

Special Interest Articles:

- Stable flies
- Grasshopper research
- Brown stomach worm
- Foot and mouth disease outbreak



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Insect Updates

Hay bale feeding sites breed stable flies

With winter weather fly populations decline, this is enjoyed by producers and livestock alike. But as soon as spring arrives the flies will return. The large number of stable flies that begin attacking pastured cattle in the spring and early summer will most likely come from the winter round-bale feeding sites.

Dr. Alberto Broce, emeritus professor and livestock

entomologist at KSU, notes that cattle feeding from round bales can waste up to 50% of the hay, and that wasted hay mixed with manure will become an ideal habitat for stable fly larvae.

It is important to conduct management practices in the winter that will limit fly populations later.

- Frequently move feeding tubs to prevent accumulation of hay-

manure medium

- Use modified feeders, such as cone feeders, which reduce hay waste
- Unroll round bales on pastures, but not over the same site
- Spread out accumulated hay-manure medium to dry
- Encourage neighbors to use similar practices

Rangeland burning to control grasshoppers

Each year state and federal control agencies spend millions of dollars to control grasshopper and cricket populations. During a particularly bad infestation, the cost can skyrocket. Coupled with the loss of revenue for farmers and ranchers, a grasshopper infestation could cost our country billions of dollars per year.

USDA/ARS research group in Montana is researching ways to better manage GH outbreaks by using controlled burns on rangeland. They are looking at the effect burning has on the mortality of GHs and unhatched eggs.

It has been assumed that insects living or hibernating in the soil would be protected from grassland fires but the researchers have shown that

80% of shallow-laid eggs are killed by fire. The deeper-laid eggs remain unharmed.

Controlled burns are just a tool, not a solution, in the fight against GHs. The researchers are also looking at the effects grazing has on the grasshopper populations; so far, season-long grazing and control burning have the greatest affect on GH numbers.

Catnip oil repels bloodsucking flies

Catnip oil has been proven 99% effective at repelling bloodsucking flies that attack horses and cows. Junwei Zhu and colleagues took a look at the effects catnip oil would have on stable flies. Catnip oil has already been shown to repel more than a dozen families of insects, including house flies, mosquitoes and cockroaches.

The research group made pellets of catnip oil, soy and paraffin wax, and spread them in a cattle feedlot. Within minutes, the pellets shooed the flies away, with the repellent action lasting for almost 3 hours.

Pellets without catnip oil had no effect on the flies. The scientists are working on

making the repellent action last longer, which is important to putting catnip to use in protecting livestock both in feedlots and pastures.

<http://esciencenews.com/articles/2011/02/02/shoo.fly.catnip.oil.repels.bloodsucking.flies>

Cattle Care

The brown stomach worm



“The brown stomach worm costs the industry up to \$3 billion annually in lost weight gains; poor feed conversion and increased disease.”

One parasite that all cattle producers in all parts of the country should keep an eye out for this spring is the brown stomach worm, *Ostertagia ostertagi*.

It is the No.1 most damaging parasite in cattle and can inhibit feed intake, meaning cattle don't gain like they should and can't fight off other health issues as

easily.

The brown stomach worm is a bloodsucker that causes irritation and inflammation to the stomach and intestinal linings of cattle. A result of the inflamed, irritated stomach lining is that infected cattle will not properly absorb nutrients.

According to Gary Sides, a cattle nutritionist from Pfizer

Animal Health Veterinary Operations, “injectables really do the best job on internal parasites, but lice control is better with pour-ons.” Sides also recommends producers deworm cattle in the spring when cattle are grass fed, to protect against the brown stomach worm and other parasites.

Tips from NCBA trade show: Control parasites at the right time

Merial – springtime deworming is a proven tool for protecting reproductive performance and boosting calf weaning weights. Spring treatments for cows and calves help prevent pasture contamination with worm eggs and larvae that can build up through the grazing season. Treated cows have improved appetites and better forage

intake.

