Bryan Schaaf:

Has it been two and a half months already? Can you believe it, Season Three of the Meat Speak Podcast is upon us. Bryan Schaaf, Chef Tony Biggs, coming to you from the inner sanctum of the world headquarters of premium beef somewhere north of Amish Country, south of Cleveland, in the heart of it all, Wooster, Ohio, home of the certified Angus Beef brand. Chef, how are you doing sir?

Tony Biggs:

Bryan, we did not canceled for Season Three? We made it to Season Three? Can you believe it?

Bryan Schaaf:

You know, I think we have [inaudible 00:00:38]. I don't trust though, with COVID and everything been delayed. Maybe they dropped a cancellation notice in the mail and it just didn't get through, so we're going to proceed as though we are on. You will notice, we are lacking one core member of our meaty triumvirate. Diana Clark, meat scientist, she is at home with her new baby, recovering on maternity leave. We are happy to report everybody is happy and healthy and Diana will be back in the studio some time here in a few weeks actually.

Tony Biggs:

We miss her and we really miss ... I ran into Daniel outside in the parking lot, I said, "Why are you running?" He goes, "My wife needs help at home." "Oh my gosh. You better sprint, buddy."

Bryan Schaaf:

I feel like ... You and I roll in without Diana is a bit like well what if Gladys Knight decided to hang it up for a few weeks and just left the show up to the Pips? So you and I are the Pips, and we're going to do our best.

Tony Biggs:

Hey, there's nothing like the originals, right? You and I are the originals, baby.

Bryan Schaaf:

We're the OGs, right? That said, one of the luxuries that we have here, working for Certified Angus Beef is it's amazing how many meat scientists we have running around the building but that said speaking about the OGs of meat science, I do believe that we have found a suitable replacement to bridge the cap, especially for today, until Diana Clark returns. With that, let's jump in.

Bryan Schaaf:

Before we jump into our episode, our marketing guru Paige, the social media soothsayer, has asked me to remind everybody to go out and subscribe. This podcast is available across all of your major podcasting platforms but specifically we'd like to draw your attention to Apple Podcasts. That's the purple icon on your phone and if you could, go leave a rating, leave a review. Honestly I don't think it even matters what the review says, you can tell them Bryan told me to do this, right? It all has to do with improving our visibility in the rankings. We don't make any money off of this podcast, Tony and I are both employees of Certified Angus Beef, it's in our contract, right? But we do ask ... We're not asking for money, we're just asking for your undying love and affection. So if you all could leave us a review, it

would be greatly, greatly, greatly appreciated and continue with the growth of our numbers in all of the Apple algorithms that are very, very confusing.

Bryan Schaaf:

So that said, before we jump in, our guest today is an assistant professor of meat science in the Department of Animal and Veterinary Sciences at the University of Idaho, but in the pantheon of the meat industry, I would argue he is one of the most significant contributors toward bringing meat science into the mainstream culinary realm, serving as a sometimes advisor for chefs and a frequent voice for the cattle industry, and the production of high quality, consistent beef. Please welcome to the podcast the first meat scientist by title in the history of Certified Angus Beef and the man who once claimed that most meat scientists actually start their careers wanting to be veterinarians until they realize it's much easier to make sure the steak doesn't magically spring back to life on the plate. Ladies and gentlemen, please welcome to the podcast the legend himself, Dr. Phil Bass. How are you doing sir?

Phil Bass:

Thanks. Oh my gosh. Are you kidding me? This is amazing. It's great to have the gang back together. Even if it's just for a brief moment, so thank you so much for having me.

Tony Biggs:

I feel like The Beatles, really. Getting back together [inaudible 00:04:21].

Bryan Schaaf:

It's a good feeling. Phil Bass, right? So many of our listeners will know you, right? Either they worked with you during the time when you were our meat scientist here in Ohio, or maybe they saw you on social media, maybe they caught you famously feeding Andrew Zimmern some dry-aged Denver steaks back in the day on Travel Channel but what's going on, man? Tell us about the life. What's happening right now?

Phil Bass:

Well I'll tell you, my transition away from Certified Angus Beef was one of the hardest decisions I ever made in my life. Certified Angus Beef is always going to be ingrained on my heart, branded on my heart if you will. It's an amazing team. You guys were part of that, my nucleus of the team. But the opportunity arose four years ago to move back west and I'm a Westerner, and I'm much closer now to family and proximity wise and personally and everything, and so the opportunity arose to come and become a faculty member with the Animal, Veterinary and now Food Science Department at the University of Idaho and that's new and we hit the ground running.

Phil Bass:

I left an absolutely incredible team in Wooster, Ohio to come and join yet another incredible team out here in Moscow, Idaho, which is kind of up in the panhandle area of Idaho, Northern Idaho. Absolutely gorgeous country. My colleague Dr. Michael Colle is an absolutely brilliant meat scientist, a chemist by trade, and so he brings the brains to the operation and I tell everyone I'm the pretty one, and so I kind of ... I get the opportunity to work with an incredible team, great grad students, and you know what? We're carrying on the mission that we always have, identify quality product and people will follow, and we're addressing a lot of those animals right now, continuing in beef quality, addressing a lot of the

animals that otherwise may not qualify for Certified Angus Beef but we do have a need for better understanding them, and mostly it's the really heavy weight cattle that are out there. As you mentioned, we keep doing dry-aged beef research out here as well, so carrying the tradition along.

Tony Biggs:

What's the market like for dry-aged beef on the palate of the panhandle Idaho resident?

