

Spice-Rubbed Steak on the Grill

Done wrong, this dish resembles a dusty old boot. But apply some science with your rub and it's a bold way to dress up a less expensive cut.

≡ BY ANDREA GEARY ≡

As a dedicated practitioner of the silk-purse-out-of-a-sow's-ear approach to cooking, I enjoy the challenge of transforming inexpensive ingredients into a memorable meal. But I've always conceded that when it comes to grilled steaks, there's no way around it: You get what you pay for.

With their tender texture and big-time beef flavor, pricey cuts from the middle of the steer (like rib eyes and T-bones) need little more than salt, pepper, and a few minutes over a hot fire to render them impressive. Try that minimalist technique on cheaper steaks from farther down the animal (the sirloin and the round) and you get meat that's chewy and dry, with flavors that veer toward liver-y and gamy. It's probably these flavor and texture challenges that inspire cooks to take a page from the barbecue manual and apply spice rubs to less expensive steaks. Unfortunately, in my experience that approach doesn't really work. Because cheap steaks exude little fat to bond with the spices, the rub tends to fall off in chunks. If by some stroke of luck the rub remains intact, it usually tastes dry and dusty, plus nuances of flavor can vaporize over the fire.

Still, my skinflint tendencies aren't easily subdued. Surely there was a way to create a recipe for inexpensive grilled steak that was also tender and juicy, with a flavorful, crunchy crust that stayed in place.

Calling All Glutamates

First I had to find a steak that provided the best taste and texture for the money, so I looked to the sirloin and the round, settling on what we here in New England call the shell sirloin steak (for alternate names see the recipe headnote). Tasters described the shell steak as having a relatively beefy taste, unlike cuts from the round, which were liver-y.

Salting the shell steaks before cooking was a given. Salt sprinkled liberally on the surface of the meat draws moisture from inside, which over time is then reabsorbed as the meat sits, seasoning it and changing



Crosshatch scoring helps the crisp spice crust stay on the meat.

the structure of the muscle fibers so that they hold on to more juices. But I'd have to do more than that to close the gap between a \$6 steak and a \$12 steak. Some recipes suggest that allowing a spice rub to sit on the meat for a period of time enables its flavors to be absorbed for more complex-tasting results. Science, however, refutes this: Most flavor compounds in spices are fat-soluble rather than water-soluble, so they can't penetrate below the surface of the steak. Furthermore, in tests of marinades, we've found that other than salt, the only water-soluble flavor compounds that can travel deep into the meat are glutamates.

So, what about glutamates? Scanning my pantry, I singled out two of the most potent sources of these compounds: tomato paste and—odd as it may sound—fish sauce, a condiment that we've called upon in other unlikely applications to amp up savory taste. I applied a rub made with kosher salt and a couple of teaspoons each of these two ingredients (to compensate for their extra sodium I cut back a little on the salt) and applied it to a set of steaks an hour before grilling. The difference in these steaks was remarkable: They boasted a much deeper flavor without any trace of my secret enhancements. Spurred by this success, I decided to add ½ teaspoon

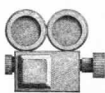
each of garlic powder and onion powder to the rub. Though neither substance contains significant levels of glutamates, their water-soluble flavors are potent enough (especially in concentrated powdered form) that even if they penetrated only ¼ inch into the meat, they might make a difference in the overall flavor. Tasters confirmed that my hunch was correct: The steaks treated with the powdered alliums along with salt, tomato paste, and fish sauce had noticeably richer flavor. On to the spice rub.

Spicing Things Up

My plan was to treat the steak with the salt-and-glutamate-packed paste first, wait an hour, and then apply a second, more conventional dry rub right before grilling. I tried a variety of rubs, but I found that those made mostly with dried herbs lost their flavor, while those based on spices fared better. It turns out that the flavors in herbs like rosemary, sage, and thyme fade in the intense heat of the grill, but the compounds in certain spices do much better, particularly those containing capsaicin—namely, peppers, chiles, and paprika. Thus, rubs made predominantly from chile or pepper were clearly the way to go.

