ADDITIONAL MATERIAL



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Steak essentials

Buying and preparing the meat

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How to buy steak:

Which cut is the most suitable?

Classic steaks

The classic "prime cuts," found at counters worldwide and served in restaurants from pubs to Michelin-star establishments, come from the rear part of the cow.

This part of the animal is predisposed to producing tender steaks because this muscle area is only subjected to light stress. The four-legged gait of the cow means that the back doesn't have to bear any weight-bearing function.

As a result, the tissue in this area is particularly poor in stable connective tissue, leading to the tender texture of these cuts.



How to buy steak:

Which cut is the most suitable?

The classic cuts from the back are:

- Fillet
- Ribeye (whole piece: entrecôte)
- Rump steak (whole piece: roast beef)
- T-bone steak (from the loin with bone and a small portion of filet)
- Porterhouse steak (from the loin with bone and a large portion of filet)
- Tomahawk steak (rib-eye with rib bone)
- Côte de Boeuf: Ribeye with backbone

All these cuts are so tender in their raw state that they do not need to be grilled for a long time; instead, they can be "quick-cooked" over high heat.



How to buy steak:

Which cut is the most suitable?

Secondary cuts

For a long time, steakhouses around the world have been content with using the cow's loin as a source of tender steaks—all other parts of the animal were transformed into braised meat or sausage.

In recent years, international influences in particular have led to the search for other cuts that can be prepared as steaks as well as the loin. These include cuts from the belly, shoulder, and leg, which normally have to be freed from adjacent tendons and skin before they can be recognized as steak meat.

These cuts are characterized as being between classic steaks and braising cuts. They are used moderately and, therefore, develop less connective tissue than braising cuts. Their greater use compared to prime cuts and increased blood flow lead to a higher intensity of flavor.



How to buy steak:

Which cut is the most suitable?

The most well-known representatives of this category are:

- Chuck eye steak (from the shoulder)
- Onglet (hanger steak)
- Arrachera (skirt steak)
- Flank (diaphragm)
- Spider steak (in the hip bone)
- Bavette (flap steak from the abdominal cavity)
- Picanha (rump cap)
- Tri-tip (bottom sirloin)
- Teres major (shoulder clod)
- Teppanyaki cut (neck)



How to buy steak:

Which cut is the most suitable?

The use of these secondary cuts is positive in several aspects. On one hand, the butcher can create value from the meat through new cuts. For the consumer, there is new potential for enjoyment, as secondary cuts open new culinary worlds in terms of flavor and texture.

Due to the increasing demand and the clear trend towards grilling special cuts, it is essential to invest your money wisely when it comes to special cuts, keeping a few tips in mind. For example, the price of skirt steak has increased by 300% in recent years, but it is not always a tender and juicy delicacy.

How to buy steak:

Note on buying secondary cuts

As mentioned before, loin cuts are almost always tender and juicy. This is not always the case with secondary cuts. Since the proportion of connective tissue is moderate in these cases, skirt steak and similar cuts only become truly delightful when combined with pronounced marbling (fat accumulation).

Secondary cuts from very young and lean animals can result in very tough meat. Therefore, How to buy beef, ensure the meat comes from a steer Breeds of cattle, preferably also from a steer or heifer with visible fat deposits.

Avoid secondary cuts from old cows or extensively raised animals. Additionally, the meat should be perfectly aged.





How to buy steak:

Breeds of cattle

In principle, meat from any cattle Breeds of cattle can be consumed, but the taste value differs significantly. In the world of cattle, a distinction is made between dairy breeds, dual-purpose breeds, beef breeds, and steak breeds. A brief (and simplified) definition of meat value helps to understand what you can expect as a consumer:

Dairy cows have been bred for decades or even centuries to produce milk. They invest much of their energy in milk production, along with gestation, which also requires energy. As a result, they develop very little muscle, which is generally not very tender.

Example: Jersey cattle.



How to buy steak:

Breeds of cattle

Dual-purpose cattle have a solid milk yield, and their calves quickly gain a lot of muscle mass, making them economical to fatten. However, due to this compromise, the focus has never been on the taste quality of the meat. This is reflected in the meat yield and the coarser texture of the steaks, which are rarely exceptional but rather the standard in German cattle breeds.

Examples: Fleckvieh, Gelbvieh, Charolais, Limousin.

Beef cattle are livestock that have been bred for generations primarily for their large muscle mass for meat production. The goal has always been to maximize meat yield, meaning to produce animals with the leanest possible meat and a good meat-to-bone ratio.

Examples: Belgian blue, Piedmontese



How to buy steak:

Breeds of cattle

Beef cattle is not a separate category, but officially belongs to the beef cattle category, characterized by especially good meat characteristics. These breeds of cattle are often very small, resulting in small fibers (tender). They also tend to store fat. The stored fat creates marbling, appreciated by enthusiasts worldwide for flavor enhancement and tenderization.

Examples: Wagyu (the most expensive), Angus, Hereford, Shorthorn



How to buy steak:

Breeds of cattle

Extensive cattle farming represents a special category, as these breeds have not been optimized for meat yield or milk production. These cattle are extremely hardy and can live outdoors year-round, even birthing their calves outside. They are primarily used as landscape managers in areas difficult to cultivate. They are small and light, so they do not compact the soil. Due to their small structure, their meat has small fibers, which also makes them good for consumption.

However, due to their low meat-to-bone ratio, they are often not very profitable and are rarely well-marbled due to their high level of activity.

Examples: Galloway, Hinterwälder, Longhorn, Highland Cattle.



How to buy steak:

Conclusion

Now you know which breeds of cattle to look for or even ask about at the butcher shop. Of course, there are dozens of other local breeds. That's why it's worth listening carefully. Butchers often have their own specific breeds and access to especially good specimens from their suppliers. This means you might get lucky with Fleckvieh or other beef breeds.

