



FLORIDA 4-H TAILGATE¹

Smoking and Slow Cooking Meat

Written By: Chad Carr, Brian Estevez, Sonja Crawford, Jason Scheffler, George Baker, Ed Jennings, and Mark Mauldin²

Introduction

Childhood obesity is a serious public health problem in the US. Today, nearly a third of American children are overweight or obese (CDC, 2015). A contributing factor to childhood obesity is general dependency on prepared food, which is somewhat fueled by our society's dwindling cooking abilities. Many parents do not have the time, or they do not know how to cook, so they have not passed the skill on to the younger generation. The average American knows little about the safe preparation of highly palatable animal protein entrées. Additionally, nutrition research suggests that animal protein in the diet is beneficial to adolescent development (Cleghorn, 2007).

The Florida 4-H Poultry BBQ program has existed for years, and the program for red meat cookery has been a huge success in Tennessee 4-H. With sponsorship for the winners at the state level, the Florida 4-H Tailgate Contest program will be a success in Florida as well. This program will strive to promote enjoyable outdoor cooking experiences, encourage the incorporation of animal protein in the diet in order to combat childhood obesity, improve youth nutritional knowledge and cooking skills, and impart knowledge about safe handling and proper degree of doneness to produce safe and delicious meat dishes.

Learning Activity: Smoking and/or Slow Cooking Meat

Learning Objective: Youth will learn to select the beef, pork, chicken, and seafood that work well for smoking or low-temperature slow cooking.

Life Skill: Decision-Making

Background

Flavor, juiciness, tenderness, and cookery affect the palatability of meat. Combining proper cut selection and cookery method is an important part of preparing highly palatable animal protein dishes.

Grilling is conducted by placing food within 6 inches of a high, dry heat source for a reasonably short time. Alternatively, a grill can be used as an outdoor oven for baking by placing foods 12 inches or more from a low to moderate heat setting that generates little smoke. A grill can also be used as a smoker by using indirect, dry heat that is below 250°F and accompanied with smoke for an extended period.

Essentially, all proteins can benefit from low, dry heat cooking, but particular cuts should not be grilled. Beef and pork cuts from locomotion muscles, such as the legs, hips, and chest, tend to be tougher than suspension muscles, such as those from the back, due to a greater amount of insoluble connective tissue. These tougher cuts and other larger roasts should be cooked over lower heat for a longer period of time to solubilize collagen, improve tenderness, prevent overcooking, and increase juiciness. See EDIS document AN229, *Fresh Meat Selection for*

Consumers, for more information on beef and pork cut selection: <https://doi.org/10.32473/edis-an229-2009>. For more information on smoking and slow cooking, see Texas A&M University's barbeque page (<http://bbq.tamu.edu/>) and Utah State University's page (<http://extension.usu.edu/foodsense/htm/cook/cooking-skills>).

Many different varieties of both hard and fruit woods can generate smoked meat with a favorable flavor; however, several easily available softwoods, such as pine and cedar, should be avoided. Additionally, the size of wood pieces influences how hot and fast they burn, with small chips burning faster than chunks. For more valuable information on wood selection for slow cooking, visit this page: <http://virtualweberbullet.com/woods.html>.

To practice your skills, consider participating in the State 4-H/FFA Meat Judging Contest and the Florida Hog & Ham Program at the University of Florida. More information can be found on the following pages:

- State 4-H/FFA Meat Judging Contest:
<https://animal.ifas.ufl.edu/extension/youth/meat/state-meat-judging-contest/>
- Florida Hog & Ham Program:
<https://animal.ifas.ufl.edu/extension/youth/livestock/hog-and-ham/>

Do

- Purchase a tougher roast such as a beef bottom round or brisket flat. Cut a steak from this roast to grill over high heat. Cook the rest of the roast over low heat and compare the tenderness of the two pieces.
- Purchase different types of wood chips for smoking (pecan, mesquite, hickory, etc.). Place the same kind of meat product on different grills. One grill should not have wood chips, but the others should contain an aluminum foil pouch with different types of moist wood chips. Compare the appearance and taste of the final products.
- Purchase and grill bratwurst over direct heat (for under 20 minutes) until it reaches 160°F. Cook or smoke more bratwurst over indirect heat (for roughly 1 hour) until it reaches 160°F. Compare the juiciness of the two products.

Reflect

- What is palatability? Why is it important?
- What was the difference between the tough roast grilled over high heat and the tough roast grilled over low heat?
- Did you like the taste associated with the wood chips? Which was your favorite?

Apply

- Will you consider using wood chips while cooking meat outdoors?

- Will you continue to use a low-heat slow cooking method when cooking a tougher, less expensive cut of meat?

Conclusion

Educating youth about ways to safely prepare animal protein on a grill will improve grilling safety, combat childhood obesity, improve the nutritional knowledge and cooking skills of today's youth, and impart knowledge about safe handling and proper degree of doneness in order to produce safe and palatable meat dishes.

For up-to-date information on the Florida 4-H Tailgating Contest, please visit

http://florida4h.org/programsandevents_/animalscience/4-h-tailgating-contest/.

Additional Resource

Florida 4-H Tailgating Contest:

http://florida4h.org/programsandevents_/animalscience/4-h-tailgating-contest/

References

- Carr, C., Jennings, E., & Eubanks, L. (2013). *Fresh Meat Selection for Consumers*. AN229. Gainesville: University of Florida Institute of Food and Agricultural Sciences.
<https://doi.org/10.32473/edis-an229-2009>
- CDC. (2015). Childhood obesity facts. Accessed on July 12, 2016. https://www.cdc.gov/healthyschools/about/index.html?CDC_AAref_Val=https://www.cdc.gov/healthyschools/obesity/facts.htm
- Texas A&M University. (n.d.). Cooking & smoking. Texas Barbecue. Accessed on July 12, 2016. <http://bbq.tamu.edu/cooking-smoking/> (no longer available online).
- Utah State University Extension. (n.d.). Cooking skills. Accessed on July 12, 2016. <http://extension.usu.edu/foodsense/htm/cook/cooking-skills>

¹ This document is 4HASL43, one of a series of the 4-H Youth Development Program, UF/IFAS Extension. Original publication date December 2016. Visit the Ask IFAS website at <https://ask.ifas.ufl.edu/> for the currently supported version of this publication.

² Jason Scheffler, former research associate professor of muscle biology, UF/IFAS Department of Animal Sciences, Gainesville, FL; Chad Carr, professor and state meat Extension specialist, Department of Animal Sciences; Brian Estevez, Extension agent III, Florida 4-H Youth Development Program, UF/IFAS Extension Escambia County, Cantonment, FL; Sonja Crawford, Extension agent III, M.S., 4-H youth development, UF/IFAS Extension Hendry County; Ed Jennings, Extension agent IV emeritus, livestock, and former county Extension director, UF/IFAS Extension Levy County; Mark Mauldin, Extension agent III, livestock and forages, UF/IFAS Washington County, Chipley, FL; UF/IFAS Extension, Gainesville, FL 32611.

An Equal Opportunity Institution. 4-H is the nation's largest youth development organization. Over 230,000 members in the State of Florida help to make up the community of more than 6.5 million young people across America. 4-H is a non-formal, practical educational program for youth. Florida 4-H is the youth development program of Florida Cooperative Extension, a part of the University of Florida/IFAS.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information, and other services only to individuals and institutions that operate in compliance with applicable federal and state non-discrimination laws and policies. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A&M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Andra Johnson, Dean for UF/IFAS Extension.