

# Oldham County Ag Talk

## Fall 2016



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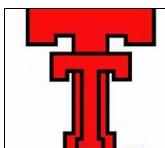
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Hope everyone had a great summer. I believe last time I put out a newsletter we had been getting some rain as well. Hope everyone is enjoying it like we have.

Those of you with smart phones have you ever done a search for "Apps" that could benefit you in your line of work within agriculture? If not, there are quite a few out there. Texas A&M AgriLife Extension and USDA have published a list. I am sure there are more now than when this list was published. Here is the first of 10 pages. If would like to view the rest, visit <http://aged.illinois.edu/sites/aged.illinois.edu/files/resources/Apps-for-Ag-Revised.pdf>



### Apps for Agriculture

	<b>Commodity Prices.</b> Track corn, soybeans, wheat, cotton, lean hogs, live cattle, feeder cattle and more. The app has a clean interface and is simple to operate. As one Android Market reviewer commented, it is "dead-on right all day, every day."
	<b>Cash Grain Bids.</b> Simply input your ZIP code to find out cash bids and base levels in your area. Get bids from the five elevators closest to you.
	<b>Weather Underground.</b> There are many weather apps, and this one holds up as well as any of them. Lots of information is available, including temperature, visibility and humidity. View hourly and seven-day forecasts, too.
	<b>USDA News Reader.</b> Create your own news feeds, learn about recovery plans and programs, and easily navigate the massive USDA website in a mobile-friendly environment.
	<b>Virtual Farm Manager.</b> This subscription-based service helps you store, view and log information about your fields. There are many other management apps; this one is notable because it was developed by farmers Jacob Fannik of Max, N.D., and Ryan Raguse of Wheaton, Minn.
	<b>SoilWeb.</b> USDA—National Resources Conservation Service soil survey information at the touch of a button. The app works with your phone's GPS receiver to identify soil properties anywhere in the lower 48 states where there is cell phone coverage.
	<b>MyTraps.</b> This subscription-based service allows farmers and consultants to place insect traps wherever they want and then track the movement of insect pests across their fields throughout the season. This provides data that helps users to more accurately target their insecticide applications to areas where there are concentrated populations.
	<b>Livestock Manager.</b> A lot of mobile apps are targeted to livestock producers. This particular one allows users to track various information about their animals, including parentage, transport information, medicine administration and more.

To keep up with Oldham County's 4-H program and great articles for producers; find us on Facebook by searching "[Oldham County Texas A&M AgriLife Extension Service and 4-H](#)"

