

## Special Interest Articles:

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## Insect Updates

### Horn Flies

With the long winter North Central Texas has been having this year and the snow that many have experienced several times, horn flies are the furthest from most peoples' minds. But before you know it spring will be here and with the beautiful weather come the horn flies.

As many know horn flies are very important pests when it comes to cattle, usually impacting beef cattle more than dairy cattle. Adult horn flies stay in continual contact with their blood host. The females and males feed 30-40 times per day. Females leave the back of the cattle to

lay egg masses in freshly deposited manure.

It takes roughly one week in the beautiful Texas spring and summer weather for a new generation of adult horn flies to emerge from the deposited eggs.

It is important to maintain the horn flies numbers on cattle to below the economic threshold of 200-250 horn flies per side. Higher numbers lead to reduced weight gain which becomes costly for the producer.

Some effective ways to treat for horn flies include waiting until more than 100 horn flies per side are present then

treat with either insecticide impregnated ear tags, pour-ons, mineral feed thru products, dust bags, backrubbers, sprays and boluses. All these products are effective some are more hands on than others and some need to only be tended to a few times throughout the season. To get the best results, combine two different products.

One very important note, despite the product used for horn fly control a mid season application will be needed when the horn fly population increases in late summer/early fall after the rains begin.

### Horse Flies

The scientist Gabor Horvath of Eotvos University, Hungary, has found that white horse coats are less attractive to horse flies than darker coats. The white coats reflect very little polarized light, which is light vibrating on a single plane. This light is important for horse flies so that they can track down their next blood meal.

Horvath conducted his research by observing two horses – one brown and one white – as they grazed in a local field. Both horses were almost continuously attacked

by horse flies and had to defend themselves by tail swishing, kicking, shuddering, head-swinging, biting, itching and even rolling on the ground.

Photographs revealed that, on average, the brown horse had 3.7 times more horse flies on or near it than the white horse. When attacks became overwhelming, the horses would retreat to a nearby shady forest, the brown horse was always the first to enter the shade.

It has been determined that horse flies are attracted to

polarized light. Shiny, brown surfaces reflect plenty of polarized light, vibrating in the horizontal plane, regardless of the angle it's viewed from.

Horse flies proclivity to horizontally polarized light probably has several functions, such as leading them to water sources where they can lay their eggs. Another factor is that horse flies themselves are usually dark and drab in color, so landing on a white body could make them more conspicuous to hungry birds.

## Cattle Care TAHC – New Year Regulations



*“Breeding bulls that haven’t been certified as virgins or tested are considered to be slaughter-only bulls.”*

Beginning January 1, Texas bulls that undergo a change of ownership (except to slaughter) **MUST** be either certified as a virgin bull or be tested first for cattle trichomoniasis.

Trichomoniasis is a protozoal disease that can cause cows to abort very early in pregnancy. Infected bulls carry the microscopic “bug” that causes trichomoniasis

without any signs and can transmit the single-celled protozoa to cows during breeding.

“There are no effective treatments for bulls, and once infected, they can continue to spread trichomoniasis when they breed,” said Dr. Dee Ellis Texas’ new state veterinarian and head of TAHC. “Infected cows may

clear the infection, but only if they are given rest from breeding for 120-150 days= an expensive option, as a calf crop will be missed. A vaccine also is available to help in the management of infected cows, but it will not prevent infection.”

Regulations will apply to bulls being sold, traded, leased, or undergoing any change of ownership. See <http://www.tahc.state.tx.us> for more information.

## Fenceless Fencing

Dr. Dean Anderson with the Department of Agriculture’s Agricultural Research Service has developed a way to control and herd cattle without fences.

Dr. Anderson has constructed a halter with speakers that is attached to the cow’s head.

This virtual fence system can be used on ranches to remotely hold and herd cattle by combining GPS technology, recorded sounds, and when appropriate, electric shock.

The Ear-A-Round halters use speakers near the cow’s ears

independently or in concert to steer cattle or hold them within invisible boundaries.

Currently only prototypes are available but Dr. Anderson is looking for somebody willing to manufacture the units for resale.

### USDA Research – Pork from Pigs Exposed to H1N1 Safe to Eat

Pork from pigs that have been exposed to the H1N1 virus is safe to eat, according to a recent study by the USDA Agriculture Research Services (ARS).

In this study, non-respiratory tract tissues were analyzed for the virus following infection of the young pigs with the pandemic H1N12009 virus.

Researchers found that while the H1N1 virus can induce respiratory disease in hogs there was no evidence for systemic infection that would contaminate meat with the infectious virus, which is consistent with other swine influenza illnesses.

## Pesticides Update/Outlook Fipronil Cancellations

Fipronil; Product Cancellation Order and Amendment to Terminate Use

This notice announces EPA’s cancellation order and amendment to terminate uses of products containing the pesticide fipronil, pursuant to section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act as amended.

