

## Special Interest Articles:

- Texas Leaf Cutter Ants
- Fall Parasite Control
- Ear Tag Removal
- Tick Transmitted Piroplasmiasis in South Texas



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## Insect Updates

### Texas Leaf Cutter Ants are everywhere

I have now been in Texas for 15 months and starting to finally get comfortable with the insects, but all of sudden the Texas leaf cutter ant makes its presence known.

This is an ant I was very unfamiliar with a few months back but throughout the summer I have been asked almost a dozen times how to control them; reason why they are the special insect of the month.

The Texas leaf cutting ant, *Atta texana*, is one of the many ants of the family Formicidae. They live in

large colonies and cut the leaves from a variety of plants. They damage many types of plants (weeds, grasses, plum and peach trees, etc) by removing leaf fragments that are brought back to the mound to grow fungus, which they feed upon.

These ants have been found to not respond well to baits and other methods of control. The only bait currently on the market that works against them is Amdro<sup>®</sup> Ant Block. This product can be used on most sites. One application is only 30% effective and follow-

up applications may be needed.

In the mean time the plants need to be protected by using a powder or granular formulation of a contact insecticide like acephate (Orthene<sup>®</sup>), carbaryl (Sevin<sup>®</sup>), or permethrin. All of these treatments will need to be reapplied frequently until the infestation is gone.



### Cattle Fever tick Update & Tropical Bont Tick

The cattle fever tick infestation numbers along the U.S.-Mexico border in Texas were sharply higher this year (Oct 08 – Sept 09, per TAHC).

Twenty-seven percent of this year's outbreaks were located in the "Tick Free Area" outside the Quarantined Zone. Sixty-five percent of the infested premises have been in Zapata County, despite Falcon Lake along its border.

In addition to the return of the cattle fever tick, the tropical bont tick has re-established itself once again on St. Croix, U.S. Virgin Islands. This tick is the vector of the organism that causes heartwater in cattle and other ruminants.

Heartwater is a very detrimental disease that is characterized by fluid in the pericardium of the heart, high fever, lung edema and

nervous symptoms. Recovery from this disease is rare and becomes acute in 2-6 days. Control and prevention is achieved by tick eradication.

Many are concerned about this tick arriving in the US due to the increased interest in the St. Croix Senepol breed of cattle. Eradication efforts are being re-established.

### Grasshoppers can transmit VSV

Researchers at ARS in Wyoming have proven that grasshoppers are capable of acquiring vesicular stomatitis virus (VSV) from rangeland plants and then transmitting this on to livestock.

VSV can be transmitted to cattle, horses and other hoofed mammals. It is a rarely fatal virus that causes painful blisters and is easily spread from animal to animal during an outbreak.

After a recent outbreak this year, scientist showed rangeland plants harboring the virus for 24 hrs and grasshoppers acquiring it during this time.

## Cattle Care

### Fall Parasite Control



*"Choose a product that controls the parasite you have and is a trusted manufacturer with 100% satisfaction."*

Fall is an appropriate time to treat cattle for parasites. After many summer months out in the pastures where parasites have built up, fall cattle work becomes ideally timed in preparation for winter.

Controlling internal and external parasites in the fall sets calves up for more efficient weight gain and

better overall health as they transition to the feeder or heifer development stage.

Left unchecked, parasite infections will cause reduced weight gains, inefficient feed conversion and increased incidence of disease – all which quickly chip away at profits; thus, making it a bad idea to skimp on parasite control when margins are tight.

Controlling parasites also gives cows a much-needed boost as forage quality declines in the fall and they are struggling nutritionally. Parasite loads make it difficult for cattle to make the most benefit out of the feed, they decrease appetite and have a negative effect on nutrient utilization and hamper immune response.

#### EAR TAG REMOVAL

Ear tags are designed to emit large amounts of insecticide when first applied. As the season progresses, less insecticide is emitted until the tag is empty.

