

## Special Interest Articles:

- Stable Fly Control
- Fever Tick Temporary Quarantine
- Involve your vet in parasite control
- Crypto similar in all dairies
- Reduce *E. coli* risk



## Individual Highlights:

- Insect Updates 1
- Cattle Care 2
- Disease/Health 2
- Special Topics 3
- Journal Review 4

## Insect Updates

### Treating Stable Flies in Pastures

Stable flies have been found to cost the US cattle industry close to \$1 billion each year, due to reduced milk production in dairy cows, decreased weight gain in beef cattle, and lowered feed efficiency.

Stable flies are not only a problem in barnyards and stables for which they are named, but in pastures as

well. The move of stable flies to the pastures is in part due to the use of large bales of hay placed in fields as supplemental feed for cattle.

These feeding sites where wasted hay, manure, and urine accumulate produce an ideal habit for stable flies.

Recent research from USDA – ARS in Lincoln, Nebraska

found that sprinkling cyromazine, an insect growth regulator, onto hay-feeding sites reduced the number of emerging adult stable flies by 97 percent.

Researchers also suggest a “push and pull” strategy where catnip is used to drive stable flies to another location containing harsher chemicals or traps.

More to come on this and I will keep you posted.

### TAHC Releases a Portion of the Fever Tick Temporary Quarantine Area in Starr County

Texas Animal Health Commission (TAHC) has announced the release of a portion of the remaining temporary preventative fever tick quarantine area (TPQA) in South Texas (Starr County), effective February 15, 2013.

TAHC established a TPQA for portions of Starr County in July, 2007 following findings

of cattle fever tick infestations. The size of the area currently being released consists of 23,478 acres. This reduces the quarantine area in Starr County to 33,024 acres. Previously 42,111 acres and 45,969 acres were released.

The release of this portion of Starr County temporary quarantine area rescinds all movement restrictions placed

on the livestock and wildlife within that area.

The newly released area is located west of FM 649 in the northwestern part of the county.

A full description of the remaining Starr County TPQA may be found at [www.tahc.texas.gov](http://www.tahc.texas.gov).

### Mexican Honey Wasps

*Borrowed from Molly Keck, IPM Program Specialist in San Antonio*

Something new to homeowners is the presence of big ball shaped hives in trees. These are not bees, as many might think; they are in fact Mexican Honey Wasps.

The Mexican honey wasps are very small in size, 5-7 mm, similar in size to house flies and they are non-aggressive.

The wasps look nothing like bees, in that they are not hairy,

much smaller, nearly all black, and have none of the markings of a bee.

Mexican honey wasps, *Brachygastra mellifica*, are a social wasp that builds paper nests in the canopy of trees and shrubs. They are native to Texas and range from Texas to Nicaragua. There are 16 different species but only one thus far reported in Texas.

Colonies can be quite large, containing up to 18,000 wasps, and can cause concern when

spotted by homeowners in the branches of their trees. The hive can be the size of a large basketball or shaped like a football.

As long as you leave them alone, they will leave you alone. They are considered beneficial insects and are nectar gatherers, pollinators and known to predate upon harmful insects such as the Asian citrus psyllid, a pest that causes citrus greening in citrus.



“Treating too early can mean cattle become re-infected soon after treatment, unless the deworming product has residual activity to extend through the infective period.”

## Cattle Care

### Involve your vet in parasite control

A good parasite-control program can provide some of the highest economic returns of any management practice available to beef producers, but timing and product selection are critical.

Most producers do not consult their veterinarians in their decisions but there is value of involving a veterinarian in planning parasite-control program.

A study out of Iowa State University shows that parasite

control can return as much as \$201 per head due to better health, improved weight gains and reproductive efficiency.

A good deworming program typically can improve calf weaning weights by 25 lbs – worth close to \$50 in today’s market – for a treatment cost of about a penny per pound or \$5 for a 500-pound calf.

Resistance among worm species affecting cattle has not become a widespread problem,

but veterinarians and parasitologists have become concerned as some resistance populations have turned up, particularly *Cooperia* spp.

Timing is an important consideration in spring deworming; most cases (10% of worms on the ranch) are in the animals while 90% are on the pastures. Worms that overwinter on pastures move up from the ground onto forage plants during March and April in the south.

## Human & Animal Disease & Health

### Crypto similar in organic and conventional dairies

#### Abandoned cattle near Fukushima have radioactive elements

Cattle found near the nuclear power plant struck by an earthquake and tsunami 2 years ago are found to be contaminated with radioactive elements.