Pfizer – also stresses the importance of spring deworming, pointing out that even through a cold winter, parasites survive just fine in their dormant state on pastures. As soon as the grass greens up you have worms. Treatment at this time improves productivity and protects cow health by

improving their response to pre-breeding vaccines.

Boehringer Ingelheim – as important as parasite control is, producers could do it too often or use inappropriate products and contribute to resistance problems in target parasites. Treat for external parasites with specific products rather than broad-spectrum insecticides.

Cow-Calf: Improper dosing can be costly

It's no surprise that due to unforeseen circumstances cattle are sometimes given the wrong dose of an antibiotic unintentionally. This can lead to some important economic increases from additional

medicine costs, labor, performance loss, need for retreatment and potentially death loss.

Administering the correct dosage of medicine can help ensure that overuse of an

expensive pharmaceutical doesn't occur and that this is minimal potential for any toxic effects to the animal or extended drug residue. Treating according to body weight will ensure that overdoses do not occur.

IVOMEC Spring Challenge

Merial is conducting the IVOMEC Spring Challenge again for the 4th year in a row. The event benefits producers with a risk-free way to ensure spring parasite control pays.

weight versus the 2010 weight does not cover the purchase price for the IVOMEC product used in the spring, Merial will provide an equal number of doses of any IVOMEC Brand Product for fall.

To participate, producers simply need to use any IVOMEC Brand Product on both their cows and calves in the spring. At weaning, if the improved 205-day adjusted

“Merial recognizes that in a tight economy, it's difficult to justify input costs if you aren't sure you are getting enough return, but nothing pays off like parasite control in the

spring,” says Frank Hurtig, DVM, MBA, director, Merial Large Animal Veterinary Services. “The goal is for producers to see a financial gain from their parasite control investment. Because we have confidence in our products, we are willing to back them so that if improvements aren't achieved, producers won't risk a profit loss on treatment expenses.”

Texas AgriLife Extension PDF - Equine Piroplasmosis

Equine Piroplasmosis is a tick-borne disease resulting from infection of horses, mules, donkeys and zebras by the protozoal blood parasites *Babesia caballi* or *Theileria equi*.

This new publication by Extension specialists gives detailed information on what it is, why it is important, vaccines and tests to use against it and travel restrictions because of it.

<http://animalscience.tamu.edu/images/pdf/equine/equine-piroplasmosis.pdf>

Pesticides Update/Outlook

Safety Precautions for Total Release Foggers

<http://epa.gov/pesticides/factsheets/fogger.htm>

EPA developed this referenced fact sheet to help users reduce potential hazards associated with total release foggers. Total release foggers, aka "bug bombs," are pesticide products that contain aerosol propellants that release

their contents at once to fumigate an area. Because these products are often used around homes and aerosol propellants in these foggers are typically flammable, improper use may cause a fire or explosion. In addition to this hazard, failure to vacate premises during fogging or reentering without airing out may

result in illness.

The fact sheet addresses:

- Pest Prevention First
- Safety Precautions
- Take Other Common-Sense Precautions
- EPA Labeling Actions to Reduce Risk of Fire
- For more Information

Human & Animal Disease & Health

South Korea fails to stop FMD outbreak

It has been confirmed by South Korea that vaccinations developed to protect the country's remaining herds against the latest foot-and-mouth disease outbreak have failed. It has been confirmed that an additional case of the disease was diagnosed at a pig farm south of Seoul following the completion of FMD vaccinations.

The Ministry of Food, Agriculture, Forestry and Fisheries have reported 141 confirmed cases of animals with FMD since November 2010, when the first case of the latest outbreak was documented. Since then 3 million head of livestock, mainly hogs and cattle were culled as a precautionary measure.

Damage has been estimated at more than \$1.8 billion.

Despite the culling, the outbreak continues to stretch across the country. The current outbreak is the most severe in the country's history, which goes back to 2000.

LSU AgCenter vaccine fights against cattle disease

Scientists at the LSU AgCenter have developed a vaccine that is showing results in preventing anaplasmosis, a disease that costs U.S. cattle and dairy producers an estimated \$300 million a year.

