U.S. PREMIUM BEEF® UPDATE

VOLUME 27, ISSUE 4 USPB.COM 866.877.2525 NOVEMBER 2023

AVOIDING DARK CUTTERS

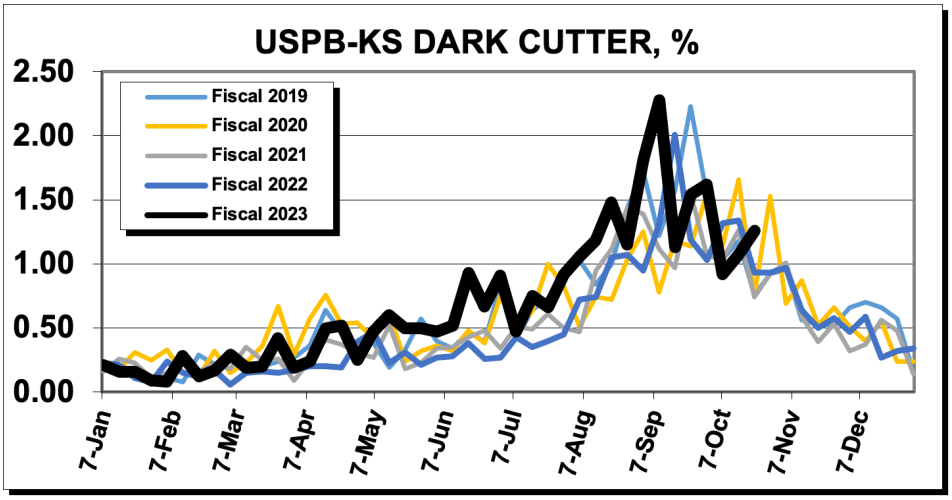
Dark cutters (DC) are caused by a depletion of glycogen, which is stored glucose within the muscle, at the time of slaughter. This causes the pH to remain high, which causes the meat to be dark. In a retail meat case this dark color is very unappealing. Plus, over time the muscle will lose more moisture. Ultimately palatability is lower. These are all reasons why dark cutting carcasses are discounted.

During the third quarter of fiscal year 2023, Kansas grid cattle had a record high percentage of DC. Fortunately, they were only 1.42% of the entire population.

There is a distinct seasonality to DC. The chart above shows the weekly DC percentage for five years. For most of the year it runs about 0.5% or less, but then increases during August through October with a peak of around 2%.

It is assumed this has to do with the seasonal fall change when daily high temperatures remain hot, but nightly lows get significantly cooler. Feedyard managers have also mentioned this is when they have more bullers, or riding, in feedlots.

Weather has often been described as a likely cause. In the chart on page 6, summer heat may be why cattle harvested in June and July tend to be slightly elevated in DC. Not only does extreme heat stress the animal, but it also decreases feed intake. However, the period of highest incidence tends to be at the end of the summer and in the fall when the range from the high to the low temperature is larger.



Another likely cause of DC is temperament. Wild, excitable cattle are more likely to use up blood sugar prior to harvest. They also don't spend as much time eating. Conversely, research has also shown docile animals tend to be fatter.

Cattle that ride or fight for dominance are more active and could deplete their blood sugar. If heifers on melengestrol acetate (MGA) have a disruption in their feed intake and do not get enough MGA dosage, some heifers could be synchronized to estrus at harvest.

Some pens of cattle must be driven long distances from their home pen to the loadout. Distance is certainly a concern, but research showed the speed of cattle movement (running) was most impactful.

Table 1 compares individual steer and heifer carcasses harvested during Fiscal Year 2022 on the Kansas grid that were, or were not DC. The DC carcasses tend to be leaner and heavier muscled.

To further support this, when looking at USPB individual carcasses from last year, sorted by yield grade, only YG 1 & 2's have an average above 0.5% DC. YG 3, 4 & 5 are all well below 0.5%, demonstrating a linear trend — as YG increases, DC percentage decreases.

If an animal is leaner and heavily muscled, they likely have a higher metabolism, and could potentially burn more glycogen. Also, if they're leaner, they have less reserves of energy stored up.

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Note that USPB DC had only slightly less marbling. If a carcass is an official DC, it cannot grade Select or higher and cannot qualify for branded programs. In total, DC were $357 per head less than those that were not DC on the grid last year.

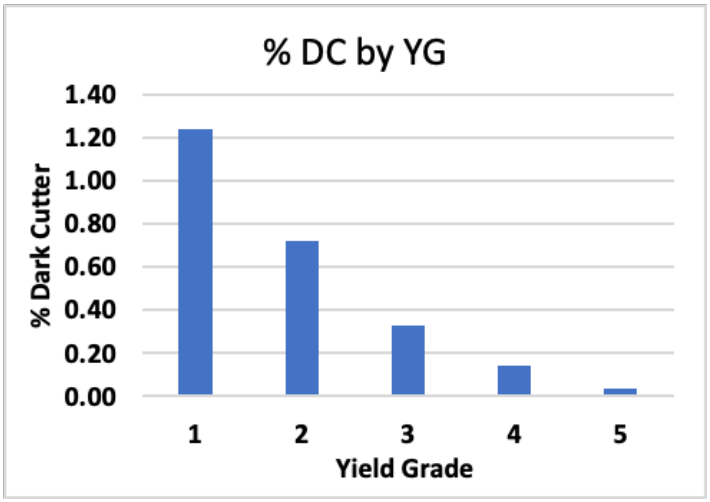
Hormone growth implants have been shown in research to be associated. Steers that received combination (androgen plus estrogen) implants and heifers that received estrogen implants have been higher in DC.