The cancellation order follows the Nov 15, 2009 expirations of conditional

registrations and in one case expiration of use. These are not the last fipronil products registered for us in the US.

Products affected by this expiration include certain corn-in-furrow and turfgrass end-use fipronil products. Amendment to terminate uses of all corn-in-furrow end-use fipronil products and cancellation order to provide for existing stocks of affected products.

Cancellations:

- Regent 1.5G
  - Regent 80WG
  - H&G 61748/ Over N Out, 432-14351 BES 1000 Insecticide
- Registration Amendment to Terminate Uses:
- Regent 4SC
- Registrants of cancelled and/or amended products:
- Bayer Environmental Science
  - BASF Corporation

## Fipronil for Fire Ants

### Fipronil re-registration update

Looks like we still have the Top Choice product for fire ant control, but have lost the Over N Out retail product.

Insecticides containing fipronil active ingredient are now unconditionally registered with the United States EPA as of Nov 15, 2009 (unconditional registration) and Nov 24, 2009 (amended label approval).

On Nov 15, 2009, the agency signed off on several fipronil fire ant labels, most importantly Chipco Top

Choice and Chipco Choice Insecticides.

There were some compromises on the label and the major changes to the label are as follows: 1) unconditional registration, 2) restricted use, 3) use only in quarantined areas of a state or if outside the quarantined area of the state, the user must contact the county Extension office prior to applying fipronil.

The purpose of the contact is to let the county Extension office know that the applicator will be applying fipronil to a fire ant infestation

outside the quarantine area. The label language is not intended for the CEA to decide whether the applicator can apply but only as a notification.

Bayer and its distributors have 18 months to clear the old inventory from the channels of trade. You will see product with the new labels beginning in mid 2010.

UNFORTUNATELY the consumer/homeowner product will no longer be sold after the product inventory phase-out.

## Human & Animal Disease & Health

### Brucellosis Found in Eastern Idaho

The infectious bacterial disease brucellosis has been found in a beef cow in eastern Idaho. State agriculture officials scramble to see if the infection is isolated or if it has spread to other herds.

A beef cow from a newly assembled 600-head herd tested positive for the disease, which is rarely transmitted to humans but can cause spontaneous abortions, infertility, decreased milk production

and weight loss in cattle, elk, bison and other mammals.

The herd was in quarantine and being tested. The source of infection is under investigation.

<http://Humanewatch.org>

The Center for Consumer Freedom has announced the launch of <http://Humanewatch.org>, a watchdog project dedicated to analyzing the activities of the Humane Society of the United States.

### November Cattle on feed (2008 vs. 2009)

STATE	2008	2009	DIFFERENCE
US	10,972,000	11,134,000	162,000
Arizona	362,000	279,000	-83,000
California	500,000	470,000	-30,000
Colorado	960,000	1,040,000	80,000
Idaho	210,000	210,000	0
Iowa	485,000	540,000	55,000
Kansas	2,230,000	2,330,000	100,000
Nebraska	2,310,000	2,400,000	90,000
Oklahoma	320,000	375,000	55,000
South Dakota	200,000	205,000	5,000
Texas	2,710,000	2,730,000	20,000
Washington	163,000	155,000	-8,000



“More than 500 animals died from anthrax in ND in 2005 outbreak.”

## New Vaccine may help Thwart *E. coli* O157:H7

Immunizing calves with either of two forms of a vaccine newly developed by USDA's ARS scientists might reduce the spread of the sometimes deadly *Escherichia coli* O157:H7 bacteria.

The microbe can flourish in the animals' digestive tracts, yet doesn't cause them to show clinical symptoms of illness.

In humans, however, *E. coli* can cause bouts of diarrhea and sometimes, life threatening hemolytic uremic syndrome.

Research microbiologists Vijay K. Sharma and Thomas A. Casey, developed the novel vaccines in their lab at the

agency's National Animal Disease Center in Ames, Iowa and are seeking patent for it.

Preventing *E. coli* O157:H7 from proliferating inside cattle helps limit contamination of meat at the packing house and reduces shedding of the microbes into the animals' manure. Manure-borne *E. coli* can be moved by rainfall into drinking water. It can also end up in irrigation water and can contaminate fruits, vegetables or other crops, increasing risks of an outbreak of food borne

illness.

One form of the vaccine is comprised of cells of a strain of *E. coli* O157:H7 that is lacking a gene known as *hha*. A second form of the vaccine contains an *E. coli* strain lacking both *hha* and a second gene, *sepB*.

In either vaccine, the *E. coli* strain produces a large quantity of what are known as immunogenic proteins. These proteins trigger the immune system response that prevents *E. coli* O157:H7 from successfully colonizing cattle intestines.

