

Focus on Phenotype Charolais Sired Cattle

Data Analyzed

The TriCounty Steer Carcass Futurity Coop has been feeding and collecting data on many retained ownership cattle since 1982. Several requests have been received for sire breed analysis. Due to the Benchmarking project this has become a recent reality. This data set is from 2004-2010, represents over 38,000 head of steers and heifers which have known sires and birth dates and for the most part known breeding on the cow side as well.

Statistical analysis using General Linear Models has been employed and most averages come from Least Square procedures. It is important to realize this is not a genetic evaluation, but rather a report on how this breed is doing from a phenotypic standpoint. Traits analyzed are strictly those that can and are being measured with the TCSCF program. Reproductive traits which are extremely important to cow herd profitability are not collected by TCSCF and cannot be analyzed or reported on. Breed comparison is done using calf feds because the majority of data resides in those age categories.

The goal of the TCSCF board of directors and staff is to assist clients in improving their cattle for today's demanding marketplace. This in turn will

serve their needs in being more economically competitive.

Factors impacting performance

Many items impact how an animal will perform. Of course breed of sire and the sire itself impacts performance. That is readily observed when looking at the TCSCF Sire Profit Summary. This Focus on Phenotype will outline how the Charolais sired cattle are performing in the TCSCF program since 2004.

In addition to how Charolais compare to other breeds, we will also point out the impacts which the following have on performance: 1. age at delivery, 2. animal sex (steers vs. heifers), and 3. breed of dam.

Charolais Breed Discussion

Charolais steer calves arrive at the feedlot 19 lbs heavier than other breeds and are 2 days younger. Days to finish (target of .45" backfat) is two days longer than other breeds, thus age at slaughter has been equal to the average of all other breeds. Although feedlot gain has been lower, Charolais steers have had heavier final harvest weights. Sickness or percent treated has

Charolais Feedlot Performance

Steer Calves with Delivery Ages of 210 to 330 Days

Trait	Averages for	
	Charolais Averages	All Other Breeds
Delivery Weight	686	667
Delivery Age	269	271
Days to Finish	173	171
ADG	3.07	3.17
Final Harvest Weight	1212	1206
% Treated for Sickness	20.2%	18.9%

Charolais Carcass Trait Performance

Steer Calves with Delivery Ages of 210 to 330 Days

Trait	Averages for	
	Charolais Averages	All Other Breeds
Hot Carcass Weight	746	740
Dressing Percent	61.6%	61.4%
Fat Cover, inches	0.35	0.42
Ribeye Area, sq.in.	13.19	12.70
Yield Grade, calculated	2.42	2.72
Marbling Score	Slight ⁷⁹	Small ⁰⁴

Charolais Carcass Grade Performance

Steer Calves with Delivery Ages of 210 to 330 Days

Trait	Averages for	
	Charolais Averages	All Other Breeds
% Premium Choice & Prime	3.6%	7.9%
% Low Choice & better	37.4%	54.7%
% Select	56.2%	41.7%
% Yield Grade 1 & 2	86.0%	67.3%
% Yield Grade 3	13.6%	31.3%



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been slightly higher than the average of other breeds, but still acceptable.

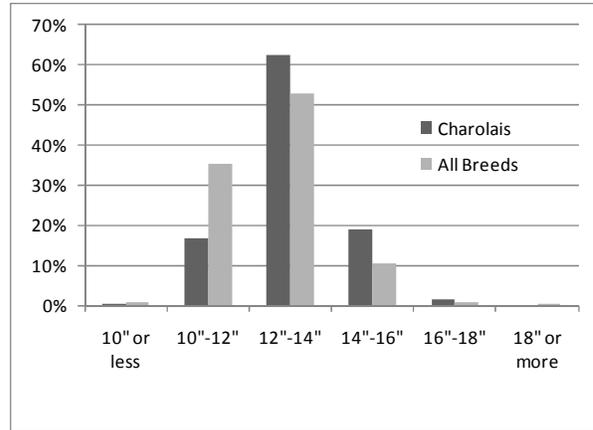
Our experience with Charolais steer calves from a carcass perspective was what should be expected. They are heavier muscled than other breeds, go to market with less fat cover and have better yield grades. The chart on the right shows that Charolais have higher percentages of cattle with larger ribeye and lower numbers with ribeyes less than 12 sq. in. As the