Horn flies that remain late in the season are exposed to the low levels of insecticide that are not adequate to kill them. These horn flies can develop enzyme systems that breakdown the insecticide, pyrethroids in particular. These flies do not die but go on to develop new generations that have the ability to breakdown the insecticide; then next year the population has the same breakdown ability and 6 to 8 weeks into the season there is a resistant population.

Low level of exposure can be reduced by removing last season's tags during fall processing, after the fly season is winding down or over, eliminating one of the resistance development concerns.

## Deworming in the Fall Pays Dividends

In the South, fall is the optimum time for parasite development followed by the cooler winter grazing period and the inhibition occurs during the longer, very warm and dry summer.

Using a dewormer at that optimum time of development

ensures more return on investment.

Frost has been found to be ineffective at killing larvae in pastures like once thought, therefore transmission can occur in the winter and action is needed.

Fall deworming is for internal parasites *Ostertagia*, *Haemonchus*, and *Cooperia*. Lice are the external parasites that should be targeted. As well as flukes if they occur in your area – treat between Sept & Nov with a flukicide.

## Pesticides Update/Outlook

### EPA Launches New Web Page for Consumers

Environmental Protection Agency (EPA) has launched a new Web page containing product information on certain skin-applied insect repellents. EPA's goal is to provide the public with information on registered insect repellents and their effectiveness claims in a clear, consistent, and user-friendly format.

"EPA's release of information on the effectiveness of insect repellents will help American consumers select the right

product for their needs and protect themselves and their children from potentially devastating diseases spread by mosquitoes and ticks, such as West Nile virus and Lyme disease," said Steve Owens, assistant administrator for EPA's Office of Prevention, Pesticides and Toxic Substances.

The new Web page contains two tables

listing insect repellent products that are registered by the agency: those that control mosquitoes and ticks, and those that only control mosquitoes. The Web page also contains information on vector-borne diseases such as West Nile virus and Lyme disease, and the importance of personal protection measures.

<http://www.epa.gov/pesticides/health/mosquitoes/insectrp.htm>

## Carbaryl Request to Voluntarily Cancel Pesticide in Pet Collars

In accordance with section 6(f)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, EPA is issuing a notice of receipt of a request by the registrant to voluntarily cancel their registrations to terminate uses of

pet collar products containing the pesticide carbaryl.

The request would terminate carbaryl use in or on pet collars for domestic pets, and would terminate the last carbaryl pet products

registered for use in the United States.

<http://www.epa.gov/fedrgstr/EPA-PEST/2009/October/Day-21/p24897.htm>

## New Pesticide Labeling to Control Spray Drift and Protect Human Health

EPA has rolled out proposed guidance for new pesticide labeling to reduce off-target spray and dust drift. The new instructions, when implemented, will improve the clarity and consistency of pesticide labels and help prevent harm from spray drift. The agency is also requesting comment on a petition to evaluate children's exposure to pesticide drift.

In addition to the draft notice on pesticide-drift labeling, EPA is also seeking comment on a draft pesticide drift labeling interpretation document that provides guidance to state and tribal enforcement officials.

In a second Federal Register notice, EPA is also requesting comment on a petition filed recently by environmental and farm worker organizations.

The petitioners ask EPA to evaluate children's exposure to pesticide drift and to adopt, on an interim basis, requirements for "no-spray" buffer zones near homes, schools, day-care centers, and parks.

EPA will evaluate this new petition and take whatever action may be appropriate after the evaluation is complete.

<http://www.regulations.gov>

## Human & Animal Disease & Health

### Tick Transmitted Piroplasmiasis in South Texas

The tick-borne disease equine piroplasmiasis was confirmed on a ranch in South Texas in Oct.

Equine piroplasmiasis affects horses, donkeys, mules or zebras and causes clinical signs common to many diseases, including poor appetite and weight loss. Death can occur. Some infected equine exhibit few or no signs of disease. Survivors of the acute phase continue to carry the parasite, *Theileria equi*.