However, caution should be exercised if the butcher cannot give the name of the meat exhibited, as it may be assumed that they are not high quality cattle; otherwise, he would advertise them.

How to buy steak:

How was the animal fed?

This question is more important than it might seem at first glance. A cow's diet is very much reflected in the taste of the meat and its texture.

There are 3 distinct flavours:

Standard

The goal of standard German fattening is to reach an economically viable slaughter weight as quickly as possible. Young cattle are raised with high-energy concentrate feeds and are mostly kept indoors. The rapid growth and largely soy-based diet result in meat with a relatively flat flavor. These are usually steers, as they gain muscle mass more quickly than oxen and heifers.



How to buy steak:

How was the animal fed?

Grass-fed cattle

When cattle are primarily fed grass and hay and have access to pastures, they are considered grass-fed cattle. This natural approach results in a very pure and mineral flavor of the meat, which is appreciated by many meat enthusiasts. This pure and intense flavor is especially created when the cattle have grown slowly and have been allowed to move freely.

Cattle for fattening/grazing

In the finishing system, commonly used in America and Australia, cattle are kept similarly to grass-fed cattle or, in some cases, even as extensively raised cattle until the final phase of their life. However, in the last phase, they are fattened with a lot of high-energy feed.



How to buy steak:

How was the animal fed?

The aim is to provide the animal with so much energy in the shortest possible time that the excess energy is stored in the muscle as marbling. At the same time, this type of feeding reduces the intrinsic flavor of the meat and increases tenderness because there is less muscle and more fat. The fat simultaneously increases juiciness and imparts a melt-in-your-mouth flavor.





How to buy steak:

Conclusion

It's worth paying attention to this when buying steak or asking about the animal's feeding regimen. From this information, it's easy to deduce whether the meat has a purist and intense flavor or a mild and creamy flavor. How the animal was fed is also an important factor in assessing the ideological quality.

How to buy steak:

How old was the animal and was it male or female?

You should ask this question especially if you want to know something about the intensity of the flavor of the meat. The general rule is: the older an animal is, the more flavor it develops, but also the tougher its tissues become. Therefore, it is important to find your own "sweet spot" here, depending on how important a strong meat flavor is to you.

Different age levels

Veal

With barely any flavor of its own and very little fat: in short, probably the most neutral meat on the beef market.



How to buy steak:

How old was the animal and was it male or female?

Important

It's important to note that veal often comes from questionable calf fattening practices, as calves from beef cows are rare. The color of the meat indicates the age at which it was slaughtered: the younger the calf, the lighter the meat. As the calf starts consuming forage, the meat gradually becomes pinkish.



How to buy steak:

How old was the animal and was it male or female?

Steer meat

The meat from a steer that is fed quickly to reach its slaughter weight as soon as possible. The standard supermarket meat: very lean and with a very flat flavor. Suitable for those for whom the flavor of the meat is less important than a good price-volume ratio.

Heifer meat

Meat from female cattle that have not yet calved: Slightly larger than steers and usually considerably fatter due to their disposition as pregnant mothers. This tendency to gain weight makes heifer meat from intensive German cattle farming the basis for German beef jerky. Heifer meat is softer and more tender than that of males.



How to buy steak:

How old was the animal and was it male or female?

Ox

Meat from a castrated male bovine. Like heifers, oxen take a little longer to reach slaughter weight. However, they develop a stronger, distinct flavor compared to heifers and tend to be fattier than non-castrated steers.

“Old cow”

In general, old dairy cows are not a prime ingredient. Although the topic of old, plump, Spanish cows is very fashionable, it still remains a niche topic in many aspects. This is because there are very few animals that offer truly suitable steak meat, and this steak meat is also very demanding in terms of the perfect cooking point. You'll find more information on this in the video about Spanish cows.





How to buy steak:

Conclusion

Meat lovers appreciate heifers and oxen and sometimes dare to try an 'old cow' if visually it has stored a promising amount of fat. Calves and steers lack character. Here, one might wonder if there are tastier vegetarian alternatives.

How to buy steak:

How and for how long has my steak been aged?

Professional dry or wet aging is essential to obtain a good steak. Meat needs time to release rigor mortis. Aging is a finite process, in which the main aging takes place in the first two weeks. Maximum tenderness is usually reached at four weeks. There are two different types of aging until it is ready for consumption: wet aging and dry aging.

Wet aging

Meat is sealed in vacuum bags during the aging process and matures there for 2-4 weeks in its own juices, i.e., completely free of oxygen. This technique allows the meat to be stored and transported in a space-saving and simpler way.



How to buy steak:

How and for how long has my steak been aged?

The absence of oxygen prevents the multiplication of dangerous bacteria. The practical advantages, evident in terms of production and commerce, as well as sustainability, are offset by a taste disadvantage: The meat develops comparatively flat and restricted flavors, often even with slightly acidic and metallic notes. With long periods of aging in a vacuum, the likelihood of strange flavors appearing is very high.

Dry aging

Unlike wet aging, dry aging matures the meat in an aerobic environment, meaning under the influence of oxygen. This creates oxidative notes, which are entirely desirable.



How to buy steak:

How and for how long has my steak been aged?

However, the decisive difference lies in the drying of the cut surfaces and the subsequent loss of water. Evaporation concentrates the flavor of the meat, as the tasteless water disappears.

At the same time, enzymes begin to break down the protein structure of the meat. New amino acids are formed, including glutamic acid, which enhances the flavor and increases the umami of dry-aged beef. Together, these factors result in a much more intense and layered flavor, which can vary depending on the aging environment. Ultimately, dry aging remains a refinement method, and only something that is already good can be refined.