bottom table on page 1 shows 86% of Charolais steer calves made Yield Grades 1 and 2 making them exceptional in market grids that emphasize lean beef or high cutability type carcasses.

Yet, on the down side if one is participating in a high quality market place Charolais had lower marbling scores on average. Also in the bottom table on page 1 it shows only 37.4% made Low choice and better.

As will be shown later breed of dam can make differences in carcass performance.

Charolais Ribeye Area Distribution



Impact of Animal Sex—Charolais

Heifer calves sired by Charolais bulls have very acceptable performance in the TCSCF program. As shown below come 41 lbs lighter than their steer contemporaries, but gain within .2 lbs daily of them and have a final harvest weight of almost 1125 lbs. Although not shown in the table, the heifers enjoyed less sickness and fewer treatments than the steers.

From a carcass perspective the heifers were slightly fatter, but

from a muscle standpoint had more ribeye area per hundred lbs of carcass weight than the steers which made them excellent from Yield Grade standpoint. The Charolais sired heifers ended up with significantly higher marbling scores than their steer counterparts which gave them a distinct advantage in percent low Choice and higher. In fact 5.5% of the heifers made Premium Choice and better.

Charolais - Steer vs. Heifer Performance

Calves with Delivery Ages of 210 to 330 Days

Trait	Charolais Steer Averages	Charolais Heifer
Delivery Weight	686	645
Days to Finish	173	168
ADG	3.07	2.85
Final Harvest Weight	1212	1120
Hot Carcass Weight	746	693
Fat Cover, inches	0.35	0.41
Ribeye Area, sq.in.	13.19	12.45
Yield Grade, calculated	2.42	2.61
Marbling Score	Slight ⁷⁹	Small ⁰³
% Low Choice & better	37.4%	56.4%

Impact of Delivery Age

A wide age range exists in the cattle consigned to the TCSCF Coop. This consignment uniqueness brings about an opportunity to investigate the impact of delivery age on performance from delivery until final carcass data is collected. Because the number of heifers can be small in the off age groups we will only concentrate on steers in this write up.

Typical cattlemen logic says that the older an animal is when it enters the finishing yard the following happens: gain faster, heavier at harvest time and more carcass weight, fewer health problems, bigger ribeyes, fatter and higher quality grades. Part of these may be true, but others may not be impacted as much as one thinks.

Five age categories of Charolais steers are included in the table on page 3, from early weaning (198 days of age at delivery) through yearlings (437 days at delivery). Indeed, there was a large difference in their delivery weights. But ADG in the feedlot did not vary much until the steers were brought in as yearlings, basically 3.09 vs.

3.25 lbs daily. By making the cattle older at harvest one was able to make the cattle heavier and resulting carcass weight progressed upward by 40 to 50 lbs depending on age comparison. The real young calves at delivery ended with slightly more fat cover, but really no significant difference was seen between normal weaning time and yearling type cattle. However, due to a bit more ribeye area at older ages the yearling type cattle had an advantage in Yield Grade.

USDA quality grade did not respond much due to making cattle older. Early weaned calves were 39% low Choice and better, while short yearlings and yearlings ranged from 39.6% to 43% low Choice and better. Therefore, it does not seem advantageous from the experience of TCSCF Coop feedout program to make the Charolais steers older. Of course, keep in mind other factors may weigh heavily in your decision, i.e., cattle market outlook, grain price, operational cash flow, home grown feedstuffs use, etc., etc.