Phil Bass:

Yeah, you know ... We learned a lot with that. We have put dry-aged beef into the hands and mouths of consumers here in the Northern Idaho region and what we discovered, it's definitely not the most desirable item compared to maybe if you go to larger metropolitan areas. So we have actually, because of some of the dry-aged research that we did up here regarding a consumer-based understanding of dry aging, in an area that maybe doesn't get a lot of dry-aged beef influence is it led us to create a trained sensory panel so that we can better understand the nuances of dry-aging and what we were able to identify was with some of the commercial outfits that we used for this project is that we can actually look at levels of boldness now in dry-aging. As a result of the fact that we didn't ... We didn't learn what we thought we were going to learn in the initial dry-aged research, but it's led us to even better discoveries and so ... Anyway, I'm rambling about dry-aging. You know I can keep going on for days, so ...

Bryan Schaaf:

If you could drop some penicillium nalgiovense on us at some point -

Phil Bass:

Yeah.

Bryan Schaaf:

We'd appreciate it.

Phil Bass:

We can do that, yeah.

Bryan Schaaf:

All right, so one of the things that we wanted to talk to you about today was this idea of different levels of tenderness, right? I love the politically correct terminology that gets thrown around with certain cuts, right? We say something like a tenderloin is extremely tender but something like a round steak we'll say that's less tender.

Phil Bass:

It's less tender. Right.

Bryan Schaaf:

We don't really say it's not tender. But the whole idea of tenderloins, and this was Chef Tony's brainchild and the idea is that we know that there is a variety of cuts of meat that range in terms of tenderness, right? Of course anybody can cook a tenderloin steak and have it to be tender and delicious. Chef Tony,

before we tear into Phil in the science, tell us about man, you spend your days trying to make these less tender, read that as tougher, cuts palatable and delicious, man. What are some of those dishes that pop up for you?

Tony Biggs:

Yeah, but before I get to that, Phil, you're so humble, I got to tell the audience that as a chef working in the industry for ... Wow, going on 50 years now, I never worked with a food scientist before, a meat scientist until I met Phil and the way Phil teaches and instructs all the folks that come to the Certified Angus Beef culinary center was just really eye-opening for me, and kudos to you. You brought a lot of energy, kind of like me. Like this energy from cooking but from a instructional standpoint, you were just amazing and one of the things that our listeners don't really know but before you were a meat scientist, you had a contract with Columbia Records, and your first hit was The Ball Tip Try Tip Sirloin Flap. So can you please just give us a few, hum a few bars of that song for our listeners because this is how you started out each one of the sessions, which was epic. I'll count to three. Ready Phil? A-one, two, and a-three.

Phil Bass:

To provide a little bit of context if we can. First off, Chef -

Tony Biggs:

Don't make me look bad here, Phil. We have an audience here.

Phil Bass:

If that was the beginning of the presentations, then you're showing up a little bit halfway through the day. Normally we would get to the sirloin about lunchtime but anyway, what Chef Tony is mentioning is the bottom sirloin is an amazing area of the animal, of the carcass, and there's three main cuts in there that everyone should know, and it's the ball tip, tri tip, sirloin flap, and you get to clap at the end of that and so it's a very short little bit.

Tony Biggs:

Encore. Encore. Beautiful.

Phil Bass:

You know what? Hey, I teach that still, I still teach that regularly in fact and I teach it in my meat science class out here at the University of Idaho and I have students kind of working their way through ... You can even see them kind of almost clapping silently during their exams so that they can recall some of the cuts that are in there. For those who have not had the opportunity to go to a cutting demonstration at the culinary center, I have a feeling that you guys are still working through some of those rhymes that help you remember pieces and parts and I'm not going to give away all of the tricks of the trade but the round itself also has a pretty nice little ditty that goes with it but that's for another day. That's for another day.

Tony Biggs:

Yeah, but I still dream about that song. You singing it. I still have it in my mind. I can't get it out, but back to Bryan's question, degrees of tenderness, you pull up ... There's so many different theories about this

and who, what cut is more tender than this and everybody like ... What do they do? They just go right to the filet mignon. That's like the to-go, Phil. But is really that cut the most tender on the carcass?

Phil Bass:

Well yeah, so that's a great question. When it comes to immediate commercial applicability, I will always say the tenderloin, yes. The tenderloin is definitely the most tender. There may be another piece out there. There's actually kind of an obscure muscle called the pectineus that sits on the side of the round that is extremely tender as well but it's hard to get to, hard to fabricate, and it just ... It doesn't make a lot of commercial sense to try to identify that one. So yeah, I mean the tenderloin will always be pretty much ranked number one. From a commercial standpoint, from an applicability standpoint, and just very well known by customers, and then very close second is going to be our flat iron steak.

Tony Biggs:

Wow, flat iron.

Phil Bass:

Which, yeah, surprisingly is one that comes from the chuck but was virtually unknown 15 years ago and has become kind of that somewhat overnight success story and has ... It very much competes with many of the other middle meats in the other carcass.

Tony Biggs:

Because it's kind of hidden, right? It's hidden down ... Explain that, so it's kind of below the chuck, hidden?

Phil Bass:

Yeah. Well you know, we have a very ... The meat cutting trade is one that is just absolutely embedded in tradition, and so if you look at a muscle, we're going to cut it a certain way and that's just the way it is. Well, some research was done in the early, early 2000s that we were looking for different ways of finding value in the beef carcass. So what some researchers from the University of Nebraska in Lincoln, Nebraska and then from the University of Florida in Gainesville, they took apart whole beef carcasses. Individually, by the muscle, and looked at the tenderness, color, cookability, and in many cases Ph. Different parameters, characteristics of the muscles, and identified some true gems in the beef carcass.

