

## Sous Vide or Not to Sous Vide

ANDRIA DONNENWERTH: Hello, and welcome to sous vide or not to sous vide. Here with us is WSU's executive chef, Jamie Callison, and assisting him tonight is Brittney. My name is Andria Donnenwerth. I'm the program coordinator for Global Connections. Stay tuned with us at the end when we will announce the winner of our sous vide. So here we go, chef Jamie. Go right ahead.

JAMIE CALLISON: Well, welcome to our-- looks like a little science experiment here. And again, Brittney, thank you so much for your help. And so I'm talking a little bit about sous vide, and I don't think of myself as an expert with sous vide, but I do know quite a bit about the benefits of sous vide. It's an amazing technology. Sous vide, actually, the term means under pressure. So vacuum seal. Use this in a chamber sealer which removes all the air. A lot of home cooks-- and we use it sometimes-- is basically just the vacuum sealer. This works extremely well.

When you're using this, it's important to make sure you don't have real loose liquids, because it will pull the liquid out. A chamber sealer pressurizes it and actually allows you to vacuum-pack liquids. This is a Polyscience product here, and it works extremely well. But again, the chamber sealers are a great way to go. But the chamber sealers are about \$2,000, so that becomes very expensive.

The other thing you can do, which keeps the cost down a lot, is to use your Ziploc bags. It's kind of a joke around my house. I'm not great at Ziplocking, for some reason. I can't snap my fingers either, so it kind of probably goes together. I'm going to demo hollandaise. So basically what I've done here is I've taken eggs, I made the reduction, seasoned it. Put everything in here with the butter and everything, except for the lemon juice.

So what we're going to do now, is we're-- if I was just starting this, I cooked this at 147 degrees for a half hour. So what works really well, if you open up the vacuum and you open up a little part of the seal and you push the air out as you're putting it in the water. And then what I like to do is take a huge paperclip and clip it on there, and that allows where water's definitely not going to get in that seal, especially with my techniques of that.

So what we're going to do now, I really think this is the perfect hollandaise. We're going to take this and we're going to pour this in this siphon container. It's basically a whipped cream container. We're going to pour this in here, see if I can do this gracefully. And so again, this has everything in it. It has your standard reduction, which we use peppercorns, shallots, vinegar, reduce that down to glaze. And then we add water to that glaze to kind of infuse those flavors into the water. At that point, you can add tarragon or whatever other flavors you want.

We strain it off into the egg yolk mixture. We use pasteurized egg yolks, and then we just added our butter right in with that. We didn't emulsify it, we didn't mix it. And then the lemon, I've

found with this technique, is we put it in the water bath. It'll actually curdle the eggs. It'll cook the eggs as it's heating up. So we're going to add the lemon very last minute.

We're going to close this up. I like to shake it around just a little bit. And then we're going to charge it. And this is going to-- again, we didn't have to-- hollandaise traditionally, you have to whisk it for a long period of time while we're adding in the butter. It's not a process that's anybody's favorite. You want to listen for the charge, and then you want to shake it. We're going to do two charges.

And the nice thing about this hollandaise, is after it's done, we can turn our sous vide machine down to 131 degrees, and hold it for up to an hour and half. So we're going to shake this again. I always like to do a little test. If you look at how-- the structure of that, the beauty is when you put it on the product, it kind of comes out at the very beginning kind of more foam-like. But as it heats up, it really creates a glaze, and it's amazing hollandaise.

I've made holidays for 37 years now in my career. I will never go back to making it the other way, especially being able to hold it in the water bath.

We're going to talk about-- I'm going to switch around quite a bit here. So with sous vide machines, it's really important to kind of think about the temperature and time. So I have asparagus here. The asparagus that I have here, all we did was put a little olive oil, a little salt, a little pepper, and a little lemon zest. I have 185-degree water. We're going to put the asparagus in there. Usually asparagus, I cook at 184 and 1/2, and I do that because I like it to stay a little bit softer. I have it at 185 right now, just because I'm going to be also doing carrots and beets, too.

So I'm going to drop that right in the water, and that's going to cook for about 15 minutes. And with vegetables, the difference between vegetables and proteins-- that's better-- vegetables and proteins, vegetables are all about the cell structure breakdown. So we're looking at how we want to break down the cell structure. So if I get a carrot and the carrot's already really tender and soft, I'm going to lower the temperature a little bit so that I don't break down the cell structure so much.

