

Tender Texas Chicken

Michael A. Davis*

Chicken offers the Texas consumer a versatile, healthful, nutrient-dense, low-calorie meat at an affordable price. To increase production and reduce costs, the U.S. broiler industry has undergone many changes over the past 50-plus years, including integrating many phases of the business into single operations, increasing and speeding the weight gain of broilers, offering new products, and implementing procedures to improve food safety.

In addition to the measures taken by the poultry industry, the safety of poultry products can be improved by steps taken by consumers.

Chicken and the consumer

The chicken broiler industry did not begin in its current form until about 1955. Until then, most chickens were raised by families for their own use. However, with demand increasing after World War II, poultry producers began consolidating their marketing strategies and vertically integrating their businesses.

In a vertically integrated broiler operation, a producer controls all phases of the business, including breeding and genetics, nutrition and feeding, production and management, processing, distribution, and marketing.

Changes in genetics and nutrition mean that today's birds can grow faster and to a

heavier weight, which results in a higher proportion of breast, thigh, drumstick, and wing muscle. For example, birds today can be grown up to 6 pounds of live weight in 6 to 7 weeks, compared to a 3.5-pound bird that required a 15-week growout in 1953.

The chicken also is more efficient at turning feed into muscle for consumption as meat. It now takes only 1.7 to 1.8 pounds of feed to make 1 pound of chicken. This is compared to 3 pounds of feed for 1 pound of pork, and 6.5 pounds of feed for 1 pound of beef. The chicken diet is about 65 percent grain and 35 percent protein, with supplemental vitamins and minerals.

The broiler processing industry has developed products such as fast-food fried chicken, chicken nuggets, and further processed products.

Research is under way to further reduce fat content, reduce the use of antibiotics in the growout period of the birds, and develop new and emerging markets such as those for organic products.

Nutrient density

According to the U.S. Department of Agriculture (USDA), chicken broiler meat (whole bird, muscle only) contains a total protein content of 21.39 percent (Table 1). Chicken broiler meat contains higher levels of protein than do most meat sources, and it contains all essential amino acids known to be required in human diets. Raw

*Assistant Professor and Extension Poultry Specialist, The Texas A&M System

Table 1. Nutritional composition of chicken (broilers or fryers, meat only, raw).

Nutrient	Amount in 100 grams			
	Breast	Thigh	Drumstick	Whole
Water, g	74.760	75.810	76.380	75.460
Food energy, Kcal	110.000	119.000	119.000	119.000
Protein, g	23.090	19.650	20.590	21.390
Total fat, g	1.240	3.910	3.420	3.080
Calcium, mg	11.000	10.000	11.000	12.000
Iron, mg	0.720	1.040	1.030	0.890
Magnesium, mg	28.000	24.000	23.000	25.000
Phosphorus, mg	196.000	168.000	166.000	173.000
Potassium, mg	255.000	231.000	226.000	229.000
Sodium, mg	65.000	86.000	88.000	77.000
Zinc, mg	0.800	1.910	2.210	1.540
Copper, mg	0.041	0.067	0.063	0.053
Manganese, mg	0.018	0.020	0.021	0.019
Ascorbic acid, mg	1.200	3.100	3.200	2.300
Thiamin, mg	0.070	0.076	0.082	0.073
Riboflavin, mg	0.092	0.188	0.199	0.142
Niacin, mg	11.194	6.328	5.778	8.239
Pantothenic acid, mg	0.819	1.233	1.287	1.058
Vitamin B6, mg	0.550	0.330	0.340	0.430
Folate, mcg	4.000	10.000	10.000	7.000
Vitamin B12, mcg	0.380	0.350	0.370	0.370
Vitamin A, IU	21.000	65.000	57.000	52.000
Saturated fat, g	0.330	1.000	0.880	0.790
Monounsaturated fat, g	0.300	1.210	1.060	0.900
Polyunsaturated fat, g	0.280	0.970	0.850	0.750
Cholesterol, mg	58.000	83.000	77.000	70.000

Adapted from U.S. Department of Agriculture, Agricultural Research Service. 2008. USDA National Nutrient Database for Standard Reference, Release 21. Nutrient Data Laboratory Home Page, <http://www.ars.usda.gov/ba/bhnrc/ndl>

broiler breast meat, which contains 23.09 percent protein, provides most of these essential amino acids.