Phil Bass:

So the flat iron steak was the one that really stood out. It was because we had ... We were cutting it the wrong way is why it never really ... It never really came to the top so to say in the pass, but now we've isolated it, we're cutting it appropriately, you have to just turn your knife 90 degrees when you're fabricating that, it's the top blade subprimal. For those meat nerds out there, it's the infraspinatus muscle and it's a fun muscle. You and I, Chef, have worked with it in its more whole form, sous vide and slicing it thin, putting it into Asian noodle soups and things like that.

Tony Biggs:

You remember that? You remember that?

Phil Bass:

Yes, that's fantastic.

Tony Biggs:

That is your to-go lunch item, the [inaudible 00:15:36] -

Phil Bass:

I loved that.

Tony Biggs:

And guess what? We sous vide that and we put that on a slicer that was [inaudible 00:15:43], even where the connective tissue fell, I remember you telling me about that. It was amazing.

Phil Bass:

Yep. A lot of fun.

Bryan Schaaf:

So Phil, the difference as far as I'm concerned with it, the tenderloin and the flat iron. Obviously shape is different, I mean you're never going to mistake one for the other. A tenderloin, I hate to use the term, but it's fool-proof almost, right? You can overcook it, it's going to be tender. The flat iron though, if it goes past a certain temperature, the flavor almost changes. It's almost like livery. Why is that?

Phil Bass:

Well, okay, so first off, let's just briefly mention the tenderloin, it is so tender because of how it sits in the animal. It does not get used on a quadruped or four-legged creature, and as a result, it is so tender. And yes, you're right, it is fool proof. It will always be tender, it is one that definitely requires the additional marbling that Certified Angus Beef provides to bring flavor to the conversation. I like to say, if you want tender, marshmallows are tender. Chicken breast is tender, but a tenderloin, a Certified Angus Beef level tenderloin will bring more flavor to it. That's why people buy beef to begin with.

Phil Bass:

So a difference between the tenderloin and the flat iron, of course the flat iron is a very flat looking steak. It looks more like a salmon filet than anything else in shape. It can bring on a livery flavor and honestly that's more due to aging, over-aging. The tenderloin is one that does not require a whole lot of aging and the flat iron is yet another as well. If you age it for too long, you will get a livery flavor and there are some ... I would say there's some anecdotal evidence out there, and Chef, you can tell us more about this, but anecdotal evidence saying maybe it doesn't need to go beyond medium rare. It's a muscle that just really stands out well in those lower degrees of doneness.

Tony Biggs:

What would you say Phil is number three? Now this is where it's going to [inaudible 00:17:53], right?

Phil Bass:

Yeah. I've been asked for years, decades, rank me the muscles, and that's because there is some old literature, some old handouts in the past that muscles have been ranked and almost every single time,

I've said I'm not going to rank them. I will categorize them but I won't rank them. That's because there are so many variables involved. There is a research paper out there that will say the serratus ventralis muscle or serratus ventralis muscle is the third ranked most tender muscle in the carcass. That's where I would throw my BS flag in the air. Because depending on where you cut that on the carcass, it could be very tender, nearly as tender as a New York strip steak, but everything has to line up to make it do that. Or it can be chewy as bubblegum if you're not cooking it right. The serratus ventralis is the Denver steak and it's also the short rib, and you're not going to just cook a short rib to medium rare and hope that it's going to have the tenderness. That's why we're very, very cautious with these listings and so what I like folks to do is just better understand some of the categories.

Phil Bass:

So if you're looking at specific cuts, yeah, I mean the Denver steak is going to be a good one. If it's cut further up onto the shoulder, out of say the chuck roll or the chuck flap. But even more so, I mean the strip loin is almost just as foolproof. That's because it's the longissimus dorsi muscle, it's that main muscle in the back of the animal that's going to ... Again, these are quadrupeds, they don't stand up on their hind legs and so it's still going to be a pretty tender piece of meat.

Phil Bass:

And you have the teres major. Another very tender piece that was kind of identified about the same time as the flat iron and oftentimes will be used as an alternative to tenderloin medallions.

Bryan Schaaf:

Just they're much tinier. Phil, can we take a moment and talk to us about how tenderness is actually measured. There's this thing called a Warner-Bratzler Shear Force test. What exactly is that? How long has that been used? I mean, and when you guys do the testing, you're not just putting a whole steak in, right? I mean it's ... Yeah, can you talk to us about that?

Phil Bass:

There's a bit of a process to it. So Warner-Bratzler Shear Force is kind of one of our gold standards for measuring mechanical tenderness of meat products, steaks especially. It was actually developed in the 1930s at Kansas State University by Dr. Warner and Mr. Bratzler at the time and really the technology itself has not changed much since the 1930s. We have advanced in that we have a little bit more precise mechanization for the machine itself, and we have digital scales that go along with it. But honestly, it's literally a blunt blade, very thin blade but still blunt, because if it was sharp, blades will dull and so this is intentionally a blunt blade and it has an arm that moves rather slowly and you'll put a small core, a piece of steak that has been cooked to a medium degree of doneness and we'll come back to that. But you take this core, half-inch core, and you put it into this opening where that blunt blade sits and it just measures the force in kilograms or newtons if you want but kilograms or pounds and how much force it takes to bite through that. It's mimicking our incisors, our very front teeth.