How to buy steak:

Conclusion

You will only know whether dry aging is right for you or not by making a direct comparison. Get two pieces of equal value, one wet-aged and the other dry-aged.

During the tasting, you can decide for yourself if dry-aged beef is a little too intense for you or if this flavor profile is exactly what you prefer. The fact is that dry-aged beef has nothing to do with rotten beef, as it is dried under controlled conditions.

And it is only slightly fermented. Any meat connoisseur should at least be aware of the tasty consequences of this ancient but newly discovered aging process.

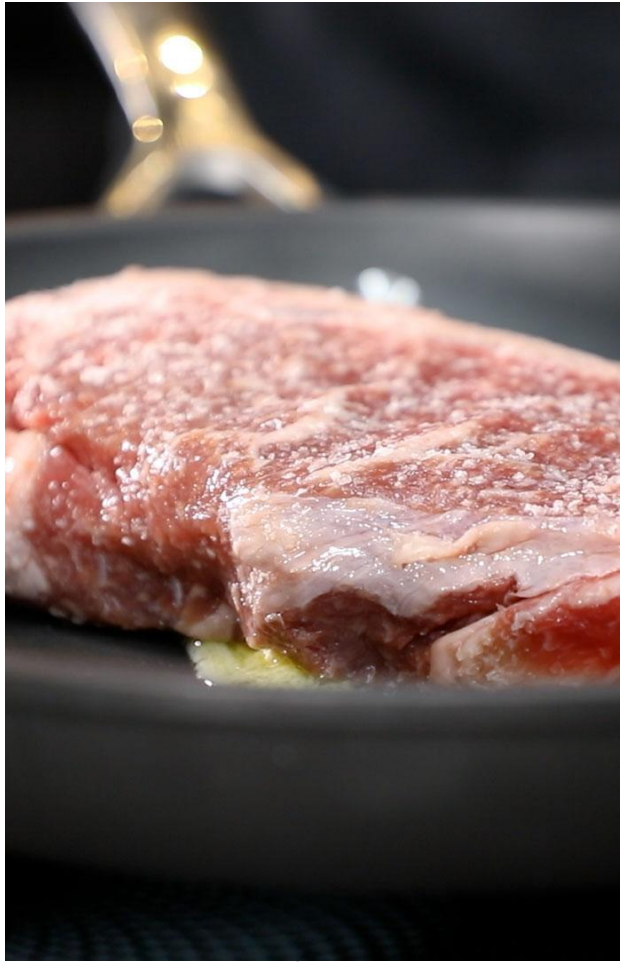
How to prepare steak:

What is the role of marbling?

Marbling refers to the fat that animals store in their muscles for various reasons (specific Breeds of cattles, over feeding, lack of exercise). It is intramuscular fat, as opposed to intermuscular fat, which refers to the layer of fat over or between different muscle groups.

The fat is solid and greasy when cold. When warm or hot, it melts and becomes creamy or liquid. The more fat a piece of meat contains in finely distributed veins, the more liquid it will release upon heating. The liquid offers no resistance when bitten into, so many fat veins ensure a very tender bite. Solid muscle fibers are repeatedly interrupted by chambers of liquid, creating a similar effect to aerated chocolate.

At the same time, the liquid fat oozes out of the meat when bitten into and accumulates in the mouth. Meat enthusiasts appreciate this melting and tender sensation. Additionally, the flavor-carrying fat provides a filling sensation in the mouth often described as "umami" (in Japanese, intense savory).

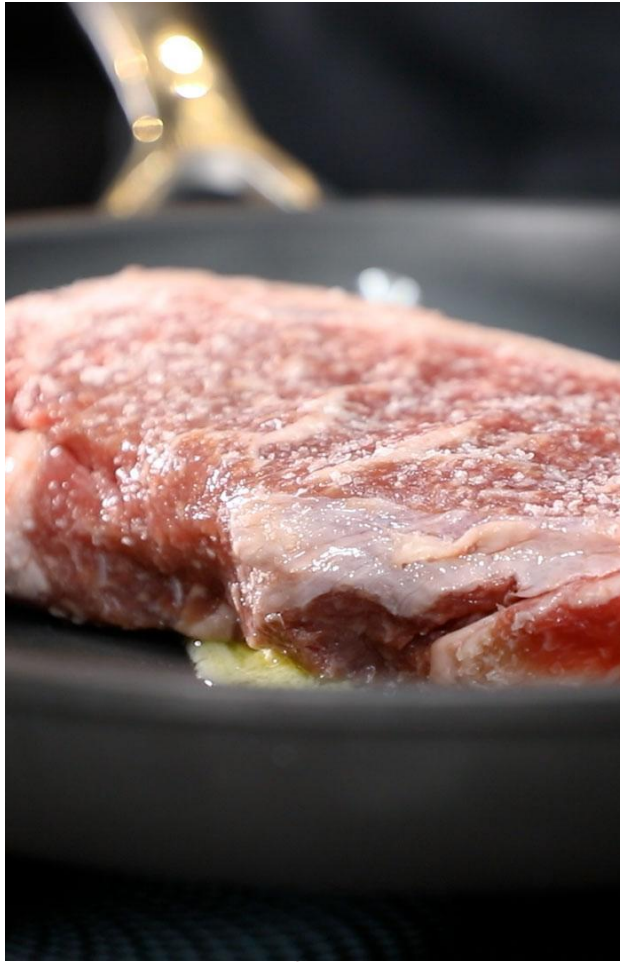


How to prepare steak:

What is the role of marbling?