With proteins, like this wonderful steak here, it's all about the protein coagulation. So it's really important-- it's totally different. You would think you would cook vegetables at a lower temperature. Vegetables take-- it's about 185 degrees almost exactly, to break down the cell structure of a vegetable. So it depends on what you're going to use it for, and the approach you take.

So with our steak, we're going to put a little butter in the pan. Can I have the other steak, too? Just in the bag there. And we're just going to-- I'm going to re-sear this a little bit. I seared this one ahead of time. And the reason we did that is to give it some flavor. But also-- for certain things-- for steak I'm not so worried about, but it also cooks a lot of the bacteria off the outside. So if you have a really thick steak and you're going to be cooking it for a very long time, we're

going to want to cook it maybe a little bit beforehand, before we sous vide it, to make sure that we kill off some of that bacteria.

The steak is cooked all the way through. So, we had a little power problems here earlier. So hopefully, when I cut into these, they're going to be the perfect temperature. This steak right here, it's a beautiful prime rib eye. What I did in here is I just add a little bit of-- this one was not seared at all. So basically, we're going to open this one up. And I just wanted to show you this. This one right here has a little bit of rosemary, thyme. We've used a little bit of everything seasoning, which is a WSU product and a special seasoning mix.

Now, we're going to open this up, and we're going to sear this off too. So re-searing it is going to give it a really nice texture. If you look at the searing of a steak, I was taught-- and most of us were taught-- that searing of a steak was to lock in the moisture. It is 100% opposite. Gloves. 100% opposite. When you sear something-- especially from the cold state-- it pushes all the moisture out. The sous vide, the benefit of the sous vide is it slowly heats it up, and all that moisture stays in. In a normal steak, when you're cooking a steak normally on the grill, you can lose up to 30%, 40% sometimes of the content in the steak.

When you're doing sous vide, that goes from 5% to 10%. So you keep a lot of that moisture in. So before you re-sear anything from sous vide, because it's wet, we're going to make sure that we dry it off. So I'm going to do this with a little bit of butter basting at the very end, but you want to dry it, because if you don't dry it off, what's going to happen is instead of getting a nice crust on there, it's going to create steam. So you really want to dry it, whether you're just grilling your steak or doing it sous vide.

The beautiful thing about sous vide too, is all that fat and everything, instead of going out into the barbecue and down in the grill, it actually stays in the bag. And so what we do, what we like to do even at home and at work, is I like to do the thing they call the reverse sear. So what I do is I don't sear how the steak at all, and I'm going to sear it afterwards. And that's the best end result, for sure.

If you're doing something like a rib eye, and you want to trim off some of the fat, keep that fat and put that right back in the bag. So the steak, I cooked at 132 degrees for about two hours. And so now we want to get a nice crust on this one. The moment of truth here.

So if you look at the steak, this is cooked perfectly. This is 132. This is a perfect medium rare. A lot of people, if you like your steak really rare, you can go down to 128. The only thing you have to do is, you really have to watch how long it's cooking in the temperature danger zone. So a thick steak like this, maximum two hours at 132. You're going to be fine. If you get down to 128, you're really going to have to manage that a little bit better, make sure. You definitely do not want to go over two hours, because that's when bacteria starts to multiply.

I'm going to slice this real quick just so you can see a better shot of it. The other thing that I really like about the sous vide is that you don't get that-- you don't have to wait as long. When

you cook a traditional steak, you have to let it rest. Sous vide, it's actually rested already. And so when I cut it, we didn't get a big loss of the blood and the juices coming out of it, and that's because everything's been slowly cooked back in. When you take a steak off of a hot grill, the cell structure is kind of seized up, and it makes it where you have to actually be very careful.

A lot of times if you get your steak when you're at a restaurant, it's better actually not to cut into it until it's rested just a little bit. So just relax, have a glass of wine, talk to your friends. Enjoy it. If it comes out sizzling, definitely do not cut right into it. Can I have the potatoes?

So we have some potatoes here. Potatoes, we talked about what sous vide or not to vide? Potatoes, there's no reason to sous vide them. I'm not a big fan of the texture. We have tried most things here, and the other day I read up on halibut that everybody was talking about, one of the best things to sous vide. We tried it multiple different temperatures, and it just became mushy. So we actually ended up just doing a traditional poach on it. Came out amazing.