First I tried rubs made with preground spices, but these formed a coating that was more pasty than crunchy. Since I had some time to spare between applying the salty glutamate rub and firing up the grill, I tried toasting some whole spices (cumin, coriander, red pepper flakes, and black peppercorns) in a skillet along with some earthy-tasting dried New Mexican chiles, and then I ground them coarsely in a coffee grinder. To round out the flavors, I also incorporated sugar, paprika, and ground cloves before pressing the rub onto the surface of the steak.

Tasters pronounced these steaks juicy, tender, and flavorful, and they greatly preferred the more robust texture of this home-ground rub. Still, there were two problems to be solved. First, despite the toasting step, the spices retained a slightly raw taste, the result of being cooked with very little fat, so the flavors couldn't "bloom." Second, tasters requested a more substantial crust. I sheepishly informed them that there had been more rub when I started grilling, but half of it had been left on the cooking grate. Clearly, I needed to find a way to help the spices stick to the steak and not to the grate.



Here's the Rub

Video available FREE for 4 months at www.CooksIllustrated.com/jun12

I remembered when a coworker who was developing a recipe for pan-fried pork chops had difficulty persuading the breading to adhere to the meat. He eventually came up with the clever solution of making shallow cuts into the meat to give the breading more purchase. Doing the same with my steaks before adding the first rub seemed likely to be doubly advantageous: It would increase the surface area, which could give that first rub more opportunity to really get into the meat, plus it could help the spice rub stick to the meat.

As I liberally greased the cooking grate in preparation for grilling my newly crosshatched steaks, I wished that there were some way to put a layer of oil on the steaks themselves without disturbing their spice crust (which—I was pleased to see—was sticking quite nicely). The easy solution: A light spritz of vegetable oil spray or oil from a mister helped the steaks keep their rub intact through the grilling process.

These steaks were crusty and crunchy on the outside, with just enough heat and spice to complement the meat's rich flavor, and that little bit of added fat imparted by the spray gave the spices that fully developed "bloomed" flavor that tasters were after. The tender and juicy meat belied its \$5.99-per-pound price tag. My inner cheapskate quietly rejoiced.

TESTING Oil Misters

Handy for greasing cookware or lightly coating meats and vegetables, these refillable canisters offer long-term savings over single-use nonstick sprays and let you choose the oil. We pitted five brands (\$10.30 to \$18.89) against our favorite commercial spray, PAM Professional High Heat, using them to spritz canola oil on skillet, muffin pans, and brown paper (to test spray patterns). One sprayer was a bust, spitting out blobs of oil. Three of the four pump-style sprayers were nearly as efficient as PAM, and our winner, the Orka Flavor and Oil Mister (\$11.99), is a great aerosol alternative that consistently delivered a thin, even mist. For complete testing results, go to www.CooksIllustrated.com/jun12. —Hannah Crowley

PUMP IT UP

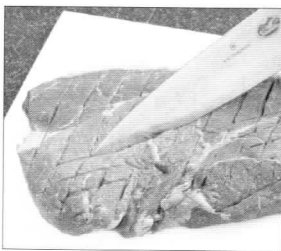
ORKA FLAVOR AND OIL MISTER

Price: \$11.99

Comments: This winning pump-style model was easy to fill and clean, comfortable to use, and evenly coated a 12-inch skillet in just two seconds.

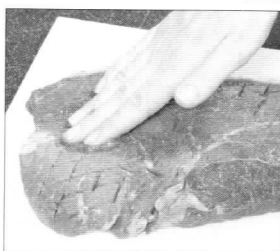


STEP BY STEP | A STAY-PUT SPICE RUB THAT TURNS CHEAPER STEAK INTO "CHOICE"



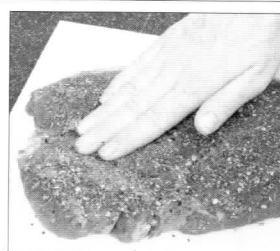
SCORE MEAT

Shallow slits cut into the steak help the salt paste and spice rub adhere to the meat and penetrate more deeply.



