

ACTIVE INGREDIENTS:	BY WEIGHT
Diazinon (CAS #333-41-5)	40.00%
OTHER INGREDIENTS	60.00%
TOTAL	100.00%

**PYTHON II®
MAGNUM™**



15.4g

ACTIVE INGREDIENTS:	BY WEIGHT
Zetacypermethrin	
S-enantiomer S-cyano	5.00%
Piperonyl Butoxide	20.00%
OTHER INGREDIENTS	75.00%
TOTAL	100.00%

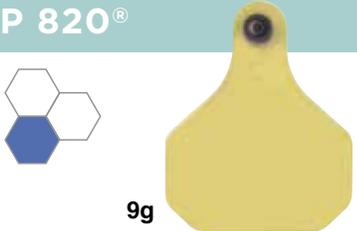
PYTHON II®



9.5g

ACTIVE INGREDIENTS:	BY WEIGHT
Zetacypermethrin	
S-enantiomer S-cyano	5.00%
Piperonyl Butoxide	20.00%
OTHER INGREDIENTS	75.00%
TOTAL	100.00%

XP 820®



9g

ACTIVE INGREDIENTS:	BY WEIGHT
Abamectin	8.00%
Piperonyl Butoxide	20.00%
OTHER INGREDIENTS	72.00%
TOTAL	100.00%

OPTIMIZER®



15g

ACTIVE INGREDIENTS:	BY WEIGHT
Diazinon	21.00%
OTHER INGREDIENTS	79.00%
TOTAL	100.00%

GARDSTAR®



9.5g

ACTIVE INGREDIENTS:	BY WEIGHT
Permethrin	10.00%
OTHER INGREDIENTS	90.00%
TOTAL	100.00%

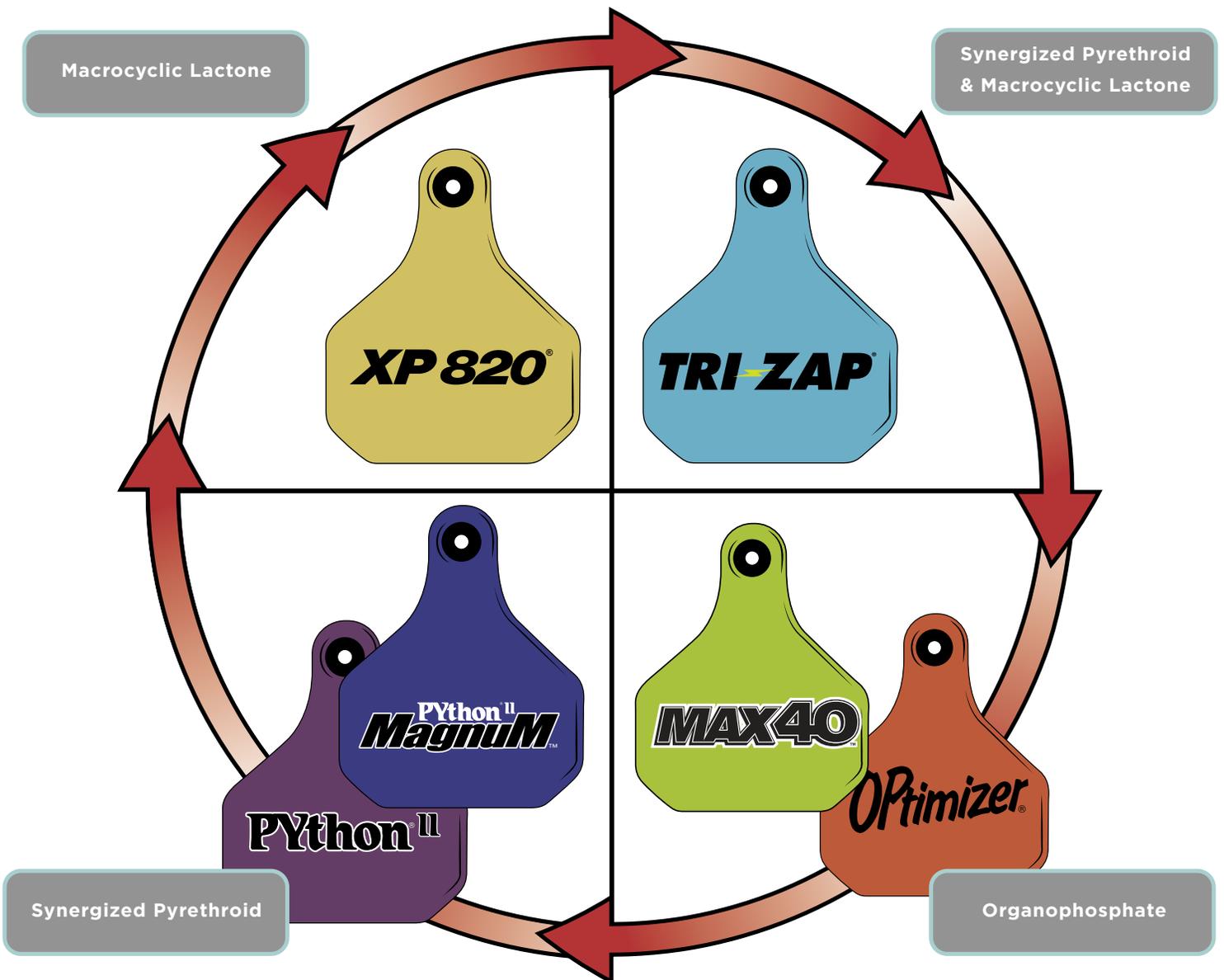
 = Organophosphate
  = Macrocyclic Lactone
  = Synthetic Pyrethroid