Phil Bass:

So if it takes a lot of force to bite through or a lot of force to shear through with the Warner-Bratzler Shear Force test, that means it's a less tender piece of meat. If it didn't take much, it's more tender.

Bryan Schaaf:

Interesting, and so any time you see these rankings, that's what it's based on, generally, right? I mean when I see these and I've got a couple different rankings. One is off an actual scientific whitepaper, one is of a foodie blog, like an Eater or something like that ranking them. There's conflicting opinions between them. I have my own opinion especially beyond the top two, but can you talk about that? On neither one of these is the cut that I've always understood as number threeish is spinalis dorsi. The spinalis muscle, that rib-eye cap. That's not a thing though, right? In testing.

Phil Bass:

It's not one that you're going to see almost ever, and really that's because when we're looking at scientific data, we're trying to make larger generalized assumptions based on the data and the spinalis dorsi is a pretty small muscle.

Phil Bass:

Now I believe there's probably some research out there that we can find that will tell us that the spinalis has x shear force value, and you can put it into the ranking if you choose. Most folks would say, especially the rib-eye fans out there, that's that cap muscle on the outside of that rib-eye, that the spinalis can be a very tender and of course a super flavorful piece of meat. But this comes back to maybe something to do with how we cook things too.

Phil Bass:

So I mentioned we cook our steaks to a medium degree of doneness for the Warner-Bratzler Shear Force evaluation. Now we're starting to look at different degrees of doneness but this is an academic medium. So when I say academic medium, Chef Tony's probably going to tip over in his chair but that's 160 degrees Fahrenheit internal temperature, that's hot. Chef, that's hot, right?

Tony Biggs:

What?

Phil Bass:

Yeah, I know. But academically, that's the measure we go to. Now if we're doing that with certain muscles, we can definitely ... Heating is a great tenderness mechanization. Heating a steak will make a steak more tender. A rare steak is not necessarily always going to be more tender. That's some of the things that we just have to understand.

Phil Bass:

Now back to your initial question, the spinalis itself is a pretty small piece of meat. It's a little bit more obscure, it's one that we don't see in an individual cut mainstream. However we are seeing it more and more in a food service setting because of its amazing flavor that comes about with it.

Phil Bass:

The spinalis can be very tender as well, but it can also be very chewy if it's not prepared right, and this is one of those that actually taking it to that academic medium or even higher will enhance its tenderness, and that's probably why you'll see the spinalis, when you sit down and dine with a rib-eye steak, the spinalis is going to be so tender because it's actually taken to a higher degree of doneness. It's on the

outside of that steak. So degree of doneness has a lot to do with overall palatability, especially tenderness.

Phil Bass:

The spinalis hasn't been evaluated nearly enough. It's one that would cost a lot to do evaluations with and honestly, let's be honest, we don't need to be researching how to sell more rib-eyes I don't think yet. When that day comes, boy, line me right up. But it's some of the other cuts out of the carcass that we maybe need to evaluate a little more.

Bryan Schaaf:

I'm doing my part to continue to evaluate the spinalis muscles. So actually one of my favorite tricks was our pal Simon Brown who's down in Bentonville, Arkansas now. He would actually ask his distributor to get him just the rib-eye heart muscle. Because you can get it much cheaper and then his distributor has all this spinalis left over to like ... To sell as spinalis. I mean that's beautiful. It's beautiful.

Bryan Schaaf:

All right. Let me go down through a couple on this list. This is from the actual scientific whitepaper. I actually sent a text around yesterday to the meatheads in the building to make sure that my understanding of the Latin name was what I thought it was. So we've already talked about ... Generally speaking, tenderloin and flat iron, pretty clear cut, right? Not a lot of people are debating that. Behind that, it actually lists as three and four as the longissimus lumborum and the longissimus thoracis. So in other words the strip and the rib. When we say the rib, it's actually that rib-eye heart muscle, right?

Phil Bass:

Yeah, the center of the rib-eye, yep, yep. Yep. And so the longissimus dorsi can be broken into like you just mentioned, the longissimus lumborum and the longissimus thoracis. The longissimus lumborum is the strip loin and as would be assumed by a lot of folks, it's a tender piece of meat and then the longissimus thoracis would be that center muscle in a rib-eye steak, yep.

Bryan Schaaf:

But it's funny, anecdotally, I would have never assumed a strip is more tender than a rib-eye. I don't know why. I don't know if I'm in that camp alone. Chef, I mean ... Strip is rarely a steak that I will seek out. I will go for a rib-eye all day long.

Tony Biggs:

I feel sometimes when I'm doing outside strip steaks, I find sometimes that is like after the spinalis now, I feel like that center cut of the outside skirt is pretty darn tender. More tender than the strip loin. Those are my feelings there. Of course I go to the spinalis, but again, like Phil said, the longer you cook that, prepare it, the better it is, and sometimes when you ... The fattier part of the spinalis, you can be tricked into thinking it's medium, and it's still almost like rare. Right Phil? I mean it's kind of amazing.

Phil Bass:

It needs that extra time. Yeah. That, and it's all muscle dependent. Back to your point Bryan, the rankings of the longissimus lumborum, the longissimus thoracis, it's the same muscle. It's just where it's coming from on the carcass and the difference in actual shear force is probably going to be

inconsequential. It's just that one was numerically higher than the other but it was different by .01 kilograms or something. So they're still very tender pieces of meat, and then ... Another point that Chef Tony is bringing up that's a really, really good point is something that Dr. Travis O'Quinn at Kansas State University talks about and that's this three-legged stool concept of palatability, flavor, tenderness and juiciness. What we experience as palatability is not just this one-dimensional thing. It's all of those things. Juiciness can enhance tenderness, or the perception of tenderness because it makes it easier to bite through a piece of meat. Flavor, if the flavor is overwhelmingly desirable, sometimes our brain will just think that, "Oh, this steak is also more tender than I was expecting." So it's all three of those components and if one of those is really off or really missing, then our experience will be different as well.