## Journal Reviews

Susceptibility of adult and larval stages of the horn fly, *Haematobia irritans*, to the entomopathogenic fungus *Metarhizium anisopliae* under field conditions. 2009. Mochi et al. Vet Parasitol. 166:136-143.

The efficacy of *M. anisopliae* strain E9 was assessed under field conditions as a biological insecticide for adult and larval stages of horn flies.

Microencapsulated conidia were found to significantly reduce the number of adult horn flies in a dung pat after being

fed to the cattle.

Cattle were also sprayed with a suspension of  $3 \times 10^{10}$  conidia four times at five day intervals. After the second spraying, the average number of flies per animal was significantly less on the treated cattle than on the control cattle.

The results obtained from both tests show that *M. anisopliae* strain E9 has a pathogenic effect on horn fly larvae in bovine manure when administered orally and on adult fly infestations when applied as a spray on the hosts.

Evaluation of the persistent activity of moxidectin (10%) long-acting (LA) Injectable formulation against *Dictyocaulus viviparus*, *Haemonchus placei*, *Trichostrongylus axei* and *Oesophagostomum radiatum* infections in cattle. 2010. Ranjan et al. Vet Parasitol. 167: 50-54.

Recently a new CYDECTIN® product containing moxidectin has been developed. This new product is an oil based long-acting Injectable formulation of moxidectin that is administered to cattle as a single subcutaneous injection into the

proximal third of the ear at the recommended dose rate of 0.01 ml/kg body weight. It is currently approved for use in Australia, Canada, Europe, South America and Africa.

This paper shows that administering a single subcutaneous injection into the

ear will provide persistent efficacy of >90% against *D. viviparus*, *H. placei* and *Oe. radiatum* for at least 150 days post-treatment and against *T. axei* for at least 90 days post-treatment.

Coming soon! A livestock/veterinary website, it should be up and running before the end of the year. It will contain information on top pests, pesticides and resource information. I will keep you all posted on the status of the site.

<http://livestockvetento.tamu.edu>



Distribution of tabanids (Diptera: Tabanidae) along a two-sided altitudinal transect. 2009. Hackenberger et al. *Environ Entomol.* 38: 1600-1607.

The study setup to determine tabanid species distribution along the 2-sided altitudinal transect on the Velika Kapela Mountain. Using the canopy trap sampling method, influential factors were also looked at.

The most influential factors on horse fly abundance and biodiversity in the study were distinguished as temperature and wind for the southern slope and humidity for the northern slope.

Based on the results of this study the

authors felt that transect sampling design, CCA analysis and geographical classification of horse flies combined together proved to be useful for the correlation of interactions between environmental variables and species distribution.

Species abundance and seasonal activity of mosquitoes on cattle facilities in southern Alberta, Canada. 2010. Lysyk. *J Med Entomol.* 47: 32-42.

The author conducted a survey of the mosquito species present over several years at cattle facilities.

With the information collected he was able to develop models that can be used to predict the onset of activity as defined by when populations exceed a particular threshold.

A total of seventeen mosquito species were collected in the 3 year period. Based on the data collected, it was obvious to see that all mosquito presence was affected by temperature and accumulated degree-days.

To what extent has climate change contributed to the recent epidemiology of tick-borne diseases? 2010. Randolph. *Vet Parasitol.* 167: 92-94.

Vector -borne diseases are very sensitive to climatic conditions. This has led to the general perception that climate change has driven disease emergence.

A remarkable correlation between poverty indicators and the upsurge in TBE from 1993 was observed.

Sudden spikes in incidence appear to be due to exceptional weather conditions effecting people's behavior.

Repellent activity of plant-derived compounds against *Amblyomma cajennense* (Acari: Ixodidae) nymphs. 2010. Soares et al. *Vet Parasitol.* 167: 67-73.

Various plant derivatives were tested against *A. cajennense* nymphs as possible repellents.

*Hyptis suaveolens* essential oil and the extracts of *Chenopodium ambrosioides* and *Ageratum conyzoides* showed good repellence at 66% in high concentrations. Callicarpenal, intermedeol, extract of *Mentha pulegium* and *Memora nodosa* leaves showed moderate repellency.

Extracts from *Melia azedarach*, *Rute graveolens*, *Spiranthera odoratissima*, and *M. nodosa* roots showed little or no repellency.

The extract of *Cymbopogon nardus* had the longest lasting repellence in high concentration, 35 h of protection against 90% of the nymphs.

There is some possibility of plant extracts being possible alternatives in *A. cajennense* control.

Immune response of bovines stimulated by synthetic vaccine SBm7462<sup>®</sup> against *Rhipicephalus (Boophilus) microplus*. 2009. Patarroyo et al. *Vet Parasitol.* 166: 333-339.

