

French Apple Cake

From America's Test Kitchen episode: *French Sweets, Refined and Rustic*.

Serves 8 to 10

The microwaved apples should be pliable but not completely soft when cooked. To test for doneness, take one apple slice and try to bend it. If it snaps in half, it's too firm; microwave it for an additional 30 seconds and test again. If Calvados is unavailable, 1 tablespoon of apple brandy or white rum can be substituted.

INGREDIENTS

- 1 1/2** pounds Granny Smith apples, peeled, cored, cut into 8 wedges, and sliced 1/8 inch thick crosswise
- 1** tablespoon Calvados
- 1** teaspoon lemon juice
- 1** cup (5 ounces) plus 2 tablespoons all-purpose flour
- 1** cup (7 ounces) plus 1 tablespoon granulated sugar
- 2** teaspoons baking powder
- 1/2** teaspoon salt
- 1** large egg plus 2 large yolks
- 1** cup vegetable oil
- 1** cup whole milk
- 1** teaspoon vanilla extract
- Confectioners' sugar

INSTRUCTIONS

- 1.** Adjust oven rack to lower-middle position and heat oven to 325 degrees. Spray 9-inch springform pan with vegetable oil spray. Place prepared pan on rimmed baking sheet lined with aluminum foil. Place apple slices into microwave-safe pie

plate, cover, and microwave until apples are pliable and slightly translucent, about 3 minutes. Toss apple slices with Calvados and lemon juice and let cool for 15 minutes.

2. Whisk 1 cup flour, 1 cup granulated sugar, baking powder, and salt together in bowl. Whisk egg, oil, milk, and vanilla together in second bowl until smooth. Add dry ingredients to wet ingredients and whisk until just combined. Transfer 1 cup batter to separate bowl and set aside.

3. Add egg yolks to remaining batter and whisk to combine. Using spatula, gently fold in cooled apples. Transfer batter to prepared pan; using offset spatula, spread batter evenly to pan edges, gently pressing on apples to create even, compact layer, and smooth surface.

4. Whisk remaining 2 tablespoons flour into reserved batter. Pour over batter in pan and spread batter evenly to pan edges and smooth surface. Sprinkle remaining 1 tablespoon granulated sugar evenly over cake.

5. Bake until center of cake is set, toothpick inserted in center comes out clean, and top is golden brown, about 1¼ hours. Transfer pan to wire rack; let cool for 5 minutes. Run paring knife around sides of pan and let cool completely, 2 to 3 hours. Dust lightly with confectioners' sugar, cut into wedges, and serve.

TECHNIQUE

BATTER UP: IT'S A TWO-FOR-ONE

To produce this cake's distinct layers, we started with a simple base batter and, with key additions, made it work in two ways.

CAKE: Adding extra flour to 1 cup of the base batter created a tender, airy top.



CUSTARD: Adding two extra yolks to the rest of the base

batter created a creamy, dense bottom.

TECHNIQUE

ENSURING TENDER APPLES

Why do apples that go straight into the cake batter bake up too firm, while those same raw apples come out soft and tender if microwaved a bit before heading into the oven? Common sense might suggest that precooking simply hastens the fruit's breakdown. But there's more to the answer than that. As so often happens in cooking, an enzyme is involved, in this case a temperature-sensitive enzyme called pectin methylesterase (PME). As the batter's temperature climbs and lingers between 120 and 160 degrees, the PME sets the pectin in the fruit, so the slices will remain relatively firm no matter how long they are cooked. The catch, though, is that the PME is deactivated at temperatures above 160 degrees. Enter the microwave. A three-minute zap quickly brings the apples to 180 degrees—high enough to permanently kill any activity of the PME—so the precooked fruit emerges fully soft in the finished cake.

We even double-checked the science with a side test: heating vacuum-sealed batches of both raw and microwaved apples in a sous vide machine to the final temperature of the cake (208 degrees) for the same amount of time it bakes (1¼ hours). The microwaved apples were predictably tender, while the slices that we didn't microwave remained firm. Furthermore, these slices never fully softened, even after we continued to cook them for another 40 minutes.





America's Test Kitchen is a 2,500-square-foot kitchen located just outside of Boston. It is the home of *Cook's Country* and *Cook's Illustrated* magazines and is the workday destination for more than three dozen test cooks, editors, and cookware specialists. Our mission is to test recipes until we understand how and why they work and arrive at the best version. We also test kitchen equipment and supermarket ingredients in search of brands that offer the best value and performance. You can watch us work by tuning in to *America's Test Kitchen* (www.americastestkitchen.com) on public television.