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Charolais - Delivery Age Comparison

Trait	Delivery Age Categories				
	Early Weaning	Normal Weaning	Late Weaning	Short Yearling	Yearling
Delivery Age	198	245	293	349	437
Delivery Weight	582	668	704	716	758
Final Harvest Weight	1189	1213	1211	1245	1269
ADG	3.08	3.07	3.07	3.10	3.25
% Treated for Sickness	61.4%	23.9%	16.5%	10.2%	18.3%
Hot Carcass Weight	730	748	745	770	787
Fat Cover, inches	0.39	0.35	0.35	0.34	0.33
Ribeye Area, sq.in.	12.87	13.34	13.03	13.48	14.03
Yield Grade, calculated	2.53	2.37	2.47	2.36	2.24
% Low Choice & better	39.4%	35.2%	39.6%	39.7%	43.0%

ness. For instance, lean beef marketing would be accomplished with the breeds of like genetic potential, namely Charolais, Gelbvieh and Simmental. As you will see in the table these dam breeds all get 90% or more of the steers into Yield Grades 1 and 2. No, quality grade is not very high.

On the other hand, Charolais sired steers out of Purebred Angus, Angus cross and Hereford base females performed well from a quality grade standpoint, while being very acceptable in feedlot gain, final weight and percent making Yield Grade 1 and 2.

When it comes to muscling Charolais sired steers excel in this area regardless of what female type they are mated to. As you will notice all averaged 12.8 sq. in. or higher and all had fat covers averaging less than .4 inches. The highest average yield grade was 2.57 which is very acceptable in any marketplace.

Breed of Dam Impact on Charolais Sired Steers

The breed composition of your cow herd can have a large impact on how your calf crop will perform in many of the economically important trait. Because of the numbers required it is not possible to look at how Charolais sires work with all the various types of cows out in the industry, but with the more popular types some trends can be seen and pointed out.

Cows were categorized into 7 breed types which had substantial numbers, namely Purebred Angus, Angus sired cross females, Charolais and Charolais sired females, Gelbvieh and Gelbvieh sired females, Hereford and Hereford sired females, Simmental and Simmental sired females, and various other cross females lumped into a final category.

The table to the right and

below shows how Charolais sired steers performed out the seven types of cows. Of interest was how well the steers performed out of Hereford base dams, 3.35 lb ADG and 1237 lbs at harvest. They were mid-point from a quality and yield grade standpoint

Breeding program decisions need to be based upon what your market objectives might be. If you wish and are able to successfully market lean beef then dam breeds utilized would be quite different with Charolais sires than if one is wishing to fit into mainstream type marketing programs which emphasize acceptable quality grade with feedlot performance and carcass lean-

Charolais Steer Calves - Breed of Dam Comparisons

Trait	Breed of Dam						
	Purebred Angus	Angus Cross	Charolais & Charolais Cross	Gelbvieh & Gelbvieh Cross	Hereford & Hereford Cross	Simmental & Simmental Cross	Other Cross Cows
Delivery Weight	715	663	688	714	702	656	691
Final Harvest Weight	1208	1221	1236	1212	1237	1174	1205
ADG	3.13	3.09	3.15	3.15	3.35	2.95	3.00
% Treated for Sickness	13.0%	19.7%	21.8%	3.6%	15.7%	27.7%	16.9%
Hot Carcass Weight	744	755	762	760	752	718	743
Fat Cover, inches	0.39	0.39	0.30	0.26	0.38	0.30	0.33
Ribeye Area, sq.in.	13.00	13.13	13.80	14.00	13.00	12.82	13.22
Yield Grade, calculated	2.57	2.56	2.13	1.97	2.56	2.28	2.35
% Low Choice & better	49.5%	47.0%	28.3%	36.6%	40.7%	35.0%	36.8%
% Yield Grade 1 & 2s	78.7%	84.0%	96.2%	99.3%	84.7%	90.5%	90.0%