

NUTRITIONAL ANALYSIS OF BLACKBELLY LAMB

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One of the most important marketing tools we can develop in the pursuit of adding value to our blackbelly lamb products is an understanding of the healthful characteristics of the meat. We know that much of the fat on a blackbelly lamb is contained in the viscera, which is something of a two-edged sword. On the plus side, most of the fat is cut away when the animal is being dressed, providing what we believe to be a lean meat product. On the minus side, if this fat were on the exterior of the carcass, it would be part of the grading and “finish” and is probably a factor contributing to lower acceptance in commodities style marketing. The other problem with losing a lot of fat is that “CLA” (conjugated linoleic acid, a cancer-fighting fat) is cut away with the visceral fat. CLA is usually higher in lamb than in most other meats, and higher still in grass-fed lambs. We just have to remember that when we cut away the visible fat, we also cut away the CLA.

“Fat” in general is something that the informed consumer of farm-grown products is interested in and so it’s a good idea for us to understand fatty acids, the good and the bad, which are present in our farm-grown blackbelly lamb products so that we can present a picture of healthfulness to our prospective customers.

I have long advocated that the BBSAI undertake nutritional evaluation of blackbelly lamb products to provide this information to its breeders. However, it seems that the bulk of the work has already been done. This article is based on information that I gathered off the internet, and posted to the BBSAI Yahoo group. Since nobody challenged the report, I feel that the report was accepted by the initial readers, and so present it here for the benefit of BBSAI members who are not members of the Yahoo group.

The information is based on three reports:

Fatty Acid Composition and Palatability of Lamb from Hair Sheep – Hair Sheep Workshop VSU, by Susan K. Duckett and Scott P. Greiner
<http://www.sheepandgoat.com/hairsheepworkshop/carcassquality.html>

Factors Affecting the Palatability of Lamb Meat by Susan K. Duckett (University of Georgia)
<http://www.livestocktopics.wsu.edu/Presentations/Lamb%20Meat%20Palatability/sduckett.pdf>

B-920R – Nutritional Content of Game Meat by Lydia C. Medeiros, Jan R. Busboon, Ray A. Field, Janet C. Williams, Glenn J. Miller and Betty Holmes
<http://ces.uwyo.edu/PUBS/B-920R.htm>

The definitions of “lean” and “extra lean” meat were obtained from the FDA,

<http://www.cfsan.fda.gov/~dms/qa-lab8e.html>

In addition, I looked at the Saskatchewan Katahdin Assn. website, <http://www.saskkatahdinsheep.com/> and found their nutritional data to be somewhat in conflict with the data I acquired from the VSU workshop information (with the Katahdin data being unusually “enhanced” when compared to the VSU information). No two labs report data in the same way, so it must be understood that if the BBSAI were to have nutritional analysis undertaken by an independent lab, the results might be different again. What we have here is a beginning point to understand the consumer-conscious health possibilities for buying blackbelly lamb products, particularly straight from the grower.

The first values reported in the VSU presentation were for the Warner Bratzler shear force values. This is a measure of tenderness. Before I post these results, I want to be very clear that tenderness is not just a function of genetics, although we are usually rewarded with tender blackbelly lamb. It begins with the animals being calm prior to slaughter, the cooling time, the aging time, age of the animal, diet prior to slaughter, and even the minerals present in the meat (higher levels of calcium interfere with the toughening process, making for a more tender product). The circumstances of pre-harvest management, nor the harvest and processing itself were not reported in the VSU paper.

The report leans very favorably toward tenderness in blackbelly meat. The threshold value for “tenderness” in beef is set at less than 7.7 pounds in the Warner Bratzler test, according to the VSU report. In the Duckett report, it is considered to be about 4.5 kg. Barbados Blackbelly/St. Croix (pure Barbados was not reported) tested at 5.57 lb in the VSU report. In the Duckett report, it is 2.69 kg. So, whether using pounds or kilograms, the blackbelly/St. Croix lamb is very tender, especially against some other breeds, notably Suffolk.

So we start with a favorable marker for quality in a tender product.

