

# Texas Dairy Matters



## Drought in Texas

This year, Texas has suffered from one of the most severe drought periods on record. A drought in Texas isn't unusual, but this year's drought is unprecedented. Looking back at 100 year rainfall charts available on the High Plains Water District website (<http://www.hpwd.com>), 2011 has been the driest year ever recorded. What makes this year different than previous drought periods is that the whole state has been affected and not just isolated areas. From January to August 2011 the National Weather Service in Amarillo reported 2.70" of rainfall. The average precipitation over the last 100 years is 14.8" for the same period (January to August).

A recent water report found levels in 109 lakes dropped by 4 percent, or more than 358 billion gallons, from late May to late June. Of the lakes monitored for the report, just 41 were at or above 85 percent capacity. At least one of the three reservoirs in West Texas may dry up if the drought persists through next year, as climatologists have predicted could happen. That means the district's water supply could be reduced from 65 million gallons a day to 45 million gallons.

Certainly, 2011 was an uncommon year for agriculture in Texas. Producing high quality forage was even more challenging then ever. It was common to see many corn fields abandoned because producers could not apply enough irrigation water to keep up with the corn plant's water demands. Many of these abandoned corn fields were harvested for silage, however their nutritional value might be significantly altered making it a challenge to feed.

Texas AgriLife Extension reported that the drought has led to a record \$5.2 billion in Texas agricultural losses, with the potential for further losses.

Log on to <http://texasdairymatters.org> to subscribe to the quarterly TDM newsletter

Editor: Texas AgriLife Extension Service - Dairy Team

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## East TX Producers Discuss Antibiotic Residue Issues

In early August, dairy producers from East Texas gathered at the Wood County Extension Office to discuss Antibiotic Residues in Meat and Milk over lunch. Dr. Ellen Jordan, Texas AgriLife Extension Service dairy specialist, reviewed the meat residue violations that were reported on the FSIS Residue Violation System in TX during the last 12 months.

To minimize the chances of a meat or milk residue develop a proactive residue prevention plan with your herd veterinarian.

- 1) Develop written treatment protocols with your veterinarian that include dose, route of administration, meat withdrawal length and milk discard times.
- 2) Select products with assistance of your veterinarian for efficacy. Consider drug residue risk in selection process.
- 3) Follow label directions for over-the-counter (OTC), prescription, and extra-label drug use. Make a file that contains the complete label for each pharmaceutical used.
- 4) Inventory your pharmaceuticals regularly and keep pharmaceuticals for lactating and non-lactating animals in separate locations. Do not keep PROHIBITED drugs on the dairy. At least ANNUALLY check that all pharmaceuticals are still on the approved list.
- 5) Train your employees on your farm protocols and insist on adherence to those protocols.
- 6) Keep good records, including the following:
 

<ul style="list-style-type: none"> <li>• Animal identification – eartag or other ID</li> <li>• Drug used</li> <li>• Date drug administered</li> <li>• Route of administration</li> </ul>	<ul style="list-style-type: none"> <li>• Person administering</li> <li>• Dosage of drug administered</li> <li>• Milk withdrawal time</li> <li>• Meat withdrawal time</li> </ul>
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- 7) Check the records of every animal prior to shipping the animal to slaughter or before putting milk in the tank.
- 8) Adhere to vaccine withdrawals as well (in general, oil adjuvant vaccines – 60 days; other vaccines – 21 days)
- 9) Develop a list of animal exceptions that may require additional withdrawal periods. Some common issues extending withdrawal periods can be: dehydration, kidney failure, liver problems, poor rumen function, off-feed, etc. In other words, anything that may slow the metabolism of the cow. Work with your veterinarian to develop a drug screening plan for these animals.
- 10) Consider extra safeguards for a recently purchased animal.

## New sales tax exemption requirements for commercial agriculture and timber operations

House Bill 268, passed during the 82nd Regular Legislative Session (2011), requires that a person claiming an exemption from sales tax on the purchase of certain items used in the production of agricultural and timber products must provide a registration number issued by the Comptroller of Public Accounts on the exemption certificate issued to the seller.

