

Crosstalk



WHY CHICKEN RULES

FOR GENERATIONS, beef was the United States' dominant meat, followed by pork. When annual beef consumption peaked in 1976 at about 40 kilograms (boneless weight) per capita, it accounted for nearly half of all meat. Chicken had just a 20 percent share. But chicken caught up by 2010, and in 2018 chicken's share came to 36 percent of the total, nearly 20 percentage points higher than beef. The average American now eats 30 kg of boneless chicken every year, bought overwhelmingly as cut-up or processed parts (from boneless breast to Chicken McNuggets).

The United States' constant obsession with diet, in this case the fear of dietary cholesterol and saturated fat in red meat, has been a factor in the shift. The differences, however, are not striking: 100 grams of lean beef has 1.5 grams of saturated fat, compared with 1 gram in skinless chicken breast—which actually has more cholesterol. But the main reason for chicken's ascendance has been its lower price, which reflects its metabolic advantage: No other domesticated land animal

TAMARA STAPLES/GETTY IMAGES

NUMBERS DON'T LIE BY VACLAV SMIL

can convert feed to meat as efficiently as broilers. Modern breeding advances have had a lot to do with this efficiency.

During the 1930s, the average feeding efficiency for broilers (at about 5 units of feed per unit of live weight) was no better than for pigs. That rate was halved by the mid-1980s, and the latest U.S. Department of Agriculture's feed-to-meat ratios show that it now takes only about 1.7 units of feed (standardized in terms of feed corn) to produce a unit of broiler live weight, compared with nearly 5 units of feed for hogs and almost 12 units for cattle.

Because edible weight as a share of live weight differs substantially among the leading meat species (about 60 percent for chicken, 53 percent for pork, and only about 40 percent for beef), recalculations in terms of feeding efficiencies per unit of edible meat are even more revealing. Recent ratios have been 3 to 4 units of feed per unit of edible meat for broilers, 9 to 10 for pork, and 20 to 30 for beef. These

ratios correspond to average feed-to-meat conversion efficiencies of, respectively, 15, 10, and 4 percent.

In addition, broilers have been bred to mature faster and to put on an unprecedented amount of weight. Traditional free-running birds were slaughtered at the age of one year, when they weighed only about 1 kg. The average weight of American broilers rose from 1.1 kg in 1925 to nearly 2.7 kg in 2018, while the typical feeding span was cut from 112 days in 1925 to just 47 days in 2018.

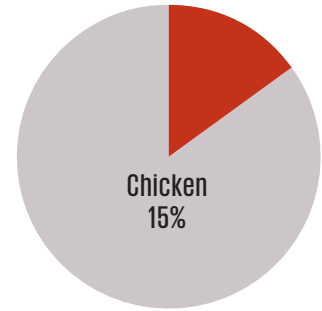
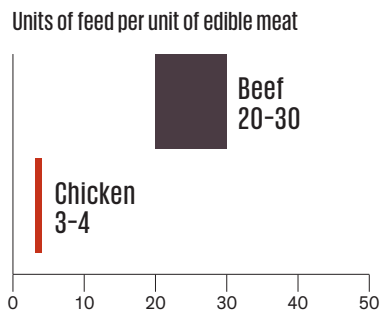
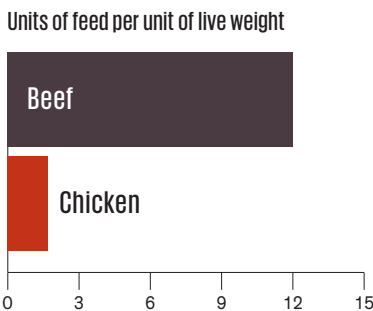
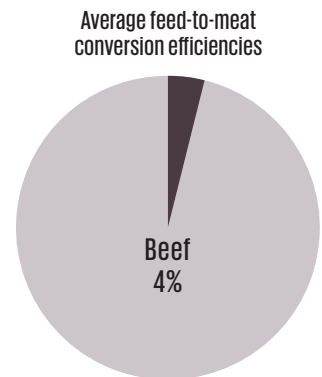
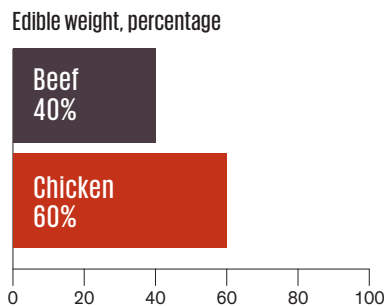
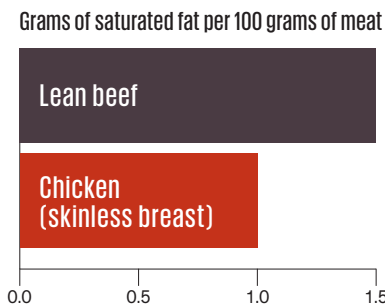
Consumers benefit while the birds suffer. They gain weight so rapidly because they can eat as much as they want while being kept in darkness and in strict confinement. Because consumers prefer lean breast meat, the selection for excessively large breasts shifts the bird's center of gravity forward, impairs its natural movement, and puts stress on its legs and heart. But the bird cannot move anyway: According to the National Chicken Council, a broiler is allotted just 560 to

650 square centimeters, an area only slightly larger than a sheet of standard A4 paper. As long periods of darkness improve growth, broilers mature under light intensities resembling twilight. This condition disrupts their normal circadian and behavioral rhythms.

On one side, you have shortened lives (less than seven weeks for a bird whose normal life span is up to eight years) with malformed bodies in dark confinement; on the other, in late 2019 you got retail prices of about US \$2.94 per pound (\$6.47 per kilogram) for boneless breast compared with \$4.98/lb. for round beef roast and \$8.22/lb. for choice sirloin steak.

But chicken's rule hasn't yet gone global: Thanks to its dominance in China and in Europe, pork is still about 10 percent ahead worldwide. Still, broilers mass-produced in confinement will, almost certainly, come out on top within a decade or two. ■

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CHICKEN VS. BEEF: The dominance of chicken over beef stems in part from a change in consumers' preferences, itself the result of evolving health guidelines. Even more important is the drop in the relative cost of chicken due to greatly improved efficiency in the conversion of feed into meat.