Phil Bass:

So to your point, Chef, with an outside skirt steak, historically the skirt steaks have not been a very tender piece of meat but I think we've come a long way with the cattle that we're raising and then also looking at higher marbling levels which enhance tenderness and then also that skirt steak just brings a level of flavor that is incomparable to many of the other cuts, and so our perception of overall palatability is going to be higher in something like that.

Tony Biggs:

Sure.

Bryan Schaaf:

Yeah, and depending on what part of the country you're at, that outside skirt supersedes the tenderloin in terms of pricing as well.

Phil Bass:

Yeah, and saleability, right, yeah? Gosh.

Bryan Schaaf:

It's delicious. All right, the next one on the list. I'm just sticking to the scientific rankings that I pulled, right? As much as I love Eater and blogs like that, we're going with the scientists here. The rectus femoris, the knuckle is next. That one surprised me because the knuckle, it's something that I think needs to be low and slow so it breaks down, make something shredded out of it. Explain that.

Phil Bass:

Yeah. So the rectus femoris muscle, so there's four muscles in the knuckle, that's the quadriceps for those who are trying to imagine where this is on the carcass, and the rectus femoris is one that's kind of right in the center of everything. This is an example of if we can isolate a muscle out of a larger complex, then it's more likely that we're going to be able to identify some more desirable features out of it. So the rectus femoris is an example of that. There's fine muscle fibers in that thing. There's also a pretty distinct seam of connective tissue that runs right down the middle of it too which makes it kind of hard to fully grasp the applicability of using that as just say a straight up steak. You're going to need to either work that steam of connected tissue out or work around it, and that's when we conduct these tenderness shear force, Warner-Bratzler Shear Force analyses, we avoid large pieces of fat and large

pieces of connective tissue. Chewy stuff, so that we're only assessing the true, pure muscle. But that's not always directly connected to reality.

Phil Bass:

Now I do know also from practical experience and personal experience is that if you do take that center muscle, that even though it does have a seam of connected tissue in there and you work that seam of connected tissue out, and you cut little medallions out of them, they are absolutely fantastic, super tender pieces of meat. I remember Chef, you actually made for me steak au poivre with this. I don't know if you remember -

Tony Biggs:

Yes.

Phil Bass:

And you too were just as flabbergasted by the tenderness of it. I mean it truly was acting like a tenderloin in that case. But there's an awful lot of work to do to get to those tiny little medallions or those really nice little medallions out of the rectus.

Tony Biggs:

If we had done a beef tasting like you do a beer tasting, close your eyes and guess what cut this is, I couldn't tell you. Maybe it was a sirloin, okay? That's how good that was. I was really sold on the knuckle when one of our chefs Brad made a Nashville hot sandwich and he pounded out with a neat mallet, Jaccarded a little bit, [inaudible 00:33:26], do your whole thing like with a Nashville hot. This thing was magical, Phil. It was tender and delicious, so right on with that. Right on with your analogy.

Bryan Schaaf:

Excellent. So Phil, if you could clarify for me, so the rectus femoris is a smaller muscle inside what we would commonly think of as the overall knuckle.

Phil Bass:

Yeah. So if you pulled it out, it would probably be about the size of two softballs if you pulled it out in its entirety.

Bryan Schaaf:

Yeah, yeah. Excellent. Sign me up. Right? Now I do need, we've had a lot of conversations with Diane as well about the marketability of certain names. Rectus femoris probably is not the best name for -

Phil Bass:

It's a miss.

Bryan Schaaf:

Yeah. [inaudible 00:34:12].

Phil Bass:

That's right. Like the rectus abdominis, which is the flank steak, easy to sell, but let's not give it its scientific name as a merchandising opportunity.

Bryan Schaaf:

So I'll tell you what, how's that for a segue? Going from one that's very difficult to market, the next one on the list is the triceps brachii. That's the Denver steak. That is the pork, no?

Phil Bass:

No.

Bryan Schaaf:

It's not?

Phil Bass:

No, so okay, so it's one that was assessed about the same time as when the flat iron and Denver steak and everything was coming out. The triceps brachii, so the triceps muscle of the animal, that is more often merchandised as a casino roast. If you go to a grocery store, it's pretty much all the arm roasts that are going to be in the chuck roast area and if you cut a steak out of it, it has been merchandised as a ranch steak or pub steak. Research out of the U.S. Meat Animal Research Center in Clay Center, Nebraska actually looked at comparing that to other muscles in the carcass and has found that the triceps brachii is very, very similar in eating experience to a top sirloin. Yeah.

Bryan Schaaf:

Interesting. So if you were to go ... I mean here we'd have Buehler's right? And you get an arm roast, a chuck arm roast, you could cut that into steaks.

Phil Bass:

Yeah. Essentially you could as long as you can isolate that one particular muscle, and that's some of the nuances of it. Because if you get a whole chuck arm roast, you're getting a number of other muscles with that. You're going to get a deltoid, a brachiocephalicus, you're going to get a brachialis, a coracobrachialis, a tensor fasciae, antebrachii muscle. You're getting all these extra pieces that are not going to be as palatable and tender. But in a traditional roasting sense, that's going to be a traditional pot roast. You're going to slow cook that thing, and ultimately it becomes tender. All those pieces become tender, but if you can isolate that one item, the triceps brachii and cut the steaks out of there, yeah, it's a pretty tender piece of meat.