For more information visit:

[http://www.window.state.tx.us/taxinfo/taxpubs/ag\\_timber\\_exemption.html](http://www.window.state.tx.us/taxinfo/taxpubs/ag_timber_exemption.html)

*This year the Southern Great Plains Dairy Consortium in New Mexico surpassed last year's attendance with 52 students from 13 Universities.*

*USDA releases a report on the introduction and spread of Tuberculosis in the United States. Find out more on the USDA website.*

*Research from McMaster University reports that milk is more effective to hydrate kids than sports drinks.*

*The U.S. ended the summer with the smallest corn stockpiles in seven years according to analysts, reflecting a smaller 2010 crop and record consumption by ethanol producers.*



## Get the Most out of Your Feed

Kevin Lager, MS, PAS

Texas AgriLife Extension Service – Canyon, TX

Feed costs are the greatest expense on a dairy. With feed prices moving higher, margins will become even tighter, making it difficult to build equity. A choice looms: cut back or remove feed ingredients from the ration, or forge ahead and maintain current ingredient levels. Either way, re-visiting feed management pays off. If feed has been forward contracted for a lesser price, or is already stored in the bunker, it still must be closely managed.

With either option, where do you start when it comes to getting the most out of your feed? Walk out to the commodity barn on a windy day. Watch what is happening. How much feed is blowing away as the feeder is loading feed into the mixer? Or as the wind swirls through the bays, which bays lose feed? Small particles are very easily moved even with minor wind gusts, causing feed loss or “shrink.” Pelletizing; making a premix with dry, small particle feeds; and adding moisture may combat losses to wind.

Next, how do you monitor feed inventory? Adopt available software programs that track the amount of feed used in making the total mixed ration. In addition to monitoring “shrink,” it

even calculates the accuracy with which each ingredient is added to every load. In some cases, the savings in reduced feed waste pays for the software in a few years. Consider giving incentives to employees with the greatest accuracy in mixing feed.

Now take a look at silage piles. View the silage face and surrounding areas. Make note of face spoilage, whether fluid (leachate) exits the pile, and damage to the silage covering. Correcting spoilage and leachate issues require changes on the front end of storage. Both may be examples of poor packing or sizing the pile too large for the daily feedout rate. Nutrient leaching results from chopping the forage at a low dry matter. Repair damage to the silage covering immediately to prevent extended silage exposure to oxygen, which restarts fermentation and increases dry matter losses. Recheck silage chop length and the extent of kernel processing when viewing the silage. Should either differ from expectation, make note. Although it's too late for the current crop, plan corrective actions for the next silage harvested.

Reducing shrink through improved feed management also helps maintain feed quality. Increased vigilance pays off in recognizing losses that may be occurring through spoilage,

allowing for action to be taken to remedy the situation. As quality goes up, the benefits to the animals consuming the feed increase since nutrient availability improves.

Involve multiple individuals to get the most out of your feed by decreasing shrink and maintaining quality. Instruct feeders to conduct daily inspections of feed to monitor quality and report issues. Ask your nutritionist to include a walkthrough of the commodity areas to provide additional scrutiny during their regular visit. Continued attention to feed management detail provides benefits in the long-term by reducing feed costs and maintaining feed quality.

Following the procedures outlined previously can help you get the most out of your feed.





## Evaporative Cooling for Dry Cows: Does it pay?

Todd Bilby, PhD

Texas AgriLife Research and Extension Service – Stephenville, TX

Traditionally, dry pregnant cows receive little protection from heat stress (HS), because they are not lactating. It is incorrectly assumed they are less prone to heat stress. Additional stressors occur during this period due to abrupt physiological, nutritional, and environmental changes. These changes increase the cows' susceptibility to HS and have a critical influence on postpartum cow health, milk production and reproduction.

Researchers in California observed that dry cows with feed line sprinklers, fans and shade (evaporative cooling) had an increase in milk yield for the first 60 days after calving compared to cows with only feed line sprinklers. No difference in body condition score changes, incidence of postparturient disorders, or serum non-esterified fatty acid concentrations occurred.

To estimate the potential economic benefit, a partial budget was constructed with marginal costs and returns (Table 1). Marginal capital costs included the cost of purchasing and installing the fans, metal frame, and shade cloth. Annual operating costs include an estimate for routine maintenance and cleaning of fans, electricity required to power the fans, and an additional marginal 1.32 lb of feed (dry matter basis) that cooled cows might consume. Economic returns from the evaporative cooling include the additional milk over the first 60 days of lactation for cows completing a 14 day stay in the dry pen and successfully completing the first 60 days of lactation. With the 3.08 lb increase in milk per day, cows ate additional feed, netting a marginal milk price of \$0.10/lb of milk.