Cholesterol content in Blackbelly Meat: This value was somewhat easier to compare between reports, as they all use a standard measure; milligrams of cholesterol per 100 milligrams of tissue. What

complicated my research was that most information available is based on “serving size” which is usually expressed as 3 ounces (about 113 grams). Without going to a lot of trouble doing the math, some of the data was hard to compare.

The BBxSt Croix cholesterol content was measured at 67.87 mg. in the VSU report. The Saskatchewan Katahdin breeders declare their lamb contains 44.4 mg, while VSU says Katahdin lamb contains 67.48 mg. The VSU data compares more favorably with other types of red meat. But then, when you review the report on game meat (everybody’s idea of “lean” meat!) the VSU value reported for cholesterol is even higher than grain-fed beef (48) and all the wild meats (pronghorn antelope – 52, mule deer – 54, Elk – 48, Bison – 45, range grazed beef – 49, grain-fed beef – 48.)

Again, we don’t know what sampling method was used; whether the entire carcass was involved, or just the leanest cuts. Can we depend on low cholesterol as one leg of our health platform?

The FDA definitions of “lean” and “extra lean” are as follows:

Lean: Less than 10 grams of fat, 4.5 grams or less saturated fat and less than 95 milligrams of cholesterol per serving or per 100 grams of tissue.

Extra Lean: Less than 5 grams of fat, less than 2 grams of saturated fat, and less than 95 milligrams of cholesterol per serving or per 100 grams of tissue.

At 67.87 milligrams per 100 grams of tissue, the BB/St. Croix lamb falls well below the cholesterol component of extra lean meat.

Fatty Acid Composition: I am not sure if Fatty Acid Composition is the same as plain old “fat,” but I assume when discussing “total fatty acids, %” we are once again referring to a total fat content in milligrams per 100 grams of tissue. The VSU report is not specific.

Total Fatty Acids: The percentage in straight Blackbelly meat was 1.49, or 1.49 grams. That is 3.51 grams below the FDA definition of Extra Lean. Our Health Platform is building a solid foundation.

As a comparison, the grams of fat contained in 100 grams of uncooked LEAN game and domestic meat is as follows:

Pronghorn antelope:2.5
Mule deer:2.7
Elk: 2.0

Bison: 1.4
Range grazed beef:2.4
Grain fed beef:5.0

Accordingly, in the wild game study, the “uncooked lean” grain fed beef doesn’t quite qualify for Extra Lean status, but all other values do.

Saturated Fat: Saturated fat is the bad stuff. It raises blood cholesterol. Of the 1.49% Total Fatty Acids in Barbados Blackbelly, 42.14% is saturated. If my math is correct that equals 0.63 grams of saturated fat. Extra Lean contains less than 2 grams, further underpinning our healthful lamb products.

Odd- Chain Fatty Acids: I cannot define “odd chain” fatty acids and I don’t know whether they are good or bad. Of the 1.49% total fatty acids in Barbados Blackbelly, Odd-Chain Fatty Acids account for 0.02%

Monounsaturated Fatty Acids (MUFA): Monounsaturated fat is “good” fat. It lowers total cholesterol and increases good (HDL) cholesterol. “MUFA” accounts for 40.12% of total fatty acids, or 0.6 grams.

Polyunsaturated Fatty Acids (PUFA): Polyunsaturated fatty acids are 7.60 % of total fatty acids, or 0.12 grams. PUFA is “good” fat. Omega 3 belongs to this group.

CLA: This is Conjugated Linoleic Acid, a cancer fighting fat. CLA is ONLY found in the fat of the animal, not the lean, which is why some fat on a grass-fed animal is highly desirable. CLA is naturally high in lamb, higher yet in an animal that never receives grain, but spends its life on green pasture. CLA content in blackbelly lamb was reported by VSU as follows: CLA, cis-9, trans-11, 0.38% of total fatty acids.

So, it would seem that according to the above research, our claims for healthful, low-fat lamb products are truly valid. Even more so, when our customers can be confident that our lambs were raised humanely and naturally, in an environment that brings confidence to the consumer of our lamb products that they have made the right decision, for their families, the farmscape and the person who labors to create such perfect food.

I hope that this information will be of help to you in marketing your lambs.

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