Insecticide Ear Tags

Tag Brand & Insecticide Chemical Class:	For Use On:	Controls or Aids in Control:			
		Flies	Ticks	Lice	
MAX40™ Organophosphate 	<ul style="list-style-type: none"> • Beef Cattle • Non-Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Calves over 3 months 	●	●	●
TRI-ZAP® Synergized Pyrethroid & Macroyclic Lactone 	<ul style="list-style-type: none"> • Beef Cattle • Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Non-Lactating Dairy Cattle • Calves (<i>any age</i>) 	●	●	●
XP820® Abamectin Synergized with Piperonyl Butoxide 	<ul style="list-style-type: none"> • Beef Cattle • Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Non-Lactating Dairy Cattle • Calves (<i>any age</i>) 	●	●	
PYthon II® MAGNUM™ Synergized Zetacypermethrin 	<ul style="list-style-type: none"> • Beef Cattle • Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Non-Lactating Dairy Cattle • Calves over 3 months 	●		●
PYthon II® Synergized Zetacypermethrin 	<ul style="list-style-type: none"> • Beef Cattle • Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Non-Lactating Dairy Cattle • Calves (<i>any age</i>) 	●	●	●
Optimizer® Organophosphate 	<ul style="list-style-type: none"> • Beef Cattle • Non-Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Calves over 3 months 	●	●	●
GardStar® plus Pyrethroid 	<ul style="list-style-type: none"> • Beef Cattle • Lactating Dairy Cattle 	<ul style="list-style-type: none"> • Non-Lactating Dairy Cattle • Calves (<i>any age</i>) 	●	●	●

Insecticide Ear Tag Rotation

Stay one step ahead of pest resistance by rotating to a tag in a different chemical class each year. Organophosphate, Synergized Pyrethroid and Macrocylic Lactone are all effective in controlling pests but continued use of one insecticide class over two or more seasons can allow resistance to develop to that particular chemical class.



Insecticide Products

In addition to ear tags, the following products from Y-TEX should be used to effectively fight external pests on cattle.

Pour-On



Pint

Gallon



BRUTE® is a highly concentrated (10% permethrin) “ready to use” pour-on insecticide in a rain resistant oil-based formula that provides up to 6 weeks control of Horn Flies with one application. Only 15 milliliters required per head. One gallon treats 252 1,000 lb. cows or 504 500 lb. calves. Also effective against Lice, Face Flies, Stable Flies, Horse Flies, Deer Flies, House Flies, Black Flies, Mosquitoes and Ticks. No milk or slaughter withdrawal required. Available in gallon or pint bottles.

- Beef and dairy use
- Ready to use concentrate
- No withholding period
- Safe for lactating cows
- Gallon treats 252 head
- Pint treats 32 head
- Use to extend pest control before and after tag use

Concentrate



4 oz.

Quart

GardStar® 40% EC is a highly stable and highly concentrated (40% permethrin) broad spectrum emulsifiable concentrate insecticide with multiple pest treatment possibilities around the farm. GardStar 40% EC can be mixed with water or oil. Mix with water to be used as a cattle spray or premise spray or with oil or diesel fuel in cattle oilers and backrubbers. Approved for beef and dairy cattle with no milk or meat withdrawal required.

- Beef and dairy use
- No meat or milk withdrawal
- Broad spectrum concentrate
- Dilute to control numerous pests
- Can be used as a cattle spray or in an oiler or backrubber

Dust



PYthon II® Dust is an exclusive formulation that contains a flow control agent to deliver a consistent supply of insecticide and will not harden in dust bag if it gets wet. It is the first “ready to use” synergized insecticide dust for season long control of Horn Flies, Face Flies, Stable Flies, Ticks, Keds, Lice and other nuisance flies. Approved for use on beef and dairy cattle. Available in Dust Bag Kits, 12.5 lb. refills and 2 lb. shaker cans.

- Beef and dairy use
- Can be applied to any age of animal
- Odorless formulation
- Low toxicity formulation – does not irritate the skin

About Y-Tex

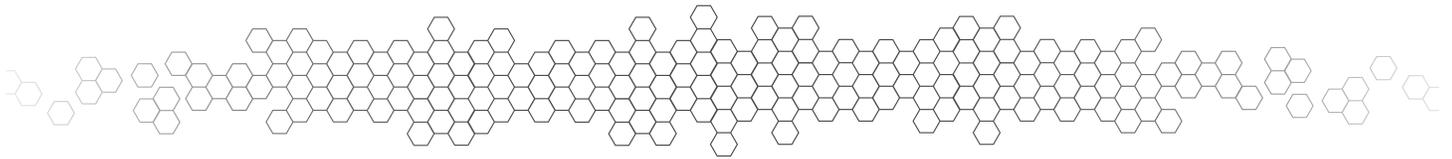
Millions of cattle are treated with Y-TEX products every year. As a global leader in ectoparasite control for cattle, Y-TEX has been providing effective animal management solutions for livestock producers for more than 50 years. Over this period more than 200 product trials have been conducted on insecticide ear tags alone. The products offered by Y-TEX are regulated by the United States Environmental Protection Agency and approved for use on animals when used as directed.

The science behind the products is led by Dr. Mike Fletcher. Dr. Fletcher has been developing ectoparasite control products for Y-TEX since 1993. He recently received the prestigious Industry Appreciation Award from the Livestock Insect Workers Conference in 2018 in recognition of his outstanding contributions to animal health and productivity.

The products discussed in this brochure can be found where you currently buy animal health products. More information on these products, including a retailer near you, can be found at www.ytex.com.



Notes:



Y-TEX[®]

EXCELLENCE IN ANIMAL HEALTH[™]

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