If you think you can only recognize a high-quality steak by its marbling, you should know that it's not composed only of fat. It's also worth analyzing the muscle structure. Because the best marbling is useless if it's forcibly introduced into a steak that is only moderately suitable for a steakhouse. What does this mean? Depending on the breed, cattle develop fibers of varying thickness and size. Classic steak breeds like Wagyu, Angus, or Hereford are small and therefore also produce small fibers.

In these breeds, marbling is especially effective for tenderness when eating. Dairy cattle like Red Pied or Holstein Black Pied have much stronger fibers. This cattle is bred for milk production and only optimized for meat production as a secondary use. They can also store fat, but the bite will be much heartier than that of beef cattle, which typically have tender fibers.

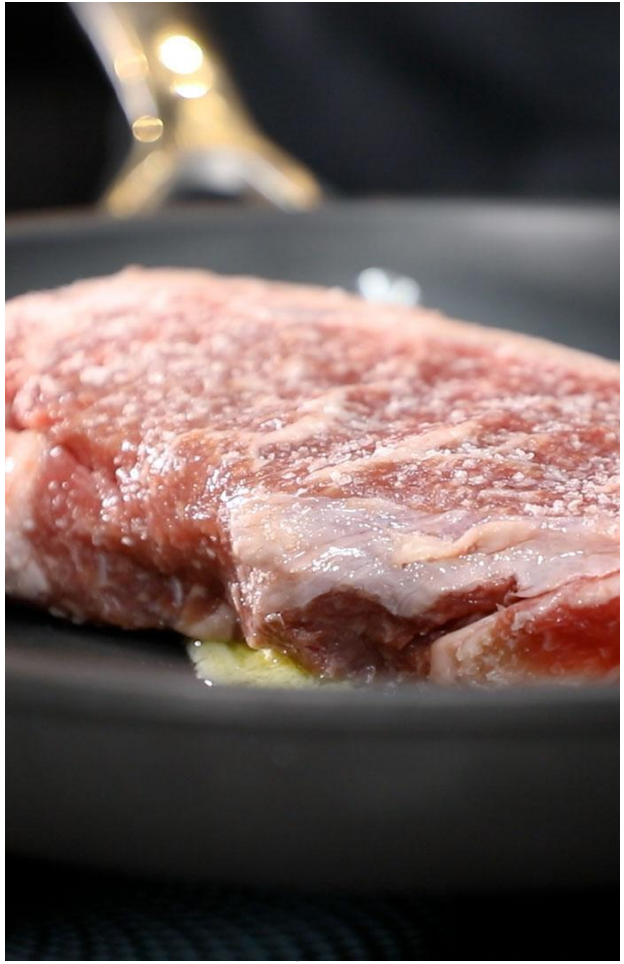


How to prepare steak:

What is the role of marbling?

When cooking, the following applies:
The more marbled the meat is, the higher the cooking temperature can be selected. The reason: if the meat temperature rises too much, water leaves the cells due to the contraction of connective tissue and becomes dry and gray. Fat, on the other hand, remains inside and continues to provide juiciness.

At the same time, the more marbled the meat is, the more important it is to select a medium cooking point. Why? For a heavily marbled meat to be a flavorful experience, the fat must be melted. However, if the center is still rare, you're biting into cold, solid fat. This should be avoided.





How to prepare steak:

How can I create the perfect crust? The Maillard reaction

In recent years, the Maillard reaction has spawned an entire industry out of nowhere. With the perfect steak crust always in sight, an independent market has developed around the production of grilled flavors.

Whether it's the Beefer, the Otto Wilde or another "top heat grill" type appliance, dozens of manufacturers in all price segments have taken up the cause of transferring the maximum possible heat to the meat in the shortest possible time.

Regardless of whether they generate 800 or 900°C, use ceramic plates that reflect infrared radiation, or are purely electric, they all utilize a chemical reaction that occurs at 140° C.



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

Maillard reaction

The concise but chemically correct explanation of the browning of the outside of a steak is: The Maillard reaction is a browning reaction that is not based on enzymatic processes. Under the influence of energy, amino acids and reducing sugars are converted into new compounds and separated from water. The end product is the so-called melanoidins, which are responsible for the typical taste of baked, fried or grilled foods.

Among grill enthusiasts, the Maillard reaction is often used synonymously with caramelization, which is incorrect. Both processes are unrelated but can occur simultaneously. So, it is not entirely wrong to say that the crust "caramelizes," but this reaction is not solely responsible for the dark coloration; it is primarily due to the Maillard reaction explained above.



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

Simply put, the Maillard reaction, regardless of the food in which it occurs, intensifies and rounds out the flavor. Meat illustrates this very well: Cooked meat (or meat that has only been cooked sous-vide and not yet browned) has a very flat and uncharacteristic flavor, especially without salt. This can be seen, for example, in a comparison between boiled beef and a grilled rack of ribs, although both have basically the same components.

Upon contact with sufficiently high heat, the Maillard reaction occurs with all its culinary implications. The decisive factor is the conversion of amino acids during the Maillard reaction, which produces glutamic acids that act as natural flavor enhancers.



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

This releases umami, the flavor described as savory, meaty, and intense, creating a sensation of depth in the flavor. Only the interaction between the biochemical base of high-quality "raw" food and the browning reaction on the exterior reveals the full culinary potential of products like meat. Of course, there are exceptions, such as classic boiled beef, where the mild flavor without roasted aromas is intentional.



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

New flavors and depth of taste

To understand the conditions for a quick Maillard reaction, it's useful to compare cooking with water and roasting with dry heat or fat. Vegetables or meat cooked in water never brown and do not develop a crust. This is why, after sous-vide cooking, the meat is seared again to achieve the effect described earlier as a combination of perfect cooking and a strong crust. Why can't a Maillard reaction occur in water? Water can reach a maximum temperature of 100°C (outside the laboratory), after which it vaporizes. However, the Maillard reaction only begins at much higher temperatures, so the natural temperature limit of water alone rules out this reaction.