Bryan Schaaf:

So Tony and Phil, the next round of homework, I need you guys to actually develop a song breaking down what's in an arm roast so we can remember ...

Phil Bass:

That's going to be a hard one, Chef.

Bryan Schaaf:

Because I've already forgotten -

Tony Biggs:

We're going to do a rap song, Phil, all right?

Phil Bass:

We're going to be rapping now, okay, great.

Tony Biggs:

Hey Phil, you would be really proud of us, the way we've handled the hind shank. It's behind me, can you see this?

Phil Bass:

Yeah, I love it, I love it.

Tony Biggs:

We have got a company called Culinary Solutions of Virginia who have taken this to another level. They sous vide it and now it's going around the world. People are going [inaudible 00:37:07].

Phil Bass:

Awesome.

Tony Biggs:

Yeah. You'd be proud of that.

Bryan Schaaf:

It's delicious. It's delicious. All right, moving on, right? I only have eight here. This would be number seven. Okay, here is a really ... How many, if you could estimate, how many different muscles are there that we could possibly put into a ranking on the entire beef carcass? A couple hundred?

Phil Bass:

So I actually teach an advanced meat animal or meat carcass, beef carcass fabrication course here for my graduate students and the current list right now that I have them know of all the muscles, muscles only, not bones and heavy connector tissue is about 50. Now that's not including all the muscles in the shank. There's definitely more out there, but these are of mainstream ... Or items that would be in mainstream subprimals.

Bryan Schaaf:

Gotcha, so we're still talking about things that are accessible at this point.

Phil Bass:

Yes.

Bryan Schaaf:

Right?

Phil Bass:

Yeah, not like head muscles and cheek muscles and the tip of the shanks and things like that.

Bryan Schaaf:

I learned though through you and Jonathan Sawyer actually from the old Greenhouse Tavern in Cleveland that one of the most delicious muscles is that oyster muscle, the temple on a pig.

Phil Bass:

Oh, on a pig, yeah, yeah.

Bryan Schaaf:

I have never had it on a beef animal, but I like to think that mine's probably pretty fatty too. I assume it's characteristic of ... Of course all my muscles are though. All right, number seven here, right? I've got two more, and then I've got lots and lots of follow-up questions. Number seven is the serratus ventralis, but we've already talked about the serratus. It's a long muscle, it spans a couple different primals. So what are we talking about here? When they say serratus, I mean are they just taking a snapshot of that entire thing end to end?

Phil Bass:

So this is one of those that I have seen it ranked all the way from number three down to like you're saying number seven and this is very dependent on where that is being assessed. So the serratus ventralis, if you pull the muscle out in its entirety out of one side of beef, it's going to be nearly 30 pounds of the muscle, just that. It makes up a large portion of the chuck roll. It is the chuck flap, or chuck flat. It is also the muscle that must be in chuck short ribs to call it ... Any short rib to call it a short rib. I say any because you can get short ribs out of the rib, the plate and the chuck. So it does, it spans many different primals. It is very, very tasty, it's one that has a lot of marbling in it. Very coarse marbling, and it has a coarser muscle fiber to it. But if you go up toward the shoulder, more dorsal as we would say on the beef carcass, it becomes more tender. Versus down towards where the fingers are, because it's serrated, those are going to need more of that slow cooking which is where short rib braising comes in.

Phil Bass:

It's one that if you do cut a Denver steak out of that, out of the chuck roll, you isolate it out of the chuck roll or you cut it out of the chuck flap, I highly recommend, number one, aging it for 28 days first off, the whole muscle before cutting it. If you can Jaccard it, do that. Needle it, tenderize it somehow. Cut it no more than an inch thick because you need heat to penetrate, and then I highly recommend cooking it to medium. This is one that needs a little bit of extra time getting some heat to it. But when you do, it will perform very well, and we have to remember that everything south of the tenderloin flat iron line, these are all going to be kind of mishmashed into a category of pretty darn tender. I wouldn't put any of them in the not very tender category of the ones that we've talked about so far.

Bryan Schaaf:

So we're not talking about eye of round steaks here, right?

Phil Bass:

Not yet. Gosh, I hope it's not on your list and if it is we're going to need to correct it maybe.

Bryan Schaaf:

It did not make the top eight.

Phil Bass:

Thank goodness. Thank goodness.

Bryan Schaaf:

If it had ... Yeah. [inaudible 00:41:41]

Phil Bass:

We're going to need to talk.

Bryan Schaaf:

This whole scientific peer reviewed stuff I think sometimes maybe isn't right.

Phil Bass:

I missed it.

Bryan Schaaf:

Number eight, the lats one that I have pulled. The list goes on and on. I mean gosh, just do a Google search. It's amazing how many muscles are taken [inaudible 00:41:57]. The last one is the gluteus medius, which is from the sirloin, right?

Phil Bass:

Yes. That is the sirloin center. Yes, that is the center, main event of the sirloin. Which surprisingly, and this is where muscle ranking gets really weird, right? Because surprisingly, of the top sirloin, it's much easier to sell the Coulotte or the Picanha or the top sirloin cap. Which is the biceps femoris muscle that didn't even make your list, but off of the top sirloin is very, very tender.

Bryan Schaaf:

Yeah.