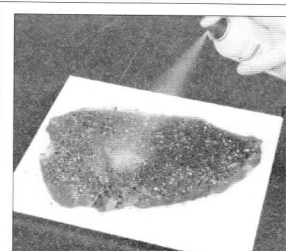
APPLY PASTE

A paste of onion and garlic powders, salt, tomato paste, and fish sauce boosts beefy flavor and tenderizes the meat.



APPLY SPICE RUB

Toasting then grinding dried chiles and spices leads to a more substantial crust with complex flavor.



SPRAY WITH OIL

A light misting of oil blooms the spices on the grill and helps the rub cling to the meat.

GRILLED STEAK WITH NEW MEXICAN CHILE RUB

SERVES 6 TO 8

Shell sirloin steak is also known as top butt, butt steak, top sirloin butt, top sirloin steak, and center-cut roast. Spraying the rubbed steaks with oil helps the spices bloom, preventing a raw flavor.

Steak

- 2 teaspoons tomato paste
- 2 teaspoons fish sauce
- 1½ teaspoons kosher salt
- ½ teaspoon onion powder
- ½ teaspoon garlic powder
- 2 (1½- to 1¾-pound) boneless shell sirloin steaks, 1 to 1¼ inches thick

Spice Rub

- 2 dried New Mexican chiles, stemmed, seeded, and flesh torn into ½-inch pieces
- 4 teaspoons cumin seeds
- 4 teaspoons coriander seeds
- ½ teaspoon red pepper flakes
- ½ teaspoon black peppercorns
- 1 tablespoon sugar
- 1 tablespoon paprika
- ¼ teaspoon ground cloves
- Vegetable oil spray

1. FOR THE STEAK: Combine tomato paste, fish sauce, salt, onion powder, and garlic powder in bowl. Pat steaks dry with paper towels. With sharp knife, cut ¼-inch-deep slits on both sides of steaks, spaced ½ inch apart, in crosshatch pattern. Rub salt mixture evenly on both sides of steaks. Place steaks on wire rack set in rimmed baking sheet; let stand at room temperature for at least 1 hour. After 30 minutes, prepare grill.

2. FOR THE SPICE RUB: Toast chiles, cumin, coriander, pepper flakes, and peppercorns in 10-inch skillet over medium-low heat, stirring frequently, until just beginning to smoke, 3 to 4 minutes. Transfer to plate to cool, about 5 minutes. Grind spices in spice grinder or in mortar with pestle until

coarsely ground. Transfer spices to bowl and stir in sugar, paprika, and cloves.

3A. FOR A CHARCOAL GRILL: Open bottom vent completely. Light large chimney starter mounded with charcoal briquettes (7 quarts). When top coals are partially covered with ash, pour two-thirds evenly over grill, then pour remaining coals over half of grill. Set cooking grate in place, cover, and open lid vent completely. Heat grill until hot, about 5 minutes.

3B. FOR A GAS GRILL: Turn all burners to high, cover, and heat grill until hot, about 15 minutes. Leave primary burner on high and turn other burner(s) to medium.

4. Clean and oil cooking grate. Sprinkle half of spice rub evenly over 1 side of steaks and press to adhere until spice rub is fully moistened. Lightly spray rubbed side of steak with vegetable oil spray, about 3 seconds. Flip steaks and repeat process of sprinkling with spice rub and coating with vegetable oil spray on second side.

5. Place steaks over hotter part of grill and cook until browned and charred on both sides and center registers 125 degrees for medium-rare or 130 degrees for medium, 3 to 4 minutes per side. If steaks have not reached desired temperature, move to cooler side of grill and continue to cook. Transfer steaks to clean wire rack set in rimmed baking sheet, tent loosely with aluminum foil, and let rest for 10 minutes. Slice meat thin against grain and serve.

GRILLED STEAK WITH ANCHO CHILE-COFFEE RUB

Substitute 1 dried ancho chile for New Mexican chiles, 2 teaspoons ground coffee for paprika, and 1 teaspoon cocoa powder for ground cloves.

GRILLED STEAK WITH SPICY CHIPOTLE CHILE RUB

Substitute 2 dried chipotle chiles for New Mexican chiles, 1 teaspoon dried oregano for paprika, and ½ teaspoon ground cinnamon for ground cloves.