Thousands of cows were left in the restricted area following the natural disasters occurring in March 2011. The power plant released radioactive materials into the prefecture and the area wasn’t declared stable until Dec 2011.

A Swedish study reported in the March 2013 Journal of Epidemiology & Infection indicates that there is a similar prevalence of *Cryptosporidium* spp. in organic and conventional dairies.

The researchers sampled 221 calves and 259 cows from 13

organic and 13 conventional dairy herds.

The results indicate that the prevalence of Crypto was similar in both organic and conventional calves (44.7% vs. 52.3%), as well as in the cows (3.1% vs. 3.8%). Three different crypto species were

identified.

Cryptosporidiosis is mainly found to occur in very young animals, among calves 1 to 3 weeks old are the most susceptible. Clinical signs may include anorexia, diarrhea, tenesmus and weight loss.

### 6 tips to reduce exposure to *E. coli*

Disease causing bacteria, like *E. coli*, can have very negative effects on calves, especially those less than 5 days old.

Jason Leonard, Calf and Heifer specialist with Land O’Lakes Purina Feed suggests the following tips to aid in reducing exposure of newborn calves to *E. coli* and other bacteria:

- Clean and disinfect calving pens in between every birth

- Maintain normal stocking density in calving pens even during high calving times (at least 144 sq. ft./cow).

Overcrowding increases the bacteria amount.

- Do not move the cow into the calving pen until she is starting the birthing process. This decreases disease shedding time in the environment where the calf will be born.

- Move the calf from the calving pen into a clean individual pen within 2 hours of birth.

- Do not allow the calf to suckle its mother. Udders are often contaminated with bacteria that can harm the calf.

- Dip the navel of the newborn calf immediately after birth, 7% tincture of iodine is recommended but a 50/50 blend of Nolvasan and 70% rubbing alcohol is a good alternative if the iodine is not available.

# Special Topics of Interest

## Where have all the beef cows gone?

Cattle numbers are down again, lowest level since 1952, according to USDA. Beef cow numbers are at their lowest since 1962 due to the 2012 drought. Other reasons for the decrease are high feed and forage prices, persistent drought in the Southern Plains and the widespread Midwestern drought of 2012.

The 2012 drought was just the latest event to result in the liquidation of cows that has been accelerating since 2007.

Nationally, beef cow herds have dropped by 3.6 million head (11%). It has been difficult for the beef industry to compete for high priced feed and limited land that is being converted to corn and soybean production.

What will it take to turn the herd decline around?

The answer is more rain, more crop production, and more pasture and

forage production. Larger crop and forage production would increase availability and lower prices of these critical feedstuffs.

Finished cattle prices should strengthen into the spring as beef supplies drop.

If crop and forage production returns to near normal, the cattle industry is poised for multiple years of favorable returns and expansion.

## Consumers' pain worsens with tax hike, gas costs

Rising taxes and soaring gasoline prices have slashed spending power at the lower end of the economy, according to fast food executives, discount retailers, and other companies catering to budget-conscious consumers.

People that have the least flexibility in their budgets are the ones that are suffering the most from a series of blows: the Jan 1 expiration of a 2% cut in payroll taxes, a delay in income tax refund payments, and a 30 cent increase in gasoline prices.

"Between gas and this tax, it's a one-two punch to the consumer," said Steve Nevill, a managing director of AlixPartners. "People are going to trade down. You've basically taken money out of people's pockets."

## Should we feed the bears?

Polar bears are not seeing enough cold and snow now-a-days, and this is a problem for everyone.

The demise of polar bears may affect how the cattle industry business is conducted in the near future.

It is estimated that there are only 20,000 to 25,000 bears currently worldwide and they could become extinct within the next 30 to 40 years.

The plight of polar bears is tied to the rapidly declining Arctic sea ice, which is down 409,000 square miles from the 1979 to 2000 average.

Polar bears are sea ice-dependent because they hunt

blubber-rich seals from ice floes. The ice floes allow the bears to advance farther out into the sea where the seals are found. The sea ice has started to form later in the year than in the past and this forces the bears to stay on shore for longer periods of time, reducing their feeding season.

All of which amounts to poor nutrition for the bears, and a host of predictable problems: declines in body condition, lower reproductive rates, lower survival rates and a declining population.

There is much concern about polar bears and that is where farmers come in. There is

discussion to start helicoptering food to them at a fee of \$32,000 / day.