Phil Bass:

That's because of wear it's being cut on the carcass. The biceps femoris is a very large outer thigh muscle that as you go more distal, so away from the hip, it becomes less and less tender. But over the top of the sirloin, it's actually quite tender, and it didn't even make the list.

Phil Bass:

Now that's not the muscle we're talking about. We're talking about the gluteus medius. The gluteus medius is your very classic baseball sirloin. So yeah, chefs in classic steakhouses, you guys should know

about this cut. It's meaty, it's sirloiny, that's how I describe it. Sirloin tastes like sirloin and nothing else takes like it, and it's great as a result.

Tony Biggs:

You're right. You're right.

Phil Bass:

Yeah, and it's a great entry level steak too. So this is one of those and I like to talk about getting people into the steakhouse. To experience a steakhouse dining event, but maybe can't necessarily budget for a tenderloin or rib-eye. But they could still have an amazing meal, and this is also one that if you can get it from a prime carcass, holy cows. The additional cost of a center-cut top sirloin is not going to be that much more but the palatability will be. The value just leapfrogs at that point. So I'm a big fan of the gluteus medius muscle. It's one that we're currently doing research on and I hope to continue to see the popularity of it grow.

Bryan Schaaf:

Excellent. Great segue, right? So since we're on that subject, I will invite everybody, once you finish this episode, swing on over to another one that just launched. It's all about understanding beef markets and cattle markets, where our pal Clint [Walenchek 00:44:27] is going to sit down with us, the guy ... I mean that's what he does, he works with packers. He explains the why behind why do beef prices fluctuate, why is seasonality a thing, but he's also going to talk about exactly that. The sirloin pricing, we would say the sirloin is the gateway into prime because oh my gosh, it's unbelievable and it's ... I mean the price spread is almost non-existent, especially at certain times of year. It's a great way to dip your toe into the water, so oh, makes me so happy.

Bryan Schaaf:

All right Phil, this is like shoot from the hip round time, right? That was the eight. What are we missing? What do people need to know about? From a beef cut standpoint?

Phil Bass:

From a beef cut standpoint, gosh, just ... It's interesting, Chef brought up the outside skirt steak. One of my favorites. Holy cow. The outside skirt steak and the hanger steak. They're the same muscle, they're the diaphragm, the breathing muscle of the animal. But one that we haven't really assessed much as far as tenderness is concerned and probably one that we won't because of the marketability of it. We don't need to investigate it that much, we can sell them just as well as tenderloins and rib-eyes, we can sell them. But great ones to bring about a different eating experience and a robust eating experience.

Phil Bass:

Another one is the sirloin flap. We mentioned it early on in the podcast but it's super tasty, it's known as the Bavette steak if you cut a steak out of it. But can be used as ... Just like a skirt steak, you can butterfly it and make even more skirt steaks, and then Chef, you're from the New England states, right? And so that's steak tips up in -

Tony Biggs:

You're speaking my language, baby.

Phil Bass:

In Worcester. Not Wooster, Worcester.

Tony Biggs:

Steak tips are the favorite of Bob Kraft, home of the New England Patriots, ladies and gentlemen.

Bryan Schaaf:

You got the plug in early, Chef.

Tony Biggs:

I got it in. I got it in.

Bryan Schaaf:

Well played, well played. Excellent, excellent, excellent. Guys, knowledge is power, and that's why on a day like this, where you know what? We've got a season to launch, Diana is still at home making her way back. Hopefully she misses us as much as we miss her. We are so grateful to have Dr. Phil Bass from the University of Idaho sitting in with us.

Bryan Schaaf:

Phil, one thing I want to call out, and if you feel as though you can share the story, I would be ever so grateful. There are two people that I know who hail from Ferndale, California. One is yourself, the other is a certain lightning-haired Food Network personality, wears the sunglasses on the back of his head and every time I've met him he's been the most genuine, down to earth, nice guy I've ever met, Guy Fieri. You've met him. Tell me about this.

Phil Bass:

Yeah. Yeah, and only briefly. I'm not saying that I know the guy, like we sit down and have beers together, but we do have a connection, through my grandmother actually. So my grandmother, who is still alive and well at a young 95 years old, she ... Guy grew up down the street from her, and she was also the lady who would watch the kids play at recess at the elementary school. Very small town in Northern California, North Coast of California. And so interestingly, when Chef Michael Ollier were at a Food Network get-together in New York City, Guy was one of the headliners and he and his entourage were walking by and I just kind of waved and he waved and truly is an absolutely genuine individual. Then I'm like, "Hey Guy," and he's like, "Hey hey," and I said, "Guy, I'm from Ferndale." He kind of looked back and kind of gave this like, "What?" Then I said my grandmother's name, I'm not going to say it here on the podcast, but just instantly ... Everything changed, and all of a sudden, the entourage was surrounding me and we wandered about and he's like, "What are you doing here?" "Well I don't know, what are you doing here?" No, but it was great to make that connection.

Phil Bass:

I know that Guy would say this because he has said it many times. Not to me personally but to many different folks, either in and out of our small town is that we grew up in an amazing place. Very small farming community, tight-knit community, but very giving, and Guy has done the same thing and so I mean truly a genuine individual who has supported the youth in the area, regularly goes to the county

fair still and helps judge the barbecue contest and is just a known face in the area. So yeah, truly a genuine individual.

Bryan Schaaf:

That's amazing. All right, two last things before we cut you loose. You spent almost a decade here in Wooster, Ohio with us and you initially started working with distributors in Canada and types like that, but over time, you got to work with a lot of chefs. You got to eat a lot of different things. If you could sit back today, what were some of the most memorable dishes or most memorable chefs that you still, four years later are like, "Man, I love those guys."