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

Generally, the Maillard reaction is possible at temperatures between 125 and 150 °C (figures vary), although it remains extremely slow in this range. This can be observed in a roast joint cooked at low temperature or in a smoked brisket. After many hours at temperatures just above 100 °C, pieces of meat show a brown color even at these temperatures, which is also due to the Maillard reaction.

If the temperature increases, the reaction occurs exponentially faster. However, another decisive factor, besides pure temperature, is the thermal conductivity of the heating medium. Here's an example: at a temperature of 220°C in the oven, it will take about an hour for the meat to develop an almost dark crust. In contrast, in a pan with fat heated to 220°C, this is achieved in a matter of seconds. Why?



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

The concept of heat conduction

What is Thermal Conductivity? In simple terms, thermal conductivity describes the activity (rapid movement) of the molecules in a medium. If this activity is especially intense, it also stimulates the rapid movement of the molecules in a neighboring medium. The faster the movement, the hotter the medium becomes.

Different heat-conducting media have different levels of thermal conductivity. Thermal conductivity largely depends on the porosity, water content, and density of a material. Specifically, this means that the lighter, more airy, and drier a material is, the lower its thermal conductivity will be.



How to prepare steak:

How can I create the perfect crust? The Maillard reaction

These scientific principles also explain why it's much harder to produce a great crust using hot air than with hot fat, a cast iron skillet, or a griddle on the grill.

This phenomenon can also be visualized through the searing pattern on a grill. The Maillard reaction is clearly visible in the areas where the meat has been in direct contact with the stainless steel or cast iron grill (high thermal conductivity), while the areas that have only been in contact with the hot air from the grill do not yet show a Maillard reaction.

Although these areas will also darken after 20-30 minutes, by then the meat would be overcooked and the areas in contact with the grill would have long since burned.

How to prepare steak:

The three most important factors for Maillard reaction

Conclusion

The three most important factors for the Maillard reaction:

Heat

It is essential to ensure that the temperature at the contact surface reaches and maintains the range of 150°C as quickly as possible. With less consistent temperature mediums, such as a thin pan or a fine-grated grill, it is advisable to significantly overheat, as the medium loses temperature very quickly upon contact and therefore quickly drops below the desired range. Conversely, when working with a very consistent medium, such as a Beefer or a thick grill plate, overheating is counterproductive as the temperature at the contact surface does not decrease or decreases only slightly; there is a risk of burning.



How to prepare steak:

The three most important factors for Maillard reaction

Fat

The fat in the meat is always a helpful aid for the Maillard reaction. We work with fat in the pan anyway, but the fat on and inside the meat also enhances the Maillard effect on the grill, as it ensures optimal conduction of heat from the medium to the exterior of the meat. Highly marbled meat already has this fat "built-in," so to speak, and with lean meat, it's helpful to coat the meat with a film of highly heatable fat.



How to prepare steak:

The three most important factors for Maillard reaction

Low moisture

Before grilling or searing, pat the meat dry so that it doesn't have a film of moisture. As we've learned, water cannot be heated to the temperatures necessary for the Maillard reaction, so the water must evaporate completely before the reaction can begin. This means that valuable time is lost, especially on a gas grill. Water on the surface of the pan causes unpleasant splattering and cools down the fat. Only on an upper heat grill, with its 800 °C, does the water evaporate so quickly that it hardly matters.



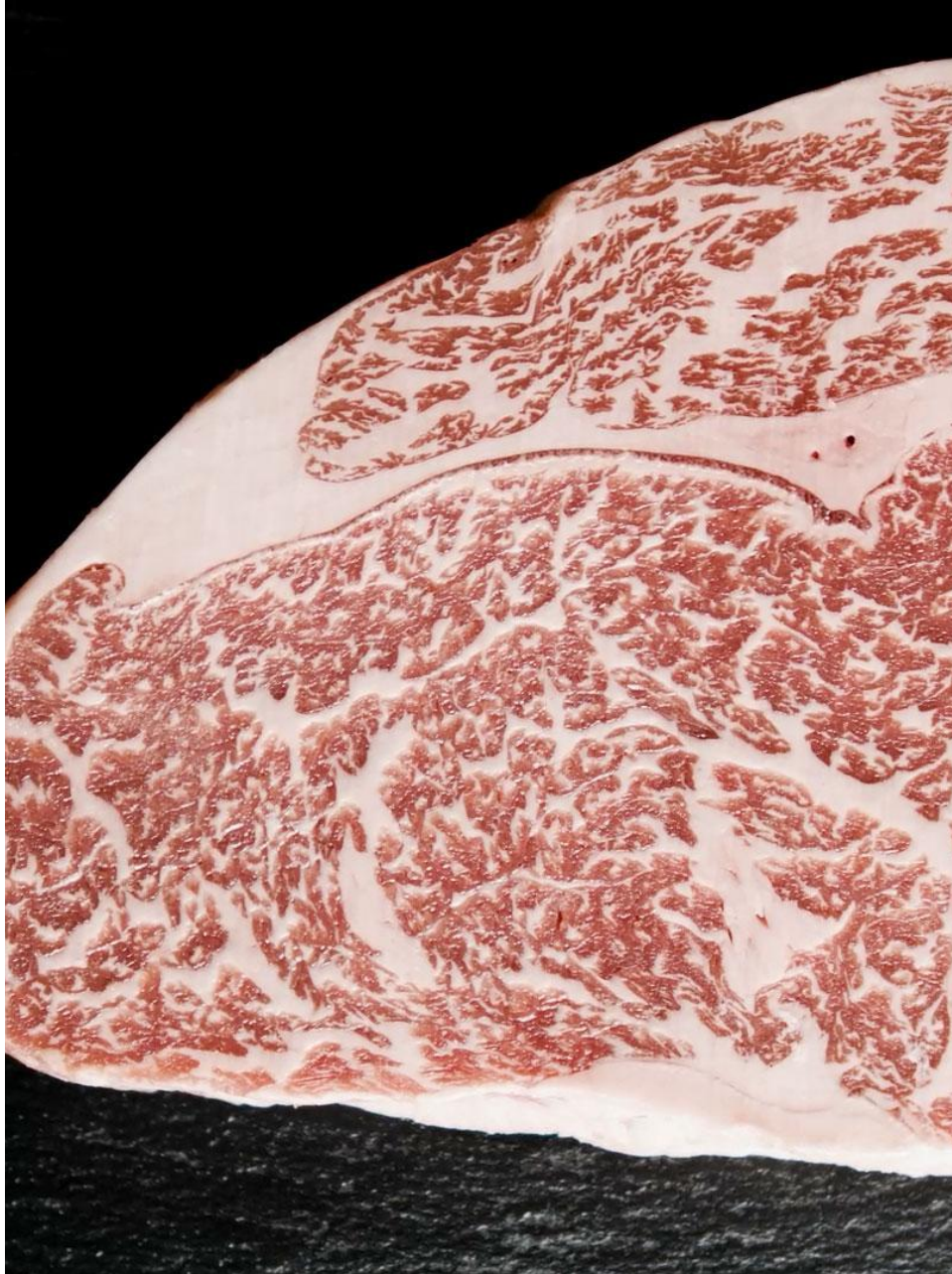
How to prepare steak:

What level of doneness should I aim for?

Perfectly cooked steak needs two things: a perfect crust with roasted flavors and a perfect degree of doneness. The crust and doneness depend on different processes, which can take place in any order. To check the degree of doneness, it is advisable to use a central temperature gauge unless you already have a lot of experience with this. "Feeling" a level of doneness. There are several ways to achieve this level of doneness:

Direct cooking

The meat is first grilled or seared over direct heat and then cooked over indirect heat until it reaches the desired central temperature.

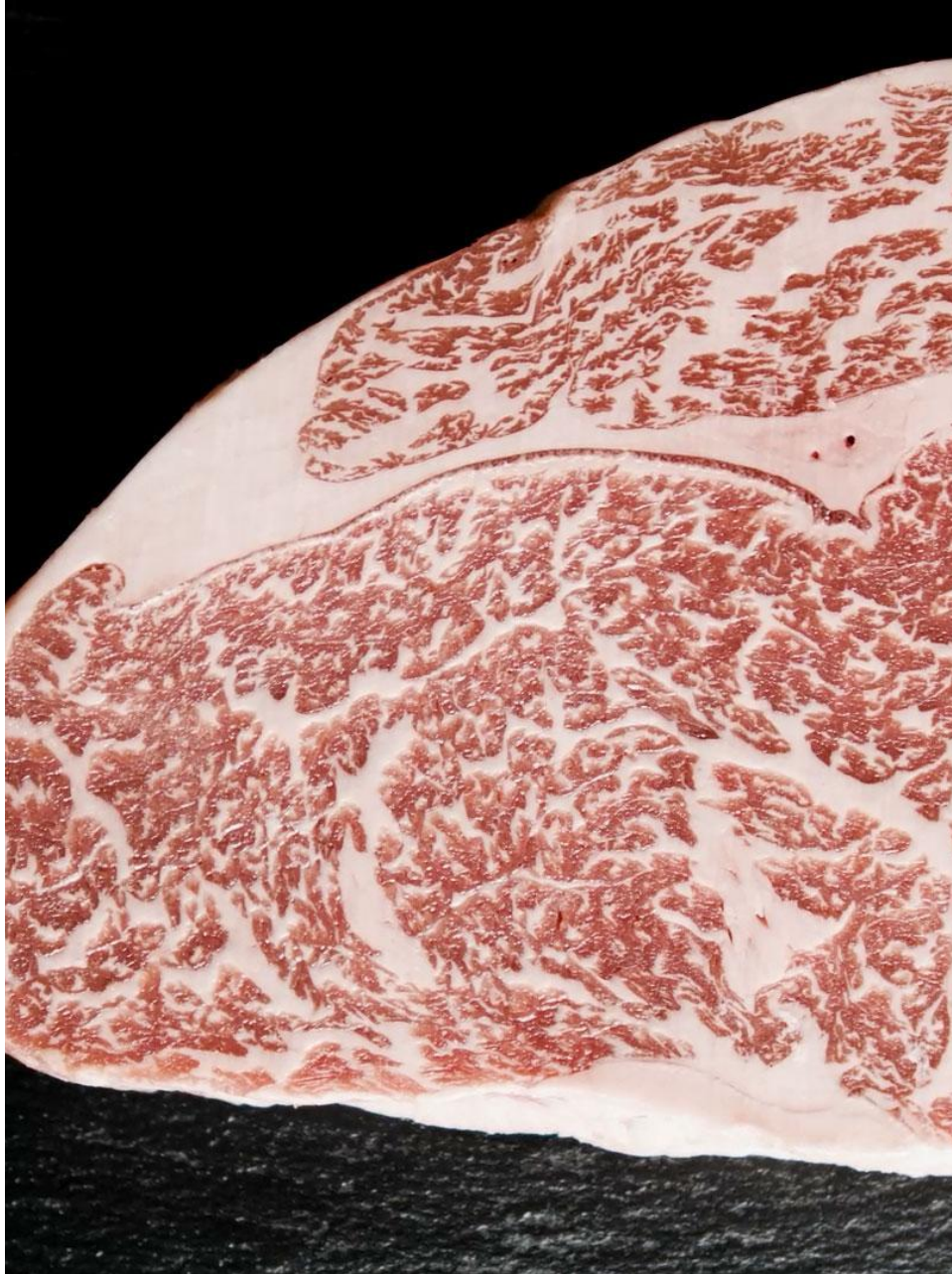


How to prepare steak:

What level of doneness should I aim for?