So whenever I'm serving steak, you can see how beautiful, and how nice medium-rare that is. And again, looking at this, how perfectly medium rare it is all the way through. If we cooked this traditional, you would have the graying effect, is what we call it, where you get that perfect medium rare inside, and then you end up with a kind of graying effect all the way through, and it ends up being a little bit more rare inside sometimes that what you even want it.

So we have a nice crust on this steak here. I made sure I bought some good-sized steaks so that I can maybe feed the crew. So for our asparagus, again, especially when asparagus is in season, I want to make sure it's really tender, that I'm not overcooking this. So this is still just a little bit under. It hasn't been quite 15 minutes here. So I'm going to let this go just for a couple more minutes. And then what you can do when this is done, too, is you can actually grill it, which works extremely well.

So you can take it right off here, throw it on the grill real quick, roast it. I did some oven roasted carrots recently, but I sous vide them ahead of time, and just a very quick hot oven, roast right away. So when you're serving steak like this, always really important to do a little finishing salt. I love Maldon finishing salt. The inside of the steak is not seasoned, right so we want to make sure that we put a little salt on that, and it gives it a nice little pop.

So I'm going to hand this over here to see if Mike wants to try any. Mike's our guest taster here. And we brought somebody in that looked kind of tough so that way, if he-- I was afraid if I served him something that he didn't like, I'd be in trouble. So now we're going to talk about the pork.

Pork is one of my favorite things, pork and chicken, cooking sous vide, is absolutely amazing. The pork, a lot of times, gets overcooked. And it's one of those things that people are really, really nervous about it being overcooked. Yeah, you can set it right there. So I want to show this to you, too. This is actually-- how is the steak?

MIKE: Very good.

JAMIE CALLISON: Very good?

MIKE: Yeah.

JAMIE CALLISON: Nice. So same exact size starting, exact same size. So as a chef in a restaurant, what are my guests going to want? These started out the same size, and look at the size difference here. So when they're done, this was sous vide, and this was seared and just roasted traditional. So now what we're going to do with this is we're going to dry this off a little bit. I'm going to roast this off. I'm going to pan sear this. I just put a little olive oil on there.

So the pork, I did 139 degrees for two hours. The beautiful thing about pork now, is we're allowed to cook it kind of medium, and people are getting used to it. I remember the first time that I served pork with a little bit of red in it, I went out and made sure. It was a dinner for about 80 people, went out and explained it. Everybody absolutely loved it. I guarantee you 10 years ago, everybody would've sent that plate back. So pork definitely can be cooked nice, medium.

I've actually-- I take students to Italy and France for food and wine program every year. In France, they serve pork medium rare. And I've definitely eaten it, and I'm still here. So again, I'm not suggesting that you eat pork made medium rare. Follow the state codes. I'm just saying that's kind of where we're at. So I've got to be careful I don't get in trouble here.

So this is the pork that was cooked. It's actually still nice. It has a little bit of red still in there. Brittney cooked this off and she did an absolutely amazing job. So we're going to put a little bit of that on the plate here. But see, it's still-- just there's still-- it's maybe hard to see. There's just a light tint of pink in there, which is what you want in a pork.

So now, we're going to remove this. And I would probably-- you get a little bit of fat cap there. Searing that off is really good, too. So I'm going to let that sear for a little bit. Now I'm going to showcase the asparagus. So it's funny at our house. We will not eat pork anymore unless it's been sous vide. It just-- I did a dinner this summer in Tri-Cities. I did two back-to-back option dinners. Everybody at the table all bought a sous vide machine.

Nova's a great brand. Polyscience is what you use for mass production in bigger operations, but there's a lot of really good brands out there. The average sous vide machine 10 years ago was about \$600. Now you can find them for about \$80 to \$100, which is amazing. A lot of people are concerned about the plastics and saying, how can you cook something in plastic? That's dangerous. Some plastics it is. Make sure you buy-- if you're going to do Ziploc bags-- buy a good brand. I'm not going to-- I shouldn't be saying any companies, but the Ziploc brand and all those brands that are really famous, they use safe plastics that are safe to cook in.