Anaplasmosis is spread by ticks and destroys red blood cells in cattle.

The vaccine developed is a "killed" vaccine, which means it uses the dead disease organism to create immunity in cattle. This is the only "killed" vaccine available to prevent anaplasmosis. It's being marketed by University Products LLC, according to an agriculture department news release.

Brucellosis infects Texas cattle herd

According to the Texas Animal Health Commission, a cattle herd in South Texas tested positive for brucellosis at a livestock market.

TAHC state epidemiologist Dr. Andy Schwartz said the herd may have been infected for a while, but the disease went undiagnosed due to lack of sales of adult test-eligible cattle. Brucellosis affects cattle causing abortions, weak calves and low milk production.

The last known case in Texas occurred five years ago.

A full investigation is underway to determine the source of the disease and to track if any cattle with the disease left the herd. The infection highlights the importance of ongoing cattle surveillance and an effective system for tracing exposed animals.



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Special Topics of Interest

HSUS placed on charity watchdog "naughty" list

The 2010 "Watchdog Report" from *Animal People News*, has determined that the Humane Society of the United States (HSUS) spends 50 cents for every donated dollar on continued fundraising and additional overhead costs.

HSUS conducted a fundraiser for the holidays in which they hoped to get

\$1.2 million, a staggering \$600,000 will likely go to raise more money, pay lobbyists, and fund HSUS's \$11 million pension plan. "HSUS's skewed spending priorities leave countless shelters without funds in today's tough economy," CCF reports.

Animal People News, the well-regarded newspaper of the animal-rights

movement, studied HSUS's 2009 federal income tax return and determined that 50% of HSUS costs were "overhead," not 29% as HSUS claims.

CCF's own analysis of HSUS's recent tax filings indicates that HSUS shares less than 1% of the public's contributions with America's underfunded pet shelters.

What beef producers should be thinking about for spring?

With spring just around the corner there are 13 key things to think about.

1. Manage calving pens and pastures to minimize human, cow and calf stress. Stay organized.
2. An observation schedule should be implemented for calving first-calf heifers and cows; check every 2-3 hours.
3. Sanitation is key to reducing and/or eliminating calf scours.
4. Make sure every calf consumes adequate colostrum during the first 4-12 hours after birth.
5. Keep accurate calving records, including cow identification (ID), calf

ID, birth date, calving difficulty score and birth weight.

6. Calving books are essential sources of information; make sure you have a backup copy.
7. Body condition score cows. Thin and young cows will need extra energy to maintain yearly calving interval.
8. If cow diets are going to be shifted from low- (poor quality forage or dormant grass) to high-quality forage (lush green grass) programs, begin a grass tetany prevention program at least 3 weeks prior to the forage switch.
9. Given the high price of mineral

supplements, conduct a needs assessment of your cowherd.

10. When making genetic selections, use the most recent National Cattle Evaluation and herd records judiciously.
11. If new bulls are purchased, now is the time to start preparing them for their first breeding season. Bulls need to be properly vaccinated and condition to be athletic.
12. After calving and before breeding, vaccinate cows as recommended by your veterinarian.
13. Plan to attend beef production meetings.

Source – *Drovers CattleNetwork*

Effects of winter storms slowly work through markets

Two major winter storms that hit just a week apart in February have affected virtually all sectors of cattle and beef markets, causing producers to scramble to care for animals and maintain production.

"Significant snowfall and record low temperatures, especially with the wind chills, have disrupted markets and pushed both cattle and cattle managers well out of their normal operating ranges," said Derrel Peel, Oklahoma State University Cooperative Extension livestock marketing specialist.

The worst part of all this, is that analysts expect it to take some time for the ripple effects of the storm to

work their way out of the system.

Spring calving is well under way. These cows are vulnerable, especially from a nutritional standpoint. Nutritional stress can lead to weak calves and death loss, as well as possibly poor rebreeding rates that would affect the 2012 calf crop.

"It's important to provide adequate quantity and quality of feed for cows in order to avoid loss of condition that may not be apparent until after they calve and begin lactating," said Leland McDaniel, Carter County Extension director and agricultural educator.