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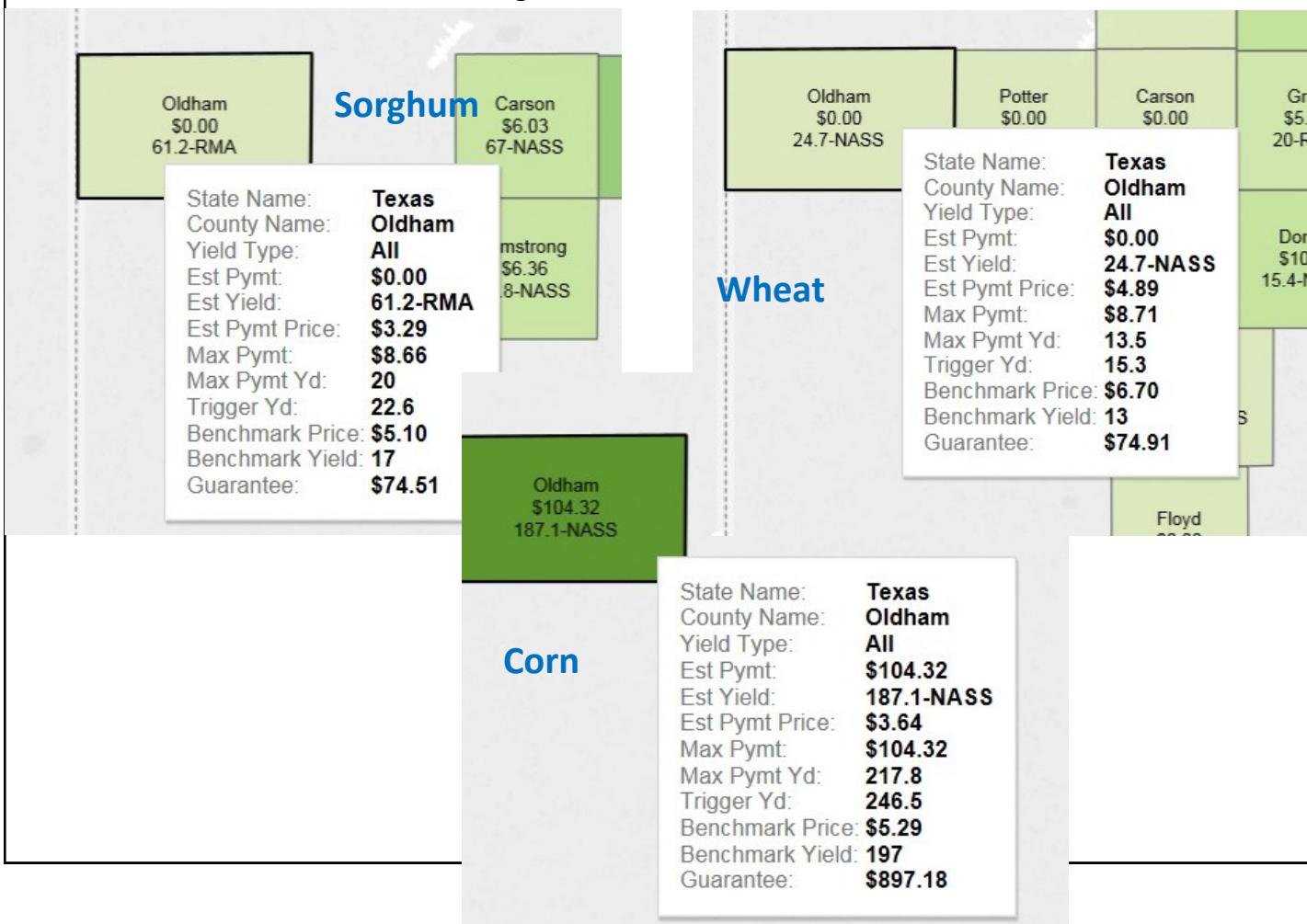
### Price Loss Coverage (PLC)-

A “Deep Loss” program that Covers Losses in Income Due to National Price Declines of Covered Commodity Below Established Reference Prices.

### **2015 PLC Payment Projections (Received October 2016)**

- 2015 National Avg Wheat Price \$4.89/bu (actual)  
Wheat Reference Price \$5.50/bu  
**2015 Payment** \$0.61/bu
- 2015 National Avg Sorghum Price \$3.29/bu (projected)  
Sorghum Reference Price \$3.95/bu  
**2015 Payment** \$0.66/bu
- 2015 National Average Corn Price \$3.65/bu (projected)  
Sorghum Reference Price \$3.70/bu  
**2015 Payment** \$0.05/bu
- 2015 National Avg Peanut Price \$380/ton (projected)  
Peanut Reference Price \$535/ton  
**2015 Payment** \$155/ton

- ARC payments will be more difficult to calculate until 2015 county yields are published, but Kansas State has a decision aid where producers can click on their county and get a reasonable estimate. Here are images of those estimates.



# Prussic Acid Misconceptions – Dr. Ted McCollum

**Dr. Ted McCollum, Extension Beef Cattle Specialist with Texas A&M AgriLife Extension Service, explains that prussic/cyanide levels when there is a frost/freeze event is one of the most confusing and misleading statements in most extension and popular press articles. Here's the skinny on the actual facts brought to you by thee Dr. McCollum:**

"The cyanide(prussic acid) in plants does not exist in a free, liberated state. The cyanide is part of a larger molecule called a cyanogenic glycoside. In members of the sorghum family this compound is Dhurrin; in chokecherries, wild cherries, mountain mahogany, among others, and the kernels of almonds, peaches, apricots and apples this is Amygdalin (laetnile) and Prunasin; in cassava, white clover, flax and lima beans this is Linamarin. These compounds themselves are harmless; the breakdown and liberation of the cyanide is the insult.