Cooling dry cows with shades, fans, and sprinklers compared with only sprinklers improved milk production within the first 60 days by 185.5 lb/cow, and increased estimated annual profits by \$8.92/cow (based on milk only). The \$8.92/cow/yr return is probably underestimated, since reproduction information was not collected to estimate the added benefit reported in other studies. Additionally shade structures were positioned in a north-south orientation, so there would not have been shade over the feed line

during the late morning and mid-afternoon.

Evaporative cooling provides the greatest opportunity to reduce the negative effects of HS during both the pre- and postpartum periods. Cooling dry cows with feed line sprinklers, fans and shades proved to be beneficial for increasing milk yield after subsequent calving with a significant return on investment compared to cows cooled with feed line sprinklers only.

Table 1. Projected economic returns for dry cow pen fans, sprinklers, and shades vs. sprinklers only based on marginal milk production for the first 60 days of lactation for dry multiparous Holstein cows enrolled from June

Period, yr.	5
Fans used, no.	7
No. cows cooled/summer	239
Interest rate (cost capital)	7.00%
Cows culled in first 60 d (%)	10.00%
Median DIM at culling	25
<b>Capital costs:</b>	
Fans, shade cloth, frame, etc.	\$7,040.00
Residual value of capital equipment after 5 yr	\$1,500.00
Annual capital costs	\$1,456.15
Annual operating costs	\$776.78
<b>Total annual costs</b>	<b>\$2,232.93</b>
<b>Returns:</b>	
Additional milk over 60 DIM, kg/day	3.08 lb/d
Marginal milk price for additional milk, \$/lb	\$0.10
<b>Total annual benefit (milk returns)</b>	<b>\$4,363.66</b>
<b>Profit per year (based on milk only)</b>	<b>\$2,130.72</b>
<b>Profit per cow per year</b>	<b>\$8.92</b>

\* Adapted from Urdaz et al., 2006.



## Produce Meat and Milk Free of Antibiotics

Ellen Jordan , PhD, ACAN

Texas AgriLife Extension Service – Dallas , TX

An *antibiotic* is a substance or compound that kills bacteria or inhibits their growth. Penicillin, a common antibiotic, was first discovered in 1928. Other antibiotic discoveries have followed. The therapeutic usage in food animals began shortly after their discovery. Antibiotics are used both to treat and prevent diseases in food animals. Approximately 87% of all antibiotics used in animals are for treatment of disease.

Antibiotic usage is necessary to treat sick animals and to protect the food supply. Some antibiotics are used for treating mastitis. Whenever using an antibiotic to treat a cow, record the following information:

Date

Cow ID

Diagnosis

Treatment

Withdrawal time for meat and milk

Records help a) identify new problems, b) assist the herd owner with determining what may be the cause of an illness or disorder, c) provide information to evaluate whether treatments are working, and d) track cows that need to be rechecked or withheld from the meat or milk supply.

### What Are the Consequences of Residues in Meat or Milk?

At the slaughter plant a carcass that tests positive for antibiotics is con-

demned and discarded. If a milk tank tests positive for an antibiotic residue, the milk is discarded. Either way the producer does not get paid. The violation is reported to USDA or FDA. For meat residues, there is a residue violator list posted on the web. Producers may lose their ability to sell milk or cows for beef, depending upon the number of violations and the antibiotics identified.

During 2009, over 99.9% of all milk tanker trucks were negative for antibiotics. On the meat side, the results aren't nearly as good. The total number of animals slaughtered was not reported by FSIS (Food Safety Inspection Service); however over half of the cattle found in violation during one week in 2010 were from dairy cows. In addition, veal calves had over a third of the animals on the positive residue list that week.

### Reduce the Risk of Residues

When treating an animal, read and follow directions on the label or from the farm veterinarian. Record the treatment. If any antibiotics are used in treatments:

Mark the cow,

Follow discard protocols for milk,

Record MEAT withdrawal time.

**Remember there are two “withdrawal” times** - one for milk and one for meat.

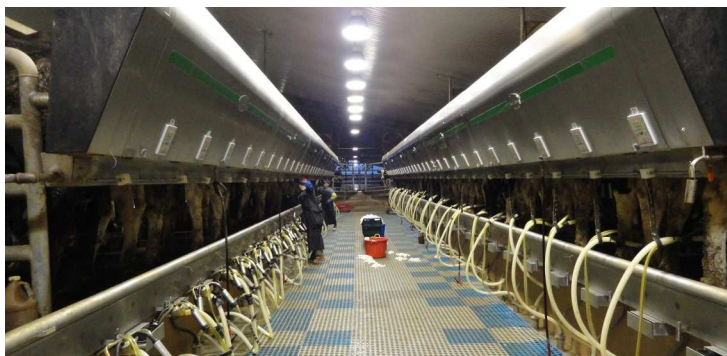
Communication is the key to preventing residues. Communicate to and between employees, owners, and veterinarians. Label all antibiotics properly. Store drugs properly in a clean, temperature controlled, locked location. Separate medications for lactating and non-lactating animals to reduce the chance of accidental residue violations. Maintain an accurate inventory.