Equine piroplasmiasis is not considered endemic in the U.S. but cases are detected on occasion. In June it was found in Missouri and Kansas, and

in 2008 it was detected in Florida.

As many as 15 tick species are capable of transmitting the blood parasite that causes equine piroplasmiasis, as of Nov 2, a tick had not been confirmed as the carrier.

There is no vaccine and treatment is generally not effective against this infection. The best way to avoid spread is to eliminate contact with ticks and prevent blood transfer from one equine animal to another.

As of Nov 4, Canada and an number of U.S. states had imposed movement restrictions or additional entry requirements on

horses from Texas.

"Before moving horses from Texas, we urge you and your veterinarian to check with animal health officials for any state of destination, to ensure the animals have met all entry requirements," said Dr. Bob Hillman, Texas' state veterinarian and head of the Texas Animal Health Commission (TAHC). "Regulatory requirements can be fluid as disease situations evolve, so it is essential to call each state each time you haul."

For more information check

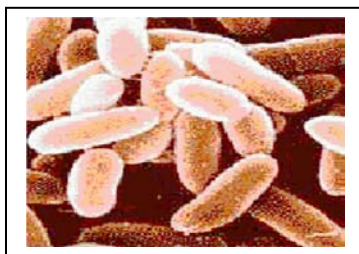
<http://www.tahc.state.tx.us>

#### **DISULFOTON & METHAMIDOPHOS**

Disulfoton and methamidophos have both been voluntarily canceled.

EPA cancels last pesticides labeled with disulfoton and methamidophos registered for use in the US effective 12/31/09.

Remaining product can be used up by 12/31/10.



*"More than 500 animals died from anthrax in ND in 2005 outbreak."*

## First Cattle Anthrax Case Reported in North Dakota

Cattle in southwestern North Dakota have tested positive for anthrax, the first case in the state this year. This is the first case in this region of ND in several years.

Anthrax usually appears in very wet or very dry conditions, when dormant bacteria spores in the soil are disturbed. Animals that might consume the spores will become

exposed to the disease.

Ranchers finding dead livestock are instructed to consult their veterinarians before disposing of the carcass.

## Predicting Changes for Parasite- and Vector-Induced Animal Diseases

Eric Hoberg, ARS zoologist says that climate change could have a major influence on animal health. Climate change can alter an animal's relationship with parasites and vectors.

These changes influence where parasites and vectors thrive, making certain geographical regions more or less amenable to them. Climate change can also alter when and for how long parasites and vectors pose a threat to agricultural animals. Climate can determine how pathogens are distributed, transmitted and evolve, and can influence the factors

associated with emerging disease and how animals respond to those diseases.

"Climate change alters the boundaries between different species and between natural and managed lands," Hoberg says. "When these boundaries break down, it becomes possible for pathogens to switch between hosts."

Climate change may also influence insects that spread diseases; two diseases are currently being investigated, bluetongue and Rift Valley fever (RVF).

"In recent years we've seen

an incursion of bluetongue virus in Europe, but whether that's affected by climate change or not hasn't yet been determined," says ABADRL microbiologist Bill Wilson.

Regular surveillance will provide up-to-date information about changes in pathogen populations. Laboratory and field research will help illuminate how climate changes influence pathogen characteristics, and models will help researchers and producers predict and plan for pathogen threats.

### Brown Dog Tick Resistance

Just in time for my newsletter the UF does a youtube post on the brown dog tick. A little bit of information on how come they are hard to control from one of my old professors.

<http://www.youtube.com/watch?v=DnT7PZI3Ncs>

## Journal Reviews

Pathogenicity of biological control agents for livestock ectoparasites: a simulation analysis. Rose and Wall. *Med Vet Entomol.* 23:379-386.

Current practices of using neurotoxic chemicals to control ectoparasites as lead to increased research in alternative approaches of control, including the use of biological pathogens.