It has already been reported that a

number of stocker cattle have experienced poor performance and perhaps some weight loss for several days. The storms even caused some death loss, although not widespread.

"Many cattle on wheat had limited forage available, so they have already moved to market or will be moving very soon," McDaniel said. "The winter storms caused several cattle auctions in OK to close, but they are back open and running again."

Likewise, it does not appear that the storms affected the feedlots; no major cattle losses in the southern Great Plains states were experienced.

Journal Reviews

Host blood meal identification by multiplex polymerase chain reaction for dispersal evidence of stable flies (Diptera: Muscidae) between livestock facilities. 2011. Pitzer et al. J Med Entomol. 48: 53-60.

A species-specific multiplex polymerase chain reaction (PCR) targeting the cytochrome b gene of cattle, horses, humans and dogs was developed in order to determine the blood meal source from collected stable flies.

Stable fly blood meals were amplified 65% with cattle blood, 24% with horse blood, 9.5% with human blood and 1.6% with dog blood.

A dispersal range of 0.8 to 1.5 km was found to occur between the horse

facilities and cattle pastures.

The Impact. The stable fly has the ability to travel short distances within a 48 hr period, therefore indicating that onsite sanitation of horse facilities may not be enough to protect the horses from bites.

Assessing permethrin resistance in the stable fly (Diptera: Muscidae) in Florida by using laboratory selections and field evaluations. 2010. Pitzer et al. J Econ Entomol. 103: 2258-2253.

The stable flies' susceptibility to the pyrethroid permethrin was determined in Florida in order to assess the possibility of resistance development.

demonstrated a maximum of 57 and 21% survival to permethrin residues of 3X and 10X the LC₉₉ of a susceptible strain, respectively. Stable flies from a facility with no record of insecticide use demonstrated a 20% survival to 3X

concentration. Five generations of laboratory permethrin selection increased resistance 15-fold.

The Impact. Resistance to permethrin products are possible without insecticide class rotation.

Field collected stable flies

The ability of selected pupal parasitoids (Hymenoptera: Pteromalidae) to locate stable fly hosts in a soiled equine bedding substrate. 2011. Pitzer et al. Environ Entomol. 40: 88-93.

The ability of three parasitoid wasps to find stable fly pupae in a laboratory setting was evaluated with two different arenas. The first arena consisted of large chambers of field-collected, soiled equine bedding substrate and

the second consisted of plastic cups with wood chips.

The *Spalangia* spp. were found to be more effective in locating stable fly pupae than *Muscidifurax raptorellus* in

both setups and effectively located pupae in the large chambers.

The Impact. Parasitoid wasps are effective against stable flies but species is important, *M. raptorellus* is not recommended.

The potential of house flies to act as a vector of avian influenza subtype H5N1 under experimental conditions. 2011. Wanaratana et al. Med Vet Entomol. 25: 58-63.

The objective of this study was to investigate the potential for house flies to harbor the avian influenza (AI) H5N1 virus. Laboratory-reared flies were fed a mixture containing the AI virus.

The house flies were then later tested under various situations with RT-PCR to look for the AI virus.

The Impact. The data shows that house flies may harbor the AI virus and could therefore become a mechanical vector of the virus. More work is necessary.

Laboratory and field evaluation of formulated *Bacillus thuringiensis* var. *israelensis* as a feed additive and using topical applications for control of *Musca domestica* (Diptera: Muscidae) larvae in caged-poultry manure. 2011. Mwamburi et al. Environ Entomol. 40: 52-58.

The acute toxicity of *B. thuringiensis* var. *israelensis* was evaluated against larvae in the lab, in the field via chicken feed and as a topical application in poultry houses.

The lab results showed larvae to be susceptible to *Bti* after duration of time and increased exposure. In the field, larvae were showing a 90% reduction from feed additives after 4 weeks of

treatment.

The Impact. Adding *Bti* to chicken feed could potentially manage and control house fly populations in caged-poultry facilities.