As many know, the cattle fever tick is once again moving back into southern Texas. In an effort to keep the tick from moving further north and eradicate those already here,

more control options need to be made available. Currently the most effective method is to use chemicals.

Authors of this paper looked at the effects of vaccine SBm7462<sup>®</sup> after

administered to 10 month old calves.

It was found that the synthetic vaccine elicits a complete immune response being T-dependant after 2 or 3 vaccinations.

Effects of fipronil (active ingredient of Frontline<sup>®</sup>) on salivary gland cells of *Rhipicephalus sanguineus* (Latreille, 1806) (Acari: Ixodidae). 2009. Pereira et al. *Vet Parasitol.* 166: 124-130.

The authors tested the fipronil product Frontline<sup>®</sup> on unfed and semi-engorged female brown dog ticks and then observed the effects of this chemical on the mouthparts.

Unfed female mouthparts increased in size and diameter of the lumen. Semi-engorged female has accelerated salivary gland degeneration.

The results showed that fipronil interferes with the engorgement process and is reflected in the reproductive process, decreasing or even halting egg laying, and resulting in less blood loss for the host and reduced pathogen transmission.

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Preliminary study on the acaricidal efficacy of spinosad administered orally to dogs infested with the brown dog tick, *Rhipicephalus sanguineus* (Latreille, 1806) (Acari: Ixodidae). 2009. Snyder et al. Vet Parasitol. 166: 131-135.

Spinosad administered orally to dogs provides a rapid knockdown rate and 1 month of residual efficacy against fleas, but little is known about its effect on ticks.

Twelve dogs were used in the study. Each was infested with 50 unfed ticks and given an oral dose of spinosad once per week for four weeks.

Detection of cutaneous myiasis in sheep using an 'electronic nose'. 2009. Cramp et al. Vet Parasitol. 166: 293-298.

Although cutaneous myiasis (flystrike) by *Lucilia cuprina* is not very common in Texas sheep, the use of new technology is always interesting.

Flystrike is a debilitating, painful and potentially lethal disease of sheep. Early detection is crucial. A new electronic nose offers the

Adulticidal and larvacidal efficacy of some medicinal plant extracts against ticks, fluke and mosquitoes. 2009. Bagavan et al. Vet Parasitol. 166: 286-292

The potential use of indigenous plant extracts as adulticidal and larvicidal products against the adult cattle tick *Haemaphysalis bispinosa*, sheep fluke *Paramphistomum cervi*, 4<sup>th</sup> instar larvae of *Anopheles subpictus* and *Culex*

Dogs were tick combed 48 h post-infestation. Tick counts were recorded and compared.

Within 24 h, tick numbers were reduced significantly. Better reduction of tick numbers was maintained with the higher dosage of 100 mg/kg but good results were recorded with the 50 mg/kg dosing.

potential for early and automated detection of flystrike.

The electronic nose consists of 6 metal oxide semiconductor sensors and temperature and humidity sensors that measure odors collected.

The electronic nose was capable of accurately

This pilot study showed that a single oral treatment of spinosad gelatin capsules at 50 and 100 mg/kg provide high efficacy against brown dog tick infestations with 24 h of dosing.

Results also suggest possible post-treatment residual tick control in dogs for up to 1 month.

distinguishing flystrike odors on days 1,2 and 3 of development. it could also distinguish odors on the day of larval implantation.

This is a preliminary study that shows proof-of-concept for the detection of flystrike with the electronic nose. Field tests need to be conducted before commercial development.

*tritaeniorhynchus* were researched.

The study aimed to evaluate the toxic effect of leaf hexane, chloroform, ethyl acetate, acetone and methanol extracts of *Annona squamosa*, *Centella asiatica*, *Gloriosa superba*,

*Mukia aderaspatensis*, *Pergularia daemia*, and *Phyllanthus embilca*.

The results indicated a possibility of the methanol extracts of *C. asiatica*, *G. superba*, *P. daemia* and *P. embilca* serving as parasite control options even in their crude form.

## Special Topics of Interest

### Tofu can harm environment more than meat, finds WWF study

Becoming a vegetarian can do more harm to the environment than continuing to eat red meat.

A study by Cranfield University found that many meat substitutes are produced by soy, chickpeas and lentils grown overseas and imported into Britain.

It was found that switching from beef or lamb reared in Britain to substitutes would result in more foreign land being cultivated and raise the risk of forests being destroyed for farmland. Also these substitutes tend to be highly processed and involved energy-intensive production methods.

"For some people, tofu and other meat substitutes symbolize environmental friendliness but they are not necessarily the badge of merit people claim. Simply eating more bread, pasta and potatoes instead of meat is more environmentally friendly."

See more at

<http://www.timesonline.co.uk/tol/news/environment/article7023809.ece>