Phil Bass:

Well, I mean of course Chef Tony Biggs and his noodle soups that he would make for me. I'd always walk in and say chef -

Tony Biggs:

You better say that.

Phil Bass:

Where's the soup, I want soup, and I do. It goes back to my Italian roots where we would just ... We would always have soup for lunch and dinner and everything, but anyway. Yeah, I mean there's some amazing brand ambassadors that I hope are still closely tied with the brand. Chef Jeremiah Bacon is always kind of at the top of my list. Unbelievably humble, yet extremely talented individual. Genuine, again. Very hardworking and a true leader.

Phil Bass:

Chef Craig Deihl. Not sure, haven't had a chance to connect with him in a while but the guy is a ... He's a true genius when it comes to [inaudible 00:51:23] charcuterie. Some of the other names are starting to escape me, I can picture their faces of course but their names are escaping me and please don't let that mean that you didn't make an impact on my time with the brand because I met a lot of people and they were absolutely fantastic. I wouldn't trade a moment for any of the time that I spent at Certified Angus Beef. It was absolutely incredible, and the camaraderie with those who are in the industry or those that are at the location in Wooster, Ohio, is unparalleled. It is absolutely a worldwide team that is making the brand as strong as it is, and it goes back to the product and the animals that are there, and so yeah.

Bryan Schaaf:

Excellent. Well said. Last thing, right? We've got to make sure we do some self-promotion as well. You have a podcast.

Phil Bass:

Yeah.

Bryan Schaaf:

And people say what's your podcast ... We talk about meat science a lot on our podcast, like but if you want to really get down and dirty into meat science, you guys. Tell us about it, MeatsPad, right?

Phil Bass:

MeatsPad. So MeatsPad was developed by a Francisco Najar, Dr. Francisco Najar. When he was working on his PhD a little over a year ago at Kansas State University, he interviewed me as I think I was number three interview and after the interview just things clicked and I've become a co-host, a regular co-host. He and I interview all kinds of meat scientists all over the place. And not just meat scientists but industry personnel that can really contribute to the conversation. So MeatsPad is ... It's literally designed to help small to medium-sized processors but definitely not limited to that. The whole idea is to get the whole meat world talking about the true science behind everything that's going on. Reasons for why we see the colors that we do in meat, talking about tenderness, but getting down into the minutiae sometimes, yet bringing it back to what I call the Reader's Digest level and so hopefully everyone can leave listening to the 30 some minutes of podcast and get something out of it. Get some good data, take home messaging. We just had an opportunity to interview a really good friend of mine, Dr. Jeremy Adler, and his was just on basics of sanitation of a meat plant.

Phil Bass:

So if you're thinking of stuff like that, if you need resources like that, not only do we have a number of episodes, it's been going on for a little over a year now, it was a positive that came out of the coronavirus era that kind of forced us to, "Hey, we have to still keep telling the story," and that's what Francisco and I do. Reach out and listen to some of the podcast but then also send us questions and so we do have a website, it's meatspad.com, you can send in questions there and we will address them. Sometimes it takes us a little while but we will address them. They are once every two weeks. We're definitely more of a quality not quantity kind of situation, and we also have day jobs, so we're limited in some of our reach that way but every once in a while we will have some bonus episodes, one in particular, I had the pleasure and honor to interview [Carston Shellhouse 00:55:08] who is a master German butcher. The guy is in overwhelmingly abundance of knowledge in sausage production, and he's one of those that if I can just stand in the room with the guy, I'm happy. But I got the opportunity to interview him. So we cover everything, it's not just beef. Maybe we'll have ostrich on there one day, but hopefully we're addressing questions that the industry has and curiosities that everyone may have.

Bryan Schaaf:

Excellent. Chef, I really think we need to get an ostrich on the [inaudible 00:55:46] scene, because now I'm curious.

Tony Biggs:

Just for fun.

Bryan Schaaf:

On that note, Dr. Phil Bass, we are going to turn you loose but before we do, I want to take a minute and first say thanks to everybody who is tuning in. Again, we are the Meat Speak Podcast powered by the Certified Angus Beef brand and we are available across all of your major podcasting platforms. Do you guys get this report? Like there are ... I mean obviously there's always like the big three or four, you throw iHeartRadio in there, but then there are all these little podcasting hosting sites I didn't even know existed, apparently we're on there too. I had no idea. So who knew, right? Who knew. But in the spirit of social media guru Paige the soothsayer, quick reminder, if you could go to the Apple Podcasts, that's the little purple icon, like, subscribe, and please leave us a message and give us ... I should be more specific. Leave us a five star ranking, even if you think we're four, can we round up? Even if you think we're a

two, we'll still round up to five and we'll feel good about that and Chef Tony will send you a beef shank or something. We can make that happen.

Tony Biggs:

Phil, good to see you buddy. Best to the family.

Phil Bass:

See you Chef. Thank you.

Tony Biggs:

Love you brother.

Phil Bass:

Love you too.

Tony Biggs:

We'll stay in touch.

Phil Bass:

Yep.

Bryan Schaaf:

Outstanding. On that note, on behalf of The Meat Speak Podcast Certified Angus Beef, I am Bryan Schaaf, Chef Tony Biggs, Meat Scientist Diana Clark, who is home enjoying her newborn child, all is well. Dr. Phil Bass from the University of Idaho, from The MeatsPad Podcast, thank you, thank you, thank you for joining us. Until next time, thanks all for listening.