Efficiency of sulphur in garlic extract and non-sulphur homeopathy in the control of the cattle tick *Rhipicephalus (Boophilus) microplus*. 2011. Costa-Junior & Furlong. Med Vet Entomol. 25: 7-11.

The objective of this project was to evaluate the efficacy of a non-sulphur-based homeopathic preparation and a sulphur-containing natural product against infestation by the cattle tick.

the control, group 2 treated with non-sulphur preparation and group 3 treated with sulphur product. Cattle were infested with 8000 tick larvae twice per week for 5 months. Engorged females were recorded and collected every 14 days.

The sulphur product was 64% and the non-sulphur product was 24% efficient at decreasing the number of engorged females.

The Impact. Sulphur products can reduce the intensity of a cattle tick infestation.

The project consisted of three groups of 6-8 month old cattle; group 1 was

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Long-term after-effects of cold exposure in adult *Alphitobius diaperinus* (Tenebrionidae): the need to link survival ability with subsequent reproductive success. 2011. Renault. Ecol Entomol. 36: 36-42.

The effects of cold on survival and reproductive ability of adult darkling beetles are examined.

Acclimated beetles fared better in the cold for both

survival and reproductive success. The non-acclimated beetles exhibited reproductive decline.

The Impact. Cold affects the darkling beetles survivability

and reproductive success but in Texas it is not cold enough for long enough to have an impact. The beetles are able to overcome cold exposure after a few days when temperatures become optimal.

Responses of susceptible and cyfluthrin-resistant broiler house populations of lesser mealworm (Coleoptera: Tenebrionidae) to γ -cyhalothrin. 2010. Lambkin et al. J Econ Entomol. 103: 2155-2163.

The resistance and cross-resistance of the lesser mealworm to cyfluthrin and cyhalothrin was looked at with field populations in Australia.

The adult beetles were found to show resistance to both chemicals either directly or from cross-resistance.

The Impact. Over use of cyhalothrin in the poultry industry could lead to resistance to both it and cyfluthrin.

Enhanced repellency of binary mixtures of *Zanthoxylum armatum* seed oil, vanillin, and their aerosols to mosquitoes under laboratory and field conditions. 2011. Kwon et al. J Med Entomol. 48: 61-66.

The repellency of seed oil, alone or combined with vanillin, and four other fruit oils, were evaluated against female *Aedes aegypti* mosquitoes in the laboratory and field.

Mixing seed oil and vanillin with the previously examined fruit oils, increased mosquito repellency for a 10-min exposure period to greater than 90%; the results were

comparable to that of DEET.

The Impact. Further testing is needed but there is potential for natural oils to be effective repellents against biting mosquitoes.

Large-scale monitoring of imidacloprid susceptibility in the cat flea, *Ctenocephalides felis*. 2011. Rust et al. Med Vet Entomol. 25: 1-6

An extensive study was conducted worldwide (Australia, Germany, France, UK and USA) that looked at the resistance potential of the cat flea to imidacloprid.

Eggs were collected and ensuing fleas were treated with larval flea-rearing medium that contained imidacloprid.

Survival rates of >5% and development of adult fleas occurred in only 22 isolates.

The Impact. Despite the worldwide use of imidacloprid on cat fleas, results show it to be effective and cat fleas still are susceptible to it.

Meteorological effects on the daily activity patterns of tabanids biting flies in northern Queensland, Australia. 2011. Van Hennekeler et al. Med Vet Entomol. 25: 17-24.

This study looked at the effects of various meteorological factors on the daily activity patterns of common species of tabanids. Each of the species studied had a different response to weather factors.

The results showed that there was tabanid activity throughout the entire day and not one specific time better for trapping. This also meant that pathogen transmission is of high risk the entire day.

Also, only extreme weather conditions are likely to inhibit activity of all species.

The Impact. It is necessary to know what species is attacking in order to properly control and trap. Tabanids bite all day long and protection from them is still hard to manage.

Livestock/veterinary website

<http://livestockvetento.tamu.edu>