If you buy a really cheap plastic, or you buy a plastic and of course you microwave in it, you can have some issues. So definitely buying the good quality. And the food saver, all the bags are sold for sous vide in the US are all safe to cook with. So this asparagus is actually amazing, perfect to eat right now. You can do a quick little saute. I like adding a little bit of color to it.

So the pork, because-- some of-- the beautiful thing about the pork, too, is we had this big fat cap on here. This did render off in the cooking process, but it rendered off and then the juices cooked right back into it. I mean you can see the difference in the sizes of it being cooked traditional. And this is going to have a lot more even-- this has a little bit of red in the middle. This is perfect. I actually sometimes like my pork just a little bit more red. The problem is in the couple of minutes this is actually going to show, a little bit more pink to it as it sets, but this is cooked absolutely perfect.

So this will be a fun taste test right here. I'm actually going to cut this a little bit easier. So Mike will get the opportunity to try side by side, the pork. We probably need to bring a microphone over for him.

Where's the steak? Bring over the steak plate.

MIKE: You soaked this for how long before--

JAMIE CALLISON: I-- what's that?

MIKE: You soaked this for how long?

JAMIE CALLISON: So, this was actually-- it was cooked in the sous vide for two hours.

MIKE: OK.

JAMIE CALLISON: So this one right here was marinated for 12 hours, just to give it a fighting chance. But yeah, so this one was the sous vide, and you can see, it's definitely a lot tougher. And you saw the size difference of it, right?

MIKE: Absolutely.

JAMIE CALLISON: I mean, when we cooked it, I mean it's amazing how much it cooked down. I mean, it was-- and it's decent. But this one does have that pink tend to it, but it's OK. That's what it should. But it's evenly pink all the way through.

MIKE: Oh, wow, that's very tender.

JAMIE CALLISON: It's a lot, lot better flavor and a lot better-- well, at least I think so. We'll see what Mike has to say. All that flavor cooks into it.

MIKE: That is absolutely amazing, the difference.

JAMIE CALLISON: You gotta hold that. See that guy holding the mike up?

MIKE: That is absolutely amazing, on the difference of how it holds the flavor. You can really tell the difference in moisture content.

JAMIE CALLISON: Exactly. Well, and the moisture content, and actually the flavor of the food. The beef is going to be a lot more apparent. The asparagus flavor is going to be amazing. The pork flavor is just going to be more apparent, so it really helps. Where's the beef that I dished out? Yeah. The one I just set there. So the-- that's OK.

So the asparagus, I wanted to show you this. This is going to have some nice color on it. And so sous vide, of course, it has a lot of moisture, right? We're not roasting it. But with sous vide, at the very end, I do like to do sear. That's OK. So we get nice color on there. I would suggest most people don't reach into the pot, the pan like that. But after cooking for so many years, I've built up a lot of calluses. But this is just beautiful. And can you see how bright the color is? We did not blanch this at all. We vacuum-packed it, seasoned, a little bit of lemon. All that flavor cooks right in. And for vegetables, this is absolutely amazing.

Do we have any questions, or-- we need some questions.

BRITTNEY: We have eight minutes left on the veggies.

JAMIE CALLISON: Eight minutes on veggies. OK. So now we're going to go into see, well, I'm going to show the chicken real quick, and then the salmon's almost done. So chicken's one of the things that I always do a pre-sear on it, for a couple of reasons. One is, it changes its shape. So if I did not sear this at all, it's really strange. The chicken just kind of pulls together, and it really becomes kind of a funny shape, which makes it very, very hard to sear at the end.

So what I like to do is, I cook this. My temperature that I cook it at's a little higher than what a lot of people recommend, so I really believe 149 degrees for two hours. I have tried it. There's people out there that say cook it 140, 143. You get quite a bit of pink left in it. But this has a nice sear on there. Fried chicken, I absolutely love doing this way. Dark meat, you need to cook it about 160 degrees in here. And we brine it just like you would overnight, cook it sous vide, and then we dredge it in the flour, and then the buttermilk. Or the buttermilk and then the flour, and then back in the buttermilk and the flour to make it really crispy, the seasoned flour.

Then we fry it, but we only have to fry it for about three minutes. I don't want to say it's low-fat fried chicken, but it's a lot less greasy, and it stays crisp a lot longer, because you're not getting it saturated with that fat.