Follow the directions for the amount of antibiotic to be used, the number of times to treat, and the amount of time between treatments. If a cow doesn't respond, follow farm policy developed with the herd veterinarian for further diagnosis or treatment.

For a detailed resource manual, including a complete list of FDA-approved drugs for use in lactating and non-lactating dairy cattle, visit the National Dairy FARM Program website at: <http://www.nationaldairyfarm.com> and click on the *Milk and Dairy Beef Residue Prevention Manual*.

### Final Words on Antibiotics

What we all want is to produce a healthy, wholesome product. Our goals, when using medications, should include: a product, meat or milk, free of residues; preventing antimicrobial resistance; and meat that is free from injection sites which detract from beef quality.





## Evaluating Sexed Semen for Dairy Heifers

Ralph Bruno, DVM, MPVM, PAS

Texas AgriLife Extension Service – Canyon, TX

The sex sorting of semen is a relatively new technology that has been commercially available to U.S. dairy producers since early 2006. The process of sorting semen by gender was developed in the late 1980's and has improved significantly over time. Today, most sexed semen is sorted so that 85 – 90% of the offspring are of the desired gender.

For dairy, sexed semen technology increases the chance of a heifer calf from about 50 % with conventional semen to nearly 90 % when sexed semen is used. Increasing the number of heifer calves born on the dairy allows a producer to rapidly expand the herd from within. Since heifer calves tend to be smaller than bull calves, their delivery is usually easier. Thus, another benefit is fewer calving problems (dystocia).

Besides the increased cost of sexed semen, decreased conception risk (CR) prevents some producers from adopting this technology. Conception risk declines 12 to 20 % compared to conventional semen. Because of this undesirable feature, sexed semen has been primarily used and is only recommended for virgin heifers.

Producers must evaluate the economics of using sexed semen based on their herd information. To simplify comparisons, assume all insemination costs except the price of sexed or conventional semen remain the same. First, determine the current CR and what percent of heifer calves is desired. Once this information is known, the next step is to calculate how low the CR for sexed semen can be without compromising the number of heifers born.

Typically this information can be obtained from dairy management software program. For example, on DairyComp 305, the command BRED-SUM\CY retrieves the CR for virgin heifers. The command EVENTS FOR LACT=1\3 provides the percentage of heifers born.

With this information, you can then use Table 1 to estimate how low CR can be without decreasing the number of heifers born if sexed semen technology is adopted. For example, if the average CR (rows on Table 1) for virgin heifers is 60 % with 50 % female offspring (columns on table 1), every 100 inseminations is expected to yield 30 female offspring. If sexed semen results in 85 % female offspring, the lowest CR required to yield 30 females is 35 % (Table 1).

If you decide to adopt sexed semen for virgin heifers, some tips to maximize the CR include:

- Use the appropriate breeding gun for the straw size.
- Thaw straws according to supplier's directions, typically in a 95° F water bath for 45 seconds.
- Provide warm, draft-free semen thawing and handling environments.
- Warm all semen handling materials such as guns and sheaths prior to contacting straws.
- Assign only experienced technicians to breed with this product.
- Use only on heifers that are over 60% of their mature weight by 14 months of age that are in good BCS.
- Inseminate heifers 8 to 12 hours after observed estrus (AM/PM Rule).
- Breed based on observed estrus rather than at a timed insemination for best results.

**Table 1** – Number of female offspring resulting from 100 AI based on varying conception risk and percentage of female offspring expected.

		Female offspring (%)					
		50	70	80	85	90	95
Conception risk (%)	25	13	18	20	21	23	24
	30	15	21	24	26	27	29
	35	18	25	28	30	32	33
	40	20	28	32	34	36	38
	45	23	32	36	38	41	43
	55	28	39	44	47	50	52
	60	30	42	48	51	54	57
	65	33	46	52	55	59	62
	70	35	49	56	60	63	67
75	38	53	60	64	68	71	



## Southwest Regional Dairy Center

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The Southwest Regional Dairy Center should be milking cows within a couple months! Currently, dairy heifers were brought to the dairy center to break in the new dairy before bringing the milking cows. This long awaited event has been delayed due to some modifications being made to the facility to ensure the best cow comfort and functionality possible before milking. The Southwest Regional Dairy Center is the premiere research, teaching and extension center in the Southwest and the only University dairy in Texas.