This affects farmers in the fact that polar bear decline is associated with Global Warming and livestock production has been wrongly accused of causing this global change.

That's why you should care about the plight of polar bears. **Should we feed them?**

Those images of helicopters airlifting food to starving polar bears would surely make every news outlet in the country. And so will the images of polar bears left to starve.



*"No one wants see these bears or any other animal starve. But the more the bears suffer the more they will make headlines as casualties of Global Warming."*

## Another reason to get calcium from food rather than supplements

To many a calcium supplement is a quick fix when you are busy but a new study shows that supplements may lead to a higher risk of heart disease for men. Actually consuming calcium-packed foods may be the better way to go.

The study, published in the journal *JAMA Internal Medicine*, found that men who took at least 1,000 milligrams of calcium

supplements daily had a 20% higher chance of dying from cardiovascular disease.

But the results are not the same for women.

The lead author, Qian Xiao a cancer prevention fellow at the National Cancer Institute in Bethesda, Md, says that the

findings add to the "evidence base," but more research is needed to "clarify the underlying mechanism."

Foods that are naturally high in calcium might be a better choice than supplements. Good sources of calcium include low-fat dairy foods, beans and green leafy vegetables.

## Is beef in danger of becoming a “luxury” item?

The cattle industry was aware that shrinking herd sizes and steady demand for beef would raise prices but some in the industry are worried.

Economists are wondering if beef prices will rise to the point that consumers will see it as a luxury good and choose alternatives such as chicken, pork and fish.

It was recently reported by USA Today that beef prices have increased by an

average of a dollar per pound since 2007 and are expected to increase by up to an additional 10% before the summer.

Grocers and restaurants will be searching for ways to maintain consumer demand. Restaurants have previously avoided passing on high food costs to consumers by serving smaller portions but that might change.

Mike Hoffman, meat director at Dahl's Foods in Des Moines, has adopted the strategy of selling higher-priced beef cuts

in 12 oz packages instead of 16 oz. He has also started selling smaller, cheaper cuts for \$4 to “keep costumers' taste for beef alive.”

Experts expect consumers to continue to eat beef but may exchange middle meat products for cheaper options like ground beef and other value cuts.

Beef consumption was 57.3 lbs. per person in 2012 and is forecast to fall to below 55.5 lbs. per capita in 2013 and below 53 lbs. per capita in 2014.

## Journal Reviews

Field measurements of stable fly demography, fecundity, and survival based on daily trap catches at a beef farm in Southern Ontario, over a 5-yr period. 2012. Beresford and Sutcliffe. *J Med Entomol.* 49: 1262-1269.

Stable fly populations were sampled with CO<sub>2</sub> baited cloth trap (Nzi trap) each day throughout summer and autumn from 1997 to 2001 in Canada.

Fecundity, development and survivability was determined and/or calculated for each

year.

Over the study period 2,512 females were collected, 42.4% of these were unmated.

Years of higher rainfall had increased

fecundity but no apparent effect on survival rates.

**The Impact:** The value of this study is centered around understanding these flies and finding better ways to fight them in the field.

Mortality of adult *Stomoxys calcitrans* fed isolates of *Bacillus thuringiensis*. 2012. Lysyk et al. *J Econ Entomol.* 105: 1863-1870.

Five isolates of *Bacillus thuringiensis* were tested on stable fly adults for mortality.

The isolates of *Bt* were given to the adult flies in their diets containing blood only, sugar only, and both sugar and blood combined.

*Bt tolworthi* had not effect on adult mortality regardless of the feeding substrate. The remaining isolates tended to cause the greatest mortality when given in blood alone.

*Bt thompsoni* was the only consist isolate when fed at the range of 0.21 to 50.0 µg of protein per ml of blood. This isolate also

caused mortality when applied topically.

**The Impact.** It is necessary to look for natural alternative insect control now-a-days but blood feeding pests are limited. This data shows promise for using *Bt* to livestock pests.

Effects of pyriproxyfen and buprofezin on immature development and reproduction in the stable fly. 2012. Liu et al. *Med Vet Entomol.* 26: 379-385.

Two insect growth regulators were tested in the lab against immature stable flies. Both IGRs had significant inhibitory effects on immature development.

Topical treatment of pyriproxyfen on adult stable fly females had negative effects on oviposition and egg hatching but only at the highest doses. Also the flies had to be 1-3 days old, afterwards there was little to no effect.