SPEAKER 1: Chef, when you're doing the sous vide at home, and the bags are floating on the top, should we be concerned, or--

JAMIE CALLISON: I would be a little concerned if the product that you have is not totally submerged for some things. The carrots, this is definitely going to be fine. You can weigh them down. And again, that paperclip method actually works pretty good to kind of hold it. The more air you get out of it the better. And that's right chamber sealers are the best way to go, because it pulls all the air out. However, I think that the less-- least expensive machine is about \$1,500, and it's the size of two bread machines, so it takes up a lot of space.

But when you're cooking it, in here, right now, I have my herbs, my butter, my salt, pepper, all those flavors are just slowly cooking into those carrots and stuff, which is absolutely amazing. Yeah, I would try to get it to where it's kind of floating, maybe move it around a little bit, too. So most things like a heavy steak or something like that, you see like the chicken and stuff, it actually sinks down into it, right?

So now I think my salmon-- it's time for my salmon. So the salmon we cooked at 115 degrees, or 117 degrees. Most people say 115. I love my salmon. I worked with a Japanese chef. I love my salmon to be really, really oblique in the middle, really moist in the middle. However, most people want the salmon to start to get a little cook on it on the inside. So we're going to, 117, if you have people coming over or you're making-- you have somebody that doesn't want that kind of raw salmon texture. I would definitely recommend it.

This is actually the first time I have ever cooked salmon sous vide. We cook salmon once a week at home. I know, you're thinking how brave can he be doing this first time on a live video stream? We usually do ours, just where we marinate it, get a hot cast iron pan, put it in there for-- until it's brown on both sides, put it in the oven for about six minutes, and it's absolutely perfect. But I wanted to try this. We did test it today. And I tested at 115, again, for an hour.

I, again, love my salmon to be definitely nice and not over. I really am not a big fan of overcooked fish. So we're going to set this down on here. Remember, all the product that we've set on here has been cooked. So we're going to dry this off again, just a tiny bit. There's oil in the pan, and the salmon has quite a bit of oil, too.

Same thing. If I would have cooked this traditional, this would be a lot smaller. So I cooked really small piece. So we're going to get a little sear in there. I love that sound of that sear in the pan. So the salmon is not going to take very long. we're just going to get a little color on it. I always like to use these kind of fish spatulas. They work really well.

So the beautiful thing is, this salmon is cooked 100% all the way through. All-- we don't have to worry about overcooking it. Now, we can actually take it, brown it, get it out of the pan and it's absolutely perfect. One thing I would recommend at home, too, is build a little file of your own recipes for sous vide. There's a lot of information out there, amazing websites. I'm on the computer all the time trying to come up with the new ideas.

Write down the temperatures that your family likes it. It's really important so you don't say, oh, that was perfect this time, and then two months down the road you don't remember what it

was. Again, this is a nice little sear on here. See the color on there? So all I'm doing is giving it nice texture. Again, sous vide is amazing technology. You still have to follow the basic cooking principles of seasoning it properly, making sure you get the right texture. Like cooking a steak 100% sous vide without searing it, yes, it's going to be a perfect medium rare. Is it going to be the texture that you like? Probably not. Again all personal preference.

So the other thing about cooking it this way, too, is just like everything else that we did, you're going to have this perfectly-cooked salmon, and all the flavors are going to be locked in. I love finishing my food with just a little bit of finishing salt. We don't need to talk about brands, but Maldon finishing salt is one of my favorites. It has good minerality, very little-- it doesn't have that strong salty kind of aftertaste that a lot of finishing salts have.

So I'm going to break this open and let you kind of see. This is actually-- this is perfect. It's really glossy inside. It's actually firm, so it's not rubbery inside. So I would say the 117 test worked. So you were part of my test tonight. We did 115 earlier, and it was still just a little rubbery. The 117, this is beautiful. It's glossy, lot of moisture left in there. This is going to be a nice piece of fish. I don't get to eat it till later, so ready to try some salmon?

So again, like with the beef, you're going to get more of that salmon flavor. Because the salmon is actually-- instead of all that flavor going out in the pan and the oil loss, the oil, I love duck confit. So sous vide, in a lot of ways, is like confit, where you're cooking in fat, because the fat comes out of the salmon, but it stays in the bag, and it cooks back into the salmon, and it adds a lot of flavor to it.