Many times biological pathogens are found but practical issues such

as the ability of the pathogen to penetrate to the skin through hair or wool, tolerance of high skin surface temperatures and high residual activity may be a factor. Even the most virulent pathogens are not necessarily the most appropriate for commercial application.

The authors decided to use a simulation model in order to highlight a range of key features which characterize suitable pathogens for such applications.



Olfactory response of *Haematobia irritans* (Diptera: Muscidae) to cattle-derived volatile compounds. Oyarzun et al. J Med Entomol. 46: 1320-1326.

This study conducted in Chile, set out to replicate work conducted in the US and Europe on the varying attraction of cattle to horn flies. The researchers observed some cattle being more attractive to horn flies than others.

Gas chromatography and GC-mass spectrometric analysis were conducted on cattle samples to determine the semiochemicals that attract horn flies.

Several semiochemicals were identified and tested individually on the horn flies;

some were more attractive to horn flies than others.

This demonstration of behavioral activity with the identified compounds represents a first step for research into the application of semiochemicals in monitoring and control of cattle flies in Chile.

Characterization of stable fly (Diptera: Muscidae) larval development habitat at round hay bale feeding sites. Talley et al. J Med Entomol. 46: 1310-1319

The study was conducted in order to better understand larval development habitats at round hay bale feeding sites on cattle pastures.

Two distinct periods were identified (high stable fly prevalence HSF and low stable fly prevalence LSF). The first period was from May –June in

Kansas and the second was from July-August.

Data showed that the only significant differences between the two periods that would impact larval development was substrate temperature and fecal coliform bacteria (*E. coli* & *K. oxytoca*).

Both temperature and coliform bacteria were higher during HSF than LSF. These results strongly indicate that the fecal microbial community plays an important role in stable fly larval development in hay feeding sites and that it is the main factor behind stable fly developmental seasonality on pastures.

Efficacy and safety of catnip (*Nepeta cataria*) as a novel filth fly repellent. Zhu et al. Med Vet Entomol. 23: 209-216

Recent reports have shown catnip to be an effective repellent against several *Aedes* and *Culex* mosquitoes, researchers wanted to test the effect on filth flies.

The authors of this article tested catnip in the laboratory and received a repellency rate of 96% for stable flies and 79% for house flies. This finding suggests that the application of catnip repellent could be used as part of a filth

fly management.

Further tests have also shown catnip to cause no irritation and can be considered as a relatively safe repellent, which may cause minor skin irritation.

Vapor toxicity of three prototype volatile insecticidal compounds to house fly (Diptera: Muscidae). Chaskopoulou et al. J Med Entomol. 46: 1400-1406

The authors tested new prototypes of volatiles for possible house fly control. All the tested products were found to be toxic to house flies but at varying rates.

They were all compared to the fumigant insecticide dichlorvos and found to work just as well but less toxic of a chemical.

Even though the prototype compounds did not exhibit toxicity as high as that of dichlorvos, their toxicities to dipterans, along with their reduced mammalian toxicities relative to dichlorvos, make them potential replacement candidates.

Mechanical transmission of vesicular stomatitis New Jersey virus by *Simulium vittatum* (Diptera: Simuliidae) to domestic swine (*Sus scrofa*). Smith et al. J Med Entomol. 46: 1537-1540

Biting flies have long been suggested as mechanical vectors of vesicular stomatitis New Jersey Virus in livestock but without proof, until now.

The authors successfully infected a naïve pig with vesicular stomatitis by using a black fly. The fly was allowed to feed on a vesicular lesion and then fed on the naïve pig.

Transmission resulted in clinical disease in the naïve host. This is the first demonstration of mechanical transmission of VSNJV to livestock by insects.

Genotyping mutations in *BmAChE3*: A survey of organophosphate-resistant and –susceptible strains of *Rhipicephalus (Boophilus) microplus*. Temeyer et al. J Med Entomol. 46: 1355-1360.