On October 26, 2011 the Texas

### DOPA Credits

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AgriLife Extension Service, Erath County Dairy Committee will view the “**Virtual Renewable Energy Education Field Day**” webinar via the internet and offer DOPA credits for producers in attendance. Producers will be able to watch from their homes or offices but to receive DOPA Credits they will need to participate in the webinar at the Southwest Regional Dairy Center. We will offer 6 hours of credits in 2 hour blocks. For more details visit: <http://texasdairymatters.org> or contact Erath County office at 254-965-1460.

## Drip Irrigation Field Day

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Recent developments in a relatively new technology in irrigation management were on display at a recent field day in the Texas Panhandle. Implementation of drip irrigation is spreading across the panhandle as changes in water regulations and decreasing water levels in the aquifer have progressive producers searching for ways to get more out of the water they have available.

Curtis Preston, county extension agent in Bailey county, organized the event which included presentations on the advantages and disadvantages of drip irrigation, what considerations must be made before installing a system, and what opportunities are available for cost sharing through the National Resources Conservation Service (NRCS).

This event provided the opportunity to see first hand how a system works and for producers to ask questions of industry representatives, an AgriLife agriculture engineer, a NRCS representative as well as the producers who own and operate the drip irrigation systems to gain knowledge about what to expect if considering installing a drip irrigation system.

## HPWD Rule Amendments

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On July 19, 2011 the Board of Directors of the High Plains Underground Water Conservation District No. 1 approved rule amendments to implement the district's 50/50 management goal to have 50 % of the saturated thickness of the Ogallala Aquifer in 2010 available for use in 2060. The main points include a step-down of allowable pumping rates beginning in 2012 at 1.75 acre ft., 2014 at 1.5 acre ft. and thereafter 2016 at 1.25 acre ft. per contiguous acre; allowance for carrying a water balance forward for no more than 3 years; metering with a District approved meter or alternate measuring method and reporting of water use on all wells and well systems meeting specified requirements beginning in 2012. For more details visit <http://www.hpwd.com/>.

## Drug Residue Training

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On October 11–12 Texas AgriLife Extension Service in conjunction with New Mexico State University Dairy Extension will be offering **Drug Residue Training** for dairy producers and employees at the 4-H Building in Clovis, NM. For more information call (575) 985-2292.



# People from the Texas Dairy Industry



**Dr. Steve Amosson** has served as an Area Economist for Texas AgriLife Extension Service based in Amarillo. He places emphasis on developing educational resources and conducting applied research in support of all segments of the agriculture industry in the areas of marketing, management, finance, policy, and community development.



**Dr. Pablo Pinedo, DVM, PhD** is an assistant professor in ruminant animal health with Texas AgriLife Research in Amarillo. He was previously a resident scientist at the University of Florida with the Food Animal Reproduction and Medicine Service in the College of Veterinary Medicine. He earned a doctorate of veterinary medicine in 1993 from the University of Chile, Santiago, Chile and a doctorate of philosophy in 2008 from the UFL, where he completed his residency.

**Ask a question of our dairy team** - [texasdairymatters@ag.tamu.edu](mailto:texasdairymatters@ag.tamu.edu)

## Texas AgriLife Extension Service Dairy Team



**Todd Bilby, PhD**



**Ralph Bruno, DVM, MPVM**



**Ellen Jordan, PhD, ACAN**



**Kevin Lager, MS**

### Save the dates:

**Oct. 4 - 8** – World Dairy Expo, Madison, WI - <http://texasdairymatters.org>

**Oct. 11 - 12** – Drug Residue Training, Clovis, NM - <http://texasdairymatters.org>

**Oct. 26** – A Virtual Renewable Energy Education Field Day, Stephenville, TX, - <http://texasdairymatters.org>

**Nov. 10 - 11** – DCRC Annual Meeting, Kansas City, MO - [www.dcrcouncil.org](http://www.dcrcouncil.org)

**Nov. 29 - Dec. 1** – Amarillo Farm and Ranch Show, Amarillo, TX - [www.farmshows.com](http://www.farmshows.com)

**Dec 15** – Dr. Tom Fuhrmann Presentation, Stephenville, TX, - <http://texasdairymatters.org>

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