The protein in broiler meat is easily digestible, making it attractive to those who have trouble digesting other protein sources. These people include the elderly and those recovering from illness or medical procedures.

Chicken meat is also low in cholesterol, containing only 70 milligrams per 100-gram (about 3.5-ounce) serving. Broiler meat is also low in total fat, at 3.08 percent, and this fat is predominantly unsaturated fat. The ratio of unsaturated fat to saturated fat in broiler meat is 2 to 1, meaning that the fat content in broiler meat can help a person maintain normal serum cholesterol levels.

Raw chicken broiler meat contains only 119 calories per 100 grams of edible portion, and chicken breast meat contains only 110 calories per 100 grams.

Product quality and safety requirements

In addition to the food safety programs followed by the processor and overseen by the USDA Food Safety and Inspection Service, all federally inspected poultry processors have implemented the Hazard Analysis and Critical Control Point (HACCP) program. This program includes quality evaluations at all stages of production and processing, temperature controls to retard bacterial growth, and the use of the efficient packaging systems such as the Individually Quick Frozen (IQF) process.

The HACCP includes three main components:

- USDA employees both internally and externally inspect each bird that passes through the processing plant to ensure that the product is wholesome for human consumption.
- All areas of processing that are critical to food-safety issues such as bacterial

control must adhere to strict limits before the product can be shipped.

- Overall plant sanitation standards must be met during processing operations and cleanup.

Regarding bacteria, the processing operations reduce bacterial content by about 95 percent from the time that the bird enters the processing plant until it leaves as a finished, raw, ready-to-cook product.

For consumers, the key to safe handling of chicken meat and other food products is follow the **4-C's Rule** of food handling:

- Keep food preparation areas **clean**.
- **Cook** chicken meat adequately.
- **Chill** cooked meats as soon as possible following serving.
- Avoid **cross-contamination** of cooked food with bacteria from raw food. This includes making sure that cutting boards and utensils are thoroughly washed in hot, soapy water before switching uses, or by using separate boards and utensils for different products.

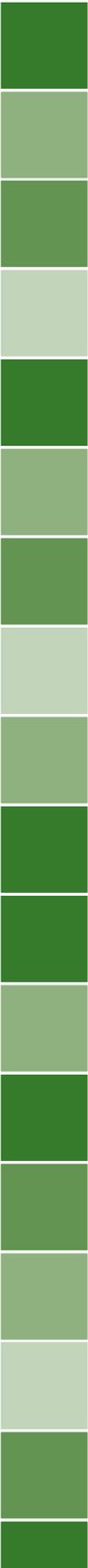
Chicken the way you like it

Chicken can be prepared in many ways. Its light, delicate flavor makes seasoning the meat easy. Chicken meat also requires less salt to achieve the proper seasoning, thus allowing the consumer to reduce sodium intake.

Because broiler meat is also naturally tender, it usually does not need mechanical tenderization or lengthy marinating periods. Marinades are used primarily for flavoring and require only a very short period (20 minutes to 4 hours) to achieve the desired results.

Broiler meat is also consistent across U.S. markets. This is possible because all commercial broiler strains (breeds) are basically a cross between yellow Cornish and White Plymouth Rock breeds. These strains grow rapidly and convert feed into muscle very efficiently.





Acknowledgment

This publication was revised from an earlier version written by J. H. Denton, Poultry Marketing Specialist, and F. A. Gardener, Professor of Poultry Products Technology, The Texas A&M University System.

Texas A&M AgriLife Extension Service *AgriLifeExtension.tamu.edu*

More Extension publications can be found at *AgriLifeBookstore.org*

Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, disability, religion, age, or national origin.