The authors were able to identify mutations in cattle fever ticks that might be the cause of their OP resistance.

A previous paper examined one of the mutations in depth and this paper looked at the remaining five mutations.

Although the mutations were present in resistant ticks none of the mutations alone are responsible for generation of phenotypic resistance to OP acaricide.

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Merry Christmas from  
 my family to yours!

Tick repellent properties of three Libyan plants. Garboui et al. J Med Entomol. 46: 1415-1419

Specimens of *Salvadora persica* (Salvadoraceae), *Pistacia atlantica* (Anacardiaceae) and *Juniperus phoenicea* (Cupressaceae) were collected at The Green

Mountain in northeastern Libya.

The tick-repellent effects of the essential oils from the plants were evaluated using host-seeking nymphs of

*Ixodes ricinus* in the laboratory.

Significant tick repellent effects were observed for the oils of all three species, but the duration of action was short.

Influence of prescribed burns on the abundance of *Amblyomma americanum* (Acari: Ixodidae) in the Missouri Ozarks. Allan. J Med Entomol. 46: 1030-1036

Prescribed burning for plant management has been implemented for tick management as well.

The author found that in areas within 2 yrs of burn tick numbers were down but in areas over 2yrs since previous burn tick numbers were more than six times

greater than control sites.

The deer population was also examined. Deer numbers were lower in areas that had not been burned in over 2 yrs and high in the more recently burned areas.

The increased deer population in the recently

burned areas increased the tick population in these areas.

Thus, fire management, although beneficial in many aspects of the ecosystem management, may bear the unintended cost of locally increasing abundance of ticks.

Effect of prescribed fire for tick control in California Chaparral.

Padgett et al. J Med Entomol. 46: 1138-1145.

Similar results were found by these authors as the one above. Prescribed fire does do some good for the ecosystem but it does not significantly lower the tick populations.

Burning in the Chaparral of California did lower rodent populations, many of which are reservoirs for Lyme disease and anaplasmosis, but it did not impact the tick densities.

It is concluded that although prescribed fires in chaparral habitats may diminish local rodent abundance, it does not decrease tick loads on rodents, and it does not decrease adult ixodid ticks on vegetation and has no effect on argasid or ixodid ticks within soil refugia.

Sensitivity of host-seeking nymphal lone star ticks (Acari: Ixodidae) to immersion in heated water. Barrett et al. J Med Entomol. 46: 1240-1243

Host-seeking nymphal *Amblyomma americanum* were placed into heated water, and their survival or torpidity was recorded as a function of exposure time.

Exposures were determined that either kill the nymphs or affect their mobility. All nymphs died when exposed for a minute or more to a temperature >51°C.

Nearly all nymphs remained motionless for a period of time when exposed for 3 min to a temperature >44°C.

Comprehensive study on the occurrence and distribution of pathogenic microorganisms carried by synanthropic flies caught at different rural locations in Germany. Forster et al. J Med Entomol. 46: 1164-1166.

The authors collected 50 synanthropic flies from 5 rural locations in Germany used for rural husbandry (a cattle barn, a dog pound, a horse stable and a pig-pen). Flies were examined using microbiological methods for the pathogenic agents that they carried.

The most frequently collected species were house flies (51%) and stable flies (24%). All fly species were found to carry an array of pathogenic bacterial and fungal species. Among these were the human pathogens *Campylobacter jejuni*, *E. coli*, and the fungi *Candida albicans* and *C. tropicalis*.

The germs were detected in the intestines as well as on the exoskeleton (outside) of the flies. This study confirms and supplements the general knowledge about pathogens being transmitted to domestic animals and humans by synanthropic flies.

What to look for in next month's issue – February 28, 2010

- Ear Tag Update
- Pesticide Recommendations cattle
- Preparing cattle for Spring
- Insects of Interest