**The Impact.** These results show potential of using pyriproxyfen as part of an integrated stable fly management program on both adults and larvae alike.

Stable fly phenology in a mixed agricultural – Wildlife ecosystem in Northeast Montana. 2013. Friesen and Johnson. *Environ Entomol.* 42: 49-57.

This study looked at the phenology of stable flies attacking WNV - infected pelicans on a refuge close to pastured and confined cattle.

Adult abundance was lowest at confinement lots but this was the only location where larval development was identified.

All the traps in the pasture collected stable flies, with the ones adjacent to cattle collecting the most. Adults were also collected on the peninsula supporting the pelicans' nesting site, the attractant is

unclear.

Overwintering was found to not be successful at all three locations.

**The Impact.** IN northern regions, stable flies do not overwinter in locations where they feed. In addition, breeding sites are not always the same as the feeding locations

Coroplast cards used for monitoring found temporal dynamic differences from three habitats (peninsula, pasture, confinement lot).

House flies delay fungal infection by fevering: at a cost. 2013. Anderson et al. *Ecological Entomol.* 38: 1 – 10.

The fever behavior in house flies was studied in response to the fungal entomopathogen, *Beauveria bassiana*.

It was found that infected flies preferred higher temperatures and allocated more effort to thermoregulation than uninfected flies.

The flies could not overcome the infection but they were able to alter their survival and lay more eggs relative to infected flies maintained under constant conditions.

However, the flies that fevered had lower egg viability suggesting a

possible cost.

**The Impact.** The researchers showed that fever did not impact or effect the control potential of the fungus. Another alternative for treating house flies naturally but thus far with limited positive results.

Behavioural and electrophysiological responses of females of two species of tabanid to volatiles in urine of different mammals. 2013. Baldacchino et al. *Med Vet Entomol.* 27: 77-85.

Urine volatiles from different ungulates (cows, horses and sheep) were tested as bait for tabanids using Nzi traps in the early summer of 2011. Two particular species were collected most often. The use of horse urine increased

catches of both species and sheep urine increased the catches of one species.

In addition, extracts were tested in the lab.

**The Impact.** Knowing what attracts horse flies will assist in collecting, killing and controlling for them in the field.

Attractiveness of an aggregation pheromone lure and chicken droppings to adults and larvae of *Alphitobius diaperinus* (Coleoptera: Tenebrionidae). 2012. Singh and Johnson. *J Econom Entomol.* 105: 2196-2206.

The chemical cues by lesser mealworm beetles are still unknown. A pheromone lure, fresh chicken droppings and chicken dropping volatile compounds were tested in two-choice pitfall

bioassays in the lab and in the field. Results showed a preference for the pheromone lure over everything else and the attraction was increased with fresh chicken

droppings.

**The Impact.** These results help to better design a better field trap for lesser mealworm beetle adults and larvae.

Efficacy of amitraz-impregnated collars on white-tailed deer in reducing free-living populations of Lone Star ticks. 2012. Pound et al. *J Econom. Entomol.* 105: 2207 – 2212.

Commercially available, amitraz impregnated anti-tick collars were monitored on white-tailed deer over a 7 yr period for control of lone star ticks.

The animals were held in confined areas in two groups: one treated, one

untreated.

Efficacy expressed control percentages of 77.2 and 85% for nymphs and adults, respectively. These results show acaricidal collar treatments provide efficacies similar to those achieved

when using ivermectin-medicated bait and '4-poster' topical treatments.

**The Impact.** The use of the collars provides another viable technology for passively controlling ticks on feeding deer.

Determination of acaricide resistance in *Rhipicephalus (Boophilus) microplus* field populations of Argentina, South Africa, and Australia with the larval tarsal test. 2013. Lovis et al. *J med Entomol.* 50: 326-335.

Bioassays were conducted to determine resistance levels and patterns of *R. (B.) microplus* populations. Field populations from Argentina, south Africa and Australia were tested in the lab. Nine compounds were tested from 5 classes.

Amitraz was found to have resistance in

Argentina, synthetic pyrethroids were found to have resistance in all Argentina farms. In South Africa, one group was resistant to synthetic pyrethroids and pyriprol. Organophosphates and synthetic pyrethroid resistance was seen in Australia.

**The Impact.** Resistance appears to vary based on location and which products are commonly used. Bad thing is there is no consistency and this means cattle fever ticks are resistant to many classes of insecticides, causing limitations in controlling them.