Cattle in the NatureSource program do not receive any implants during their lifetime. In the past five years, the USPB natural cattle had 0.11% DC and the average for all USPB cattle was 0.59%.

Table 2 summarizes lots harvested this year during the peak DC season of August through October. The average during this season was 1.5%, and 61% of all lots had no DC.

Lots with DC were lighter weight, had more heifers and lower average YG. The lighter carcass weight was not simply due to gender. Steers, heifers and mixed sex lots all had the same relationship of lighter weights with higher DC percentage. This has also been noted in research.

The DC lots had higher yield, which could be attributed to cattle type. Typically, leaner cattle have lower yields. However, Continental crossbred cattle have higher yields and lower YG. Lots with DC did have slightly less black-hided percentage. The percent condemned livers was significantly higher in DC lots compared to those with no DC.



When a pen has a high percentage DC, it seems several things need to go wrong together. In other words, it's not usually just one thing. Yet, season seems to be a very big factor.

It is unlikely DC carcasses can be totally eliminated. However, with some attention to detail, it is possible to make improvements. Please call Brian at 866-877-2525 if you have questions. ◆

Table 1. USPB individual carcass summary for Fiscal Year 2022, Kansas plants.

Table 1	HCW	BF	a-rREA	Avg YG	YG 4&5%	Marbling Score	Steer %	Black %
Not DC	871	0.61	0.73	2.62	14.58	512	44	75.51
DC	824	0.55	1.53	2.11	3.61	500	40	68.43

Table 2. USPB lots harvested August, September and October of 2023 at Kansas plants.

Table 2	DC %	In weight	DOF	% steer	% black	Head per lot	HCW	Yield	Ch & Pr %	CAB	Avg YG	Cond. liver %
No DC	0	743	182	51	76	78	873	63.7	87	27	2.7	21.8
> 3% DC	6	699	178	30	72	115	826	64.2	76	22	2.4	31.5

Top Tips for Reducing Dark Cutters

- Use low stress animal handling techniques when emptying the home pen. Some cattle are very reluctant to leave a pen they have called home for five or six months. Train employees how to empty cattle from the pen without running or adding stress. Patience of the handler is a key element.
- Walk cattle from the home pen to the scales and loadout. Have a person/rider lead the cattle to prevent running. Keep them calm and always use low stress animal handling techniques, especially when sorting.
- Take part in the loading process.
- Keep them well fed. Avoid longer times of feed withdrawal prior to harvest. Keep cattle on the same finisher diet. This is especially important on longer haul cattle. It would be better to have a low yield, but more carcass weight and less dark cutters — both of which make your check larger. One pound of carcass is worth $2.90 per pound at current base prices and a dark cutter can cost $357.
- Avoid mixing cattle from different home pens that are not familiar with each other.
- Make sure cattle have access to water in holding pens.
- When sorting fatter cattle from a home pen, sort right before delivery or a week ahead. Avoid sorting and moving to a different pen one to three days before loading. This allows feed intake to normalize before harvest.
- Make sure cattle are fed long enough to be 'fat' and well-finished.
- Maintain MGA (melengestrol acetate) dosage. Pay attention to mg/head per day which is affected by the ration concentration AND the feed intake per day, especially during times of extreme heat when intake can be reduced.
- Observe cattle during shipment and watch for riding, bulling or fighting.
- Consider adding shade — at least to holding pens where cattle are kept after weigh-up, until loading. Research shows that shade can significantly reduce DC.
- Avoid over-crowding cattle on the truck. Conversely, when partial loads are necessary, pen the cattle at a normal density to avoid giving cattle in the truck so much area that they are likely to stumble and go down in transit to the packing plant.
- Acclimate cattle to a 'handler', preferably on foot. Some cattle are naturally wild. Others simply have less human interaction. Teaching them that a handler is not a threat has benefits through the feeding period and processing.
- Avoid buying cattle from sources that are known to have temperament problems.
- Use the appropriate gender implant (steer/heifer). This can be challenging when implanting pens of mixed steers and heifers.
- Be cautious not to over-implant. This would include repeated combination implants throughout an animal's life span and also crowding implants too close together and/or too close to harvest.
- Limited research has shown electrolytes can potentially maintain carcass weight, reduce shrink and reduce the number of DC. Pheromone products are also now available that boast of the ability to reduce stress and reduce DC.