And this has no lemon on it, no-- this is really simple.

MIKE: OK, so I grew up in Kansas. There's nothing like being demasculated on television. And I really thought I had a grip around the grill, around the kitchen. Our next family reunion, I get to take a whole new ballgame to town. I really appreciate this. Thank you very much.

JAMIE CALLISON: Oh, thank you. So the salmon was good?

MIKE: Oh my goodness, I'm going to take this back here with me, absolutely.

JAMIE CALLISON: And that's part of it, is that you're actually showcasing a lot of this molecular cuisine, you know, the foams. Of course, I used some of that today with the hollandaise, but it's a better product. We do some encapsulation of product, and we do some kind of fun unique things here to teach the students about the modern technology. Sous vide is no longer modern technology. Sous vide is a piece of equipment that everybody should have in their kitchen. It's absolutely amazing. And the nice thing about the new sous vide machines-- like these brands here-- is you can actually put them in your cabinet, and they're not taking up a lot of space.

The original ones were the size of a bread machine, and the price has just went down dramatically so that people can afford it. So vegetables. I actually didn't do vegetables for a long

time. I did a dinner down in Sonoma, California. We do an annual dinner down there. It was the time of year when it was in spring. The vegetables were absolutely amazing. So we kind of did a sous vide project down there. The owner, Brian Wise, and Ronda West took us down there. Absolutely amazing. We had-- they had sous vide machines. Their friends brought over their sous vide machines. We had beets cooking like eight different temperatures for different times, and we just had a lot of fun.

And so, with the carrot, I love carrots. Carrots, I like cooking at 185, because these are still-- these are cooked really nice, but they're not-- you have to be really careful, because if you don't cook them enough and you serve them for dinner like we do, for 85 people, you can have a problem, because they're shooting across the table.

The beets are absolutely amazing this way, nice and tender. And again, if we wanted to cook these longer, we could. But for vegetables, I like to cook them at this stage right here, because I'm going to roast them a little bit more, too. I want to-- I mean, these are absolute beautiful, but I want to add some color to them. So we're going to add-- we're going to cook the carrots a little bit more, get some color to them.

It's amazing how long they cooked. I wanted to show you the moisture here. There's hardly any moisture that came out. Soon as that's brown, I would add that moisture right back in there so I wouldn't lose that. We're going to get a little bit of color on these carrots. We're going to salt them just a little bit more because I really didn't salt them very much. Let them brown a little bit more, get-- I'm going to reserve that liquid, pour it in there after they're brown.

So one of the best things I ever served here was ironic, I did nothing to. I got some beets from our organics farm here at WSU. All we-- I believe in tasting vegetables before you cook them. You know, if you're going to do a glazed carrot and your carrots are already sweet, why would you add a bunch of sugar to it and why would you glaze it? Or, you can still glaze it, but using a lot less of the sugar.

Also, if it's really tender, you're going to cook it less. So I would never cook a really tender fresh vegetable out of the garden at 185 degrees. I would start maybe even sometimes taking that down to 183 just to kind of cook it a little bit to kind of let it absorb some of those flavors. One of the best things I ever served was I went-- I received some beets from WSU, olive oil, salt, pepper, little bit of lemon on them. Tuck them-- served them with lamb, amazing lamb. It was an amazing dish. Went out to the dining room, asked the guests how they liked the food, and all they talked about was the beets. Like, what did you do to those beets?

It's like, I didn't even cook them. No heat at all. Raw beets on the plate, room temperature, served with lamb, amazing. So again, all these recipes should be inspirations, and then those inspirations kind of make judgment calls, especially right now. The vegetables that we're getting in, these kind of early winter kind of late fall vegetables are absolutely amazing. I, of course, believe in local product. I think it's important to support local economy.

I received these carrots and a bunch of other product from a bunch of local farmers last week, and it was probably one of the most exciting deliveries I've ever had, everything from the tomatoes to the carrots to everything, just smelled absolutely and tasted absolutely amazing. The tomatoes were actually-- probably should never have been sold. They were so good that I never want to eat another tomato again. So--

SPEAKER 1: Chef?

JAMIE CALLISON: Yes.

SPEAKER 1: I do have a question from Luke. He asks have you tried to prepare duck with the sous vide method?