A hand grenade represents a "potential" explosion. As long as the pin is in place and the lever (trigger) has not been released that "potential" is not realized; the grenade is harmless. But when the pin is pulled and the trigger is released and the fuse activates and catalyzes the explosion, the potential is realized and potential harm ensues. The cyanogenic glycoside is like the hand grenade. As long as the cyanogenic glycoside remains intact there is only the potential for toxicity; this is sometimes referred to as "cyanide potential". In order for the potential to be realized, something has to trigger the enzymatic action to liberate the cyanide molecule from the glycoside. The beta-glucosidase enzymes that liberate cyanide from the parent glycoside are found in the plant tissue. In the intact plant tissue, the cyanogenic glycosides are found in vacuoles while the enzymes are found in the cytosol. In order for the cyanide to be released the plant tissue must be damaged so that the glycosides and the enzymes come together. The enzymes are also produced by ruminal microbes. Cutting, crimping, mastication, trampling, hail damage, and frost/freeze disrupt cellular structure and allow the glycosides and enzymes to mix and liberate cyanide from the parent glycoside. Introduction into the ruminal environment presents the glycosides to the microbial enzymes and releases cyanide.

So back to the grenade, the cyanogenic glycoside is the grenade and represents "potential toxicity". The damage to the plant tissue or introduction to the ruminal environment pulls the pin and releases the trigger. The subsequent mixing of the glycoside with the enzymes activates the fuse and catalyzes the release of cyanide and a possibly toxic insult.

Back to the freeze/frost —

First, freeze/frost causes tissue damage and will indeed result in an increase in the "free"

cyanide present in plant tissue (In fact, when analyzing cyanide in the lab, the forage samples are first frozen in order to release all of the cyanide; simply analyzing cyanide on fresh samples only indicates what is “free” in the tissue). But remember, when the animal bit, chewed and swallowed that same forage into the ruminal environment just hours before the freeze or frost, the same cascade of events occurred as when the standing forage was exposed freeze/frost a few hours later. The potential for toxicity was always there, different events pulled the pin and released the trigger. So, in order for a freeze/frost to increase toxicity for ruminants (more later) as is stated in the many pubs, the freeze/frost would have to actually stimulate dhurrin (cyanogenic glycoside) synthesis by the plant. In other words, the freeze/frost would have to stimulate the plant to make more hand grenades. I have searched for research to prove that freeze/frost increases dhurrin synthesis (specifically dhurrin since that is the glycoside in sorghums, sudans, johnsongrass) in the plant. It is not there. I recently contacted Dr. Ros Gleadow from Australia who works in the area of cyanogenensis in plants and her response to my query was quote “Dhurrin is not synthesised in response to frost.”

So, the plant does not make more hand grenades in response to frost/freeze which goes back to Dr. Halliburton’s comment which I have reworded with my interpretation of his meaning – The potential toxicity after the freeze was the same as the day before the freeze.

I think some of the misinterpretation and source of information in the pubs stems from studies of long ago where the researchers collected plant samples before and after a freeze and analyzed the cyanide content of the forage tissue. However, they did not freeze the samples before they analyzed them. So, they did not release all of the cyanide before analyses. They found that the amount of “Free” cyanide was higher after the freeze. This is indeed true. BUT, they did not measure “cyanide potential” which is the real concern and as far as I have discerned, if they had measured cyanide potential they would have found no difference before and after the freeze.

We typically deal with ruminants in these grazing forage situations. Ruminants are typically more susceptible to cyanide toxicity because (1) ruminal microbial beta-glucosidase activity, (2) ruminal pH near neutrality – the optimum pH for beta-glucosidase activity.

What about nonruminants? Typically less susceptible to cyanide toxicity (1) no microbial activity in the first stage of digestion (2) acid pH in first stage of digestion slows/eliminates beta-glucosidase activity in ingested forages. So when the nonruminant is ingesting forage with “cyanide potential”, they have some protection because the enzymatic activities that release cyanide are suppressed or absent.

BUT, following a freeze/frost, the possibility for toxicity in a nonruminant may increase. The frost or freeze has liberated the cyanide and the animal will be ingesting free cyanide. The other “protective” mechanisms – no microbial digestion, acid pH in stomach – have been circumvented.”

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## **Answer this: What market do you want to win in? By: Troy Marshall BEEF Magazine**

The American rancher is amazing—give us a target and a little incentive, and we will produce it. However, the challenge of late is trying to determine what environment we are operating in and what the targets are.