Effects of infection by *Arsenophonus* and *Rickettsia* bacteria on the locomotive ability of the ticks *Amblyomma americanum*, *Dermacentor variabilis* and *Ixodes scapularis*. 2013. Kagemann & Clay. *J Med Entomol.* 50:155-162.

The researchers wanted to see what effect vertically transmitted *Arsenophonus* and *Rickettsia* bacteria had on the locomotive ability of larvae of the three tick species listed.

*Rickettsia* increased motility while *Arsenophorus* decreased motility. In

addition there was a difference between species with *Amblyomma* having higher locomotive speed than the other two species, and *Dermacentor* having higher motility than *Ixodes* on a flat surface.

**The Impact.** Tick motility plays a major role in survivability and reproduction. Tick motility could affect host-seeking success and bacterial infection may indirectly influence disease risk.

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Happy 1<sup>st</sup> Birthday to my  
 baby girls!  
 On March 23<sup>rd</sup>,  
 ALREADY!!

Response of *Amblyomma americanum* and *Dermacentor variabilis* to odorants that attract haematophagous insects. 2013. Carr et al. Med Vet Entomol. 27:86-95.

The attractants CO<sub>2</sub>, 1-octen-3-ol, acetone, ammonium hydroxide, L-lactic-acid, dimethyl trisulphide and isobutyric acid were tested on the two tick species, in a Y-

tube olfactometer bioassay.

Only CO<sub>2</sub> was attractive to *Dermacentor* adults while *Amblyomma* was attracted to all but L-lactic-acid, dimethyl trisulphide and isobutyric acid.

**The Impact.** Some of these chemicals were found to be attractive to *Amblyomma* for the first time and provide additional options for controlling tick populations.

Species, developmental stage and infection with microbial pathogens of engorged ticks removed from dogs and questing ticks. 2012. Leschnik et al. Med Vet Entomol. 26:440-446.

200 ticks were collected by removal from dogs and from the location where dogs acquired the ticks.

infected with one of four pathogens. From the ticks collected in location, 44 were found to be infected.

those from dogs only had one pathogen.

**The Impact.** Pathogenic ticks are more commonly located in the field than on animals. Not sure why but more research is needed.

Out of the ticks collected from dogs, 22 were found to be

In addition, the ticks from the location site where found to have multiple pathogens within while

The effects of *Solenopsis invicta* and burned habitat on the survival of *Amblyomma americanum* and *Amblyomma maculatum*. 2013. Gleim et al. J med Entomol. 50:270-276.

Research was conducted in burned, unburned, Red imported fire ants present or not present against lone star and Gulf Coast ticks.

Gulf Coast ticks had greater survival in burned habitats compared to lone star ticks.

great for Texas where the most common tick is the lone star tick. Burning and having fire ants are great for controlling lone star ticks but if you are down on the coast, fire ants won't help and burning could increase the population of Gulf Coast ticks.

Results showed that lone star tick populations decreased in burned habitats significantly compared to unburned

Fire ants did not have an impact but are more of a factor to lone star ticks over Gulf Coast ticks.

**The Impact.** This information is

Drought-induced amplification of local and regional West Nile virus infection rates in New Jersey. 2013. Johnson & Sukhdeo. J Med Entomol. 50:195-204.

The researchers looked at the influence of temperature and precipitation on seasonal mosquito abundances, the prevalence of West Nile virus in northeast US, and the capacity for local mosquito communities to

maintain and transmit WNV.

Drought conditions were associated with a significant increase in the number of blood-fed *Culex* spp. and therefore higher WNV infection rates.

**The Impact.** It was found that there was a positive influence of drought on WNV amplification, increases in temperature and decreases in precipitation strongly correlated with WNV infection rates.

Susceptibility of larval *Aedes aegypti* and *Aedes albopictus* to Dengue virus. 2013. Bara et al. 50:179-184.

Researchers tested the hypothesis that *A. aegypti* and *A. albopictus* larvae were susceptible to dengue virus through 1) exposure to dengue in the larval environment and 2) exposure to infected tissue cultures.

susceptible to 3 dengue serotypes regardless of exposure method. This indicates that dengue virus could spread among larvae within the larval habitat as well.

**The Impact.** Dengue virus was documented in Texas in 2012, although it is not found to maintain survival. This information shows that it might be possible for the dengue virus to sustain itself in TX.

Livestock/veterinary website  
<http://livestockvetento.tamu.edu>

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