JAMIE CALLISON: I have. Duck works decently. The duck, I find that I like doing duck more like after I've made like a duck ragout or something. Reheating it together, and having all those flavors come together. Duck has so much fat that a lot of times I like to render that fat off and cook it more traditional. If I'm doing duck confit, I'll do it really slow in the oven. But it would definitely work in sous vide really well.

One of the few proteins that I've tried that did not work out was rabbit. Rabbit, just the texture of it, was not good. A couple of weeks ago, I think I-- I don't know if I talked about the scallops yet, but not scallops, but the halibut. You know, we were-- like I say, we were really excited about doing the halibut, and we looked up the recipes and we got excited and we cooked it. We cooked it multiple different ways, different time, different temperatures. And by the end, it was just absolutely-- we figured it was no way. It was just mush.

So we really worked hard to try it. We did this butter poached halibut, but then we decided that we needed to approach it a more traditional way. So again, sous vide is not for everything. But I found that, again, vegetables are something I've just started really diving into. I am not a sous vide expert, but we do a lot of sous vide here. And, you know, people talk about the safety of it. I think in a lot of ways, if you deal with it right, it's a lot safer than traditional cooking, because you know the exact time, and you know the exact temperature. And you know that it's cooked, and so it really works well.

So we have our carrots there. We're going to do our chicken next. So carrots, again, we sous vide them. We have some beautiful color on there. And then we're going to show the chicken with these. Chicken is-- we actually do the sous vide method for just about everything for chicken that we do here. It's the safest way to cook it. It's, for sure, going to be cooked all the way through.

Really nice texture. Again, dark meat you cook at a higher temperature. Again, I'm giving you recommendations. So this chicken, it's cooked. It's really moist, still, inside, but there's definitely no redness to it. And again, there's a lot of people out there that say you don't need to cook it as far as what I'm doing right now. But if you're cooking any less than 149, there will

be a slight redness to it. People do not like red chicken, so by doing it this way, we marinate it for overnight in just wine, herbs, like rosemary, thyme, garlic, a little olive oil, and it comes out absolutely amazing.

So are we ready to try some more? So again, the chicken, the flavor is going to cook into it, and you're not going to have that kind of the dryness effect that you're going to have on lot of chicken. So--

MIKE: Now chef, I know that you authored a book--

JAMIE CALLISON: Yes.

MIKE: --a book that I think Andria actually has up here. In some of your chocolates, did you make these chocolates as well?

JAMIE CALLISON: So the chocolates, my head chocolatier is out there packaging chocolates right now. So these chocolates are Crimson Confections. I was the faculty advisor for this. Jessica Murray, one of our grad students, worked with us on this. It was the main kind of student lead on this. So all these are hand-dipped, handmade by WSU students, the marketing team, entrepreneurship team, engineering team, food science team, hospitality, marketing, everybody worked on this project together, and it's absolutely amazing.

So we're in the process of making 50,000 chocolates right now.

MIKE: Wow.

JAMIE CALLISON: So we're pretty busy with this project, but it's all-- they're all natural ingredients. Each one of these are hand-dipped, and handmade by the students. It's a great way to give students an opportunity to get that real experience of producing a product, selling it, marketing it, so we're really, really excited about this product.

MIKE: And the holidays are coming. Absolutely. A beautiful package, beautiful candy. Now are any of these recipes that we're going through this evening in your book that you have here?

JAMIE CALLISON: There are a couple. So, the pork sous vide, actually, is in here, and it's the pork dish. So that's in here. I don't think a lot of the other recipes I think we did sous vide, was the main one that we did in there. But this book showcases WSU, the organic farm, the orchard, the cattle ranch, honey production, of course, what we do here. And so it's a great way, the creamery, of course. It's a great way to kind of have kind of a coffee table cookbook. All the recipes are approachable. You can get-- if we couldn't buy the product on the Palouse, it did not go in the book.

So we're really proud about that. So because I think that so many chefs write a cookbook, and it's like they want to come up with these names and these creative things that nobody knows

what they are. It's a great way to teach people certain things, but don't shock and awe them, and make it where they don't have to go on Amazon and spend \$80 for a little jar of something that you figured out. It's just not fair, to the consumer.

So we wanted a coffee table cookbook that had a lot of stains in it was the idea.

MIKE: Well, I can tell you this. My mother-in-law got this as a gift last year, Mother's Day weekend. She has nonstop raving and ranting about it. I had to get it autographed. I probably shouldn't have said that, that's this year's Christmas present. So Jeff, I just want to say one thing about the carrots. Maybe growing up, watching mom and grandma boil carrots, I really expected a mushy boiled nasty carrot taste. This actually had some crunch to it. I am extremely impressed.

JAMIE CALLISON: And that's great, because we can control that, right? So if we wanted, we could cook it a little bit further and a little bit longer. But I like this texture, especially with the roast on it, because it gives it a nice texture. Now again, if I was going to serve this out in the dining room, I'd probably cook it just a little bit longer so it didn't shoot across the table, but I like that texture of carrots. That's one of the things, as a kid, I would eat almost anything. Cooked carrots, I would sit at the table for hours. It's like, just give me a raw carrot. But doing it this way, you really get that.

MIKE: Oh, no. This is fabulous, and I actually think I found a way for Andria and I to get our daughters do eat their cooked carrots now. Thank you very much.

JAMIE CALLISON: Thank you. So I think if we don't have any other questions, I think we're about ready to do a little prize giveaway, and I want to thank all of you for tuning in. Brittney? Come here. I wanted to thank Brittney. She's been doing a great job of kind of running back and forth and grabbing stuff for us. And so she helped set all this stuff up and helped do a lot of the cooking. And so, it's all about the students. So whenever we do something like this, we love to involve the students. And she's one of my top culinary leads right now.

We actually started calling a culinary certificate program here at WSU. She's one of the first students going through that, and so she's actually kind of working on two degrees right now. So I'm really proud to have her by my side, and thank you so much. She loves the attention, too.

ANDRIA DONNENWERTH: So yes, we are going to pick--

JAMIE CALLISON: Oh, you can pull the name out of there.

ANDRIA DONNENWERTH: Oh, yeah. We're going to pick a winner for the sous vide, so go ahead. Drum roll. I can't do it, but--

BRITTNEY: Kathleen Dillard. Kathleen Dillard.

ANDRIA DONNENWERTH: Oh, congratulations.

JAMIE CALLISON: Congratulations. If you need any hints, you know at to stop in, right? So again, this has been absolutely amazing. Hopefully you learned some things. And again, I would recommend definitely getting a sous vide machine, and experimenting around with it. Your family will help you decide on how far you want to cook things, but there's great resources from the Anova website, Modernist Cuisine, and just getting online and just type in sous vide temperatures.

And read through some of the results. If you don't like a little pink in your chicken, there's a lot of people that cook chicken now that has a little bit of pink in it. I prefer the pink not to be there. And so that's, again, a personal preference. And so with fish, a lot-- the way we cooked the salmon, I love that temperature. It's absolutely perfect. Some people it would definitely be a little undercooked. However, even if you cooked it further, that moisture would still be in the salmon, and that flavor would still be in there.

So if you want to-- my philosophy as a chef, if somebody wants a well-done steak, I am happy to serve it for them. So when we do well-done steak like this, people are blown away. We'll actually cook it well-done. So you have to cook it about 149, and then you flash it on the grill, get really some good texture on it. And I'm proud. If I can make somebody's day happy, and make them a lot happier and make their evening special, that's what I should do.

And so these machines have helped me become a better chef, better culinarian. You can not overcook the steak if you set the temperature to 132. Now if you left it in there too long, it could become unsafe, and the texture would change. But let's say you left the steak in there for an extra 15 or 20 minutes, or your chicken. The texture will start to change, but it will not overcook. The vegetables the same thing. Yes, the textures may change. But you cannot overcook the steak. You can leave it in there.

Don't do this, because you probably wouldn't feel very well for a long time. You can leave it in there for three days, and it would still be medium rare. It would not be edible, but just to kind of give you an idea, is more about the protein coagulation and how it-- it's basic, what happens is once it gets to that level, it plateaus and it will not cook anymore. Again, textures change.

Braised products, we didn't get into that today, amazing, 165-185 degrees, works absolutely amazing. You cook your product the way you normally would, and then you put it into a-- you chill it. Anytime you vacuum-pack anything, it has to be below 41 degrees. So really, watch the safety things on there, because bacteria will start to multiply really fast. If it's too warm, and you seal it up. So stay safe, enjoy sous vide, and go Cougs.