Overall there remains an understandable degree of uncertainty surrounding the market, especially after experiencing a historically large decline in prices recently. In and of itself, that doesn't portend well for the beef business, but one tends to feel a little better if you consider that per-capita meat consumption showed its largest jump in roughly 40 years recently. Further, consider that supplies of beef and competing proteins are expected to increase the next couple of years at a much slower rate.

Demand has remained astonishing considering the underlying fundamentals: a strengthening U.S. dollar which sharply curtailed exports, the worst performing economy in four decades and one of the largest drops in disposable income for the middle class in the post-depression era. None of these factors are positive and more importantly, these trends appear to be long term, at least to some degree.

However, there are some positive long-term trends at work as well. First, there's a world population that is expected to reach 9 billion-plus in the next 35 years. Then, while the middle class is shrinking and poverty is growing in the U.S., the trend globally is just the opposite. And most importantly, when given the choice, the world prefers high-quality beef and the U.S. is the largest and most efficient producer of that product.

The short-term trend for the overall health of the beef business is gradually weaker, but the long-term fundamentals are positive. It would require a pessimist of gigantic proportions not to be excited about the future of the beef industry.

The question for ranchers is this: what do I produce and how do I produce it, so that we can ensure our competitiveness in the future and position ourselves for the most consistent and largest profits?

Profitability and success seem to boil down to four relatively well-defined categories – genetics, management, marketing and relationships. The first may be the easiest to define and achieve, and also the most challenging. Market and/or economic signals are pretty clear cut for most traits and whether they are threshold traits or traits with diminishing levels of return, the

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optimum range is fairly well known by producers, given their environment and marketing strategies. As producers, we tend to focus on production traits and will continue to make incredible progress in these areas. What is optimum today will likely be well below average in a decade, but we have the tools and the information to continue to move forward in these areas.

However, it becomes more difficult to assess our present and future when we begin to make the leap from the economic drivers of the feeding sector to the packing sector and eventually to the consumer. The reason for the uncertainty in part is that should margin operators, which is what feeders and packers are, develop a silo mentality and assume they have no vested interest in beef demand, it can tend to distort market signals.

Compound that with the fact that there are many different consumers and that consumer trends tend to change, plus the real substantive genetic antagonisms we contend with, and it becomes more difficult for ranchers to determine what the targets are.

Weight has been king for quite some time and with the spread between cost of gains and prices being so dramatic, that will likely continue to be the case for quite some time. But there is a limitation. Chasing weight at the feed bunk affects mature size and efficiency at the cow-calf level at some point, and we run into portion size and product limitations at some point as well.

I can still remember when the first National Beef Quality Audit was done and there was considerable talk then about red meat yield, retail yield, muscle and leanness. It was made clear that fat was a problem and closely trimmed products shifted the paradigm. There was talk then of wanting to produce all Yield Grade 1s and 2s.

However, a combination of things have led us to a point where we are killing cattle at fatter end points, heavier weights and being increasingly rewarded for marbling. Ironically, the industry has almost abandoned USDA's Yield Grade formula. The electronic cameras now used in packing plants are better predictors of red meat yield and economics have made the pursuit of leaner Yield Grades essentially a joke.

If you are selling on a typical grid, you are leaving money on the table if you aren't producing 10% or higher Yield Grade 4s. Discount lines for heavy carcasses continue to rise, and while packers and feeders are striving to produce 900-pound carcasses, they don't necessarily want the subsequent increase in ribeye area that would result in Yield Grade 1s or 2s.

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Efficiency, weight and marbling seem to be the drivers and we have the tools to make dramatic strides in all three simultaneously. It is important to note that efficiency and weight are interrelated and apply to all segments of the business with sometimes confounding results.

For cow-calf producers, the impact of genetics, management, marketing and relationships is growing larger and more competitive. The reason for that is that the tools to accomplish these goals are improving greatly.

The result is that we are seeing every segment of the industry change and differentiate. Currently, it is most pronounced at the seedstock and cow-calf level, but the gap between the haves and have nots, between the progressive and traditional mindsets, and the commodity and value-added perspectives is widening.

As producers, we have to decide first where we are going to compete and then what it will take to compete in that arena. Easier said than done.

