



# PLAYING CHICKEN

They express happiness, empathy, and self-awareness—and we're slaughtering more than 50 billion of them each year for food. Author **Mark Hawthorne** explores humanity's complicated relationship with chickens.

# Walk into a restaurant just about anywhere and you are likely to find chicken meat in some form on the menu.

Chicken parmesan. Chicken cacciatore. Chicken nuggets. Chicken pot pie. Fried chicken. Popcorn chicken. Barbecued chicken. Chicken soup. In Argentina, *pollo al disco*. In the Middle East, *shish taouk*. Tandoori chicken and chicken tikka masala in India. *Coq au vin* in France. *Tsukune* in Japan. And on and on.

Part of the reason for this international ubiquity is in the meat itself. Like tofu and seitan, chicken meat is considered a blank canvas for the flavors of virtually any cuisine, making it an appealing ingredient among many cultures.

Furthermore, it doesn't help that so many dietary institutions, from the American Medical Association to the World Health Organization, also encourage people to reduce or eliminate their consumption of red meat in favor of lean, white meat like chicken.

On the upside, the clash between the budding rise in plant-based eating and the world's growing appetite for chicken meat has resulted in an abundant variety of animal-free alternatives, allowing herbivores to enjoy their Caesar salads, tacos, and chicken and waffles at home and in restaurants without even a hint of fowl play. Indeed, while animal agriculture continues to devastate the water, land, and air with toxic chemicals, deforestation, and greenhouse gas emissions, this

entirely separate food movement is environmentally friendlier and will give animals like chickens a break.

## Clucked up

Fifty billion chickens are slaughtered for food globally every year, making these birds the world's second most highly consumed animal after pigs. In 1992, they eclipsed cows to become the dominant land animal in the US, where the average person eats 93 pounds of chicken flesh per year. Yet, in 1960, per-capita consumption of chickens was less than one third of that.

Until the early 20th century, chicken meat was considered a byproduct of eggs, which were consumed much more often than the birds who produced them. Chickens lived on family farms and flourished in the sunshine. When chickens were eaten, it was generally in a high-end restaurant or occasionally for Sunday dinner, but that began to change in the 1920s. With the development of synthetic vitamin D (allowing chickens to thrive in winter months) and the creation of electric ventilation systems for housing units, chicken meat became more available in ever-burgeoning cities. During World War II, eating chickens so that troops overseas could have more beef was a matter of national pride. Then, after the war, researchers discovered that chickens grew

twice as large, twice as fast, when they were fed antibiotics.

Science changed everything. Fortifying cheap feed with antibiotics and vitamins meant farmers could raise massive numbers of birds indoors. This was the advent of factory farming, which brought the vertical integration of commercial chicken enterprises under one roof in the 1960s. Now the animals could be bred, hatched, raised, and slaughtered by a single company. Couple this with how efficiently chickens convert feed into flesh—it takes 2.6 pounds of corn to produce one pound of chicken, versus 16 pounds of feed to produce one pound of beef—and you have a tragic recipe for exploiting these animals on a colossal scale.

Today's animal agriculture forces chickens to endure unspeakable cruelty. Most hens used for eggs, for instance, are confined to cages in enormous windowless sheds, where hundreds of eggs beyond what they would normally lay in a year are coaxed out of each bird. When their bodies are exhausted and can no longer produce as many eggs, the hens are killed. While some are slaughtered for pet food, most are asphyxiated with carbon dioxide or smothered with foam and sent to a landfill like garbage. Chickens in the meat industry, meanwhile, also spend their short lives in industrial farms amid massively crowded

## Chickens by the Numbers

Get a bird's eye view of these staggering statistics, and you'll see just how exploited chickens have become.

50 billion

The number of chickens slaughtered annually for meat worldwide

9 billion

The number of chickens slaughtered annually for meat in the US

3.2 billion

The number of male chicks killed each year after they hatch in the global egg industry

conditions. In 1950, it took 84 days to raise a four-pound bird; now, thanks to growth-promoting drugs and selective breeding, it takes just 42 days. While most of the chicken's body grows rapidly, the skeletal structure lags behind and cannot support the immense weight gain, resulting in crippling leg disorders.

## Feathered friends

Sit with a chicken at a sanctuary, and you'll observe an animal far removed from their wild cousins—small, resplendent birds populating the tropical forests of India, Indonesia, Malaysia, the Philippines, Singapore, and China. They forage for seeds and insects during the day and roost in trees at night. You can see the family resemblance in the domesticated rooster's red wattles and combs, his pre-dawn cock-a-doodle-do, and in the hen's cluck—and that's about it. At least physically.

Personality-wise, chickens remain much the same. As any chicken advocate will tell you, these animals are fiercely brave, friendly, and—when allowed to live in freedom—happy. "If there is one trait above all that leaps to my mind in thinking about chickens when they are enjoying their lives and pursuing their own interests, it is cheerfulness," says Karen Davis, president and founder of United Poultry