Reverse cooking

First, it is brought to the desired central temperature at a gentle temperature, and then a crust is formed with direct heat. For this, for example, the sous-vide method can be used, in which the degree of doneness can be controlled extremely precisely and safely by the water temperature. Here you will find more information about the sous-vide method.
Advantage: the crust becomes "crispier" since it does not soften again during subsequent cooking.



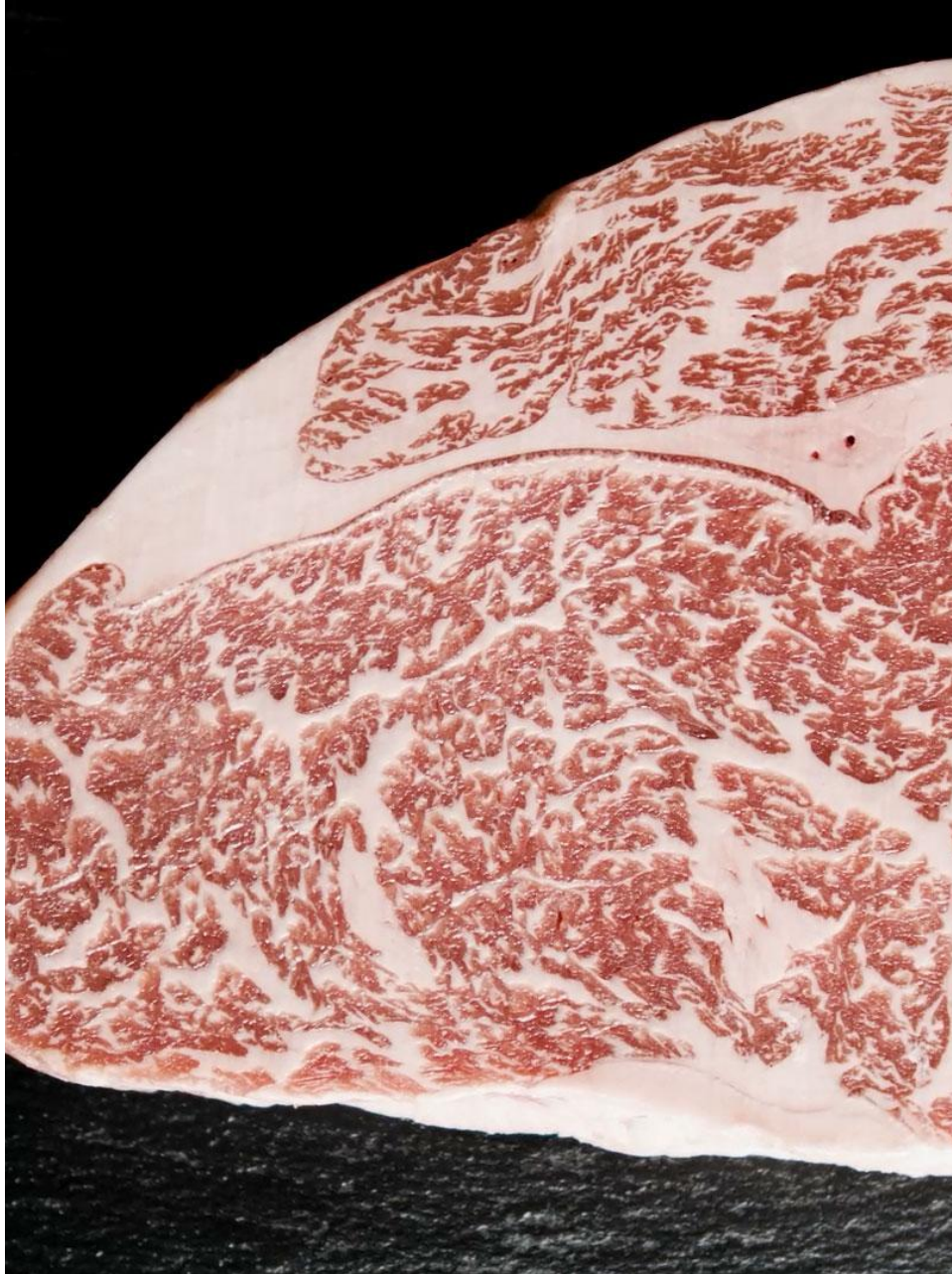
How to prepare steak:

What level of doneness should I aim for?

Core temperatures

Depending on your preference, you should select one of these temperature zones for postcooking or precooking:

- **Medium rare:** 48-50 °C (perfect for very lean steaks)
- **Medium:** 50-53 °C (perfect cooking point for medium-rare: the most classic steaks)
- **Medium:** 55-56 °C (perfect for very fatty steaks such as Wagyu)
- **Well done:** 58 °C and above: hardly any meat flavor remains.



How to prepare steak:

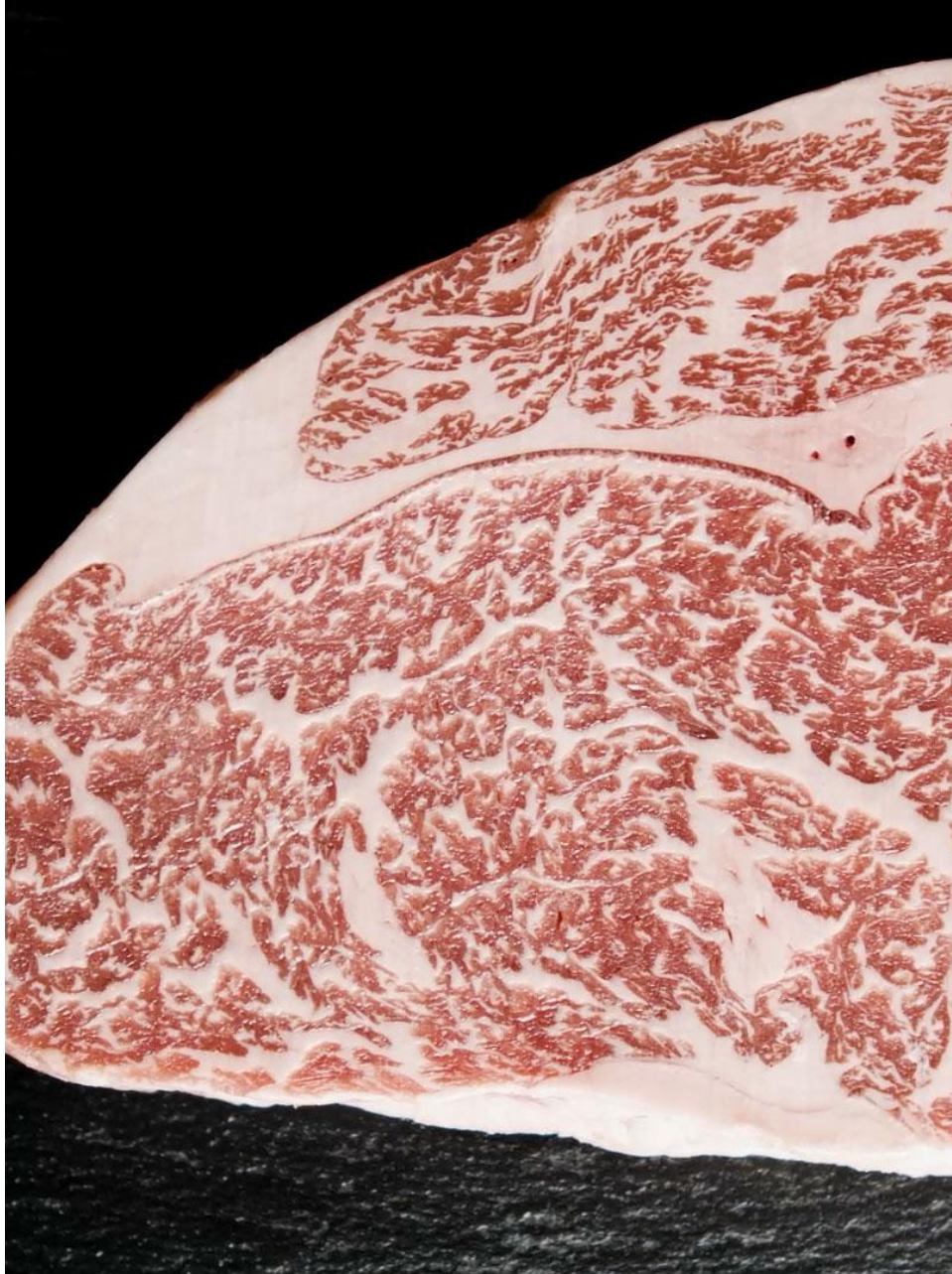
What level of doneness should I aim for?

Note on core temperature measurement

When cooking in advance: It should be removed from the heat 3 degrees before reaching the desired temperature, as it will continue cooking. Since the heat on the outside is higher than on the inside, the temperature will equalize during the resting phase, causing the central temperature to rise. The same applies to reverse cooking: "pick up" the last 3°C during the final searing when the temperature transitions from the crust to the center.

Important

Always measure at the coldest point. Prick the thickest part of the fillet with the thermometer.



How to prepare steak:

What myths about meat can I immediately dismiss?

"Steaks need room temperature."

- An outdated myth that is actually quite counterproductive. Cold steaks form a natural "thermal buffer" that prevents the edges from overcooking when seared. This means that an even more tender pink color can be achieved on the inside during gentle post-cooking and less quality is wasted.

"Never season with salt beforehand!"

- Of course, you can salt in advance, either well in advance (approx. 1-2 hours) or immediately beforehand. If you salt well in advance, some of the salt will be absorbed by the fillet by osmosis. If you sear directly before frying, the water will not be able to escape and the salt will be practically burned into the crust. We recommend the following: Season generously with flaked salt directly before browning.



How to prepare steak:

What myths about meat can I immediately dismiss?

"The steak is still bloody!"

- Meat cannot be bloody because it no longer contains blood. All blood is removed from the animal during slaughter, so the red juice in the dish can only be meat juice from the cells.

"Always cut the meat against the grain."

- It sounds logical, because this reduces the fiber tension. In practice, however, this is only really important for a few steaks. With entrecote, for example, the fibers are so uneven that every cut would have to be rethought. Only in the case of cuts with bone, such as skirt steak or hanger steak, should you pay real attention to this cut.





How to prepare steak:

What does my steak really taste like?

This last question is especially important. Too often we tend to simply savor steaks without focusing on the experience and all the nuances this product offers me. How can steaks taste? Here are some linguistic clues:





How to prepare steak:

What does my steak really taste like?

Our advice

- Taste each steak carefully and notice how it feels in your mouth. This will help you find your preferences relatively quickly and make it easier for you to find the perfect steak for you the next time you go shopping. We have prepared a tasting sheet for you so that you can remember your feelings about the steak even after a long time. Just print out the following pages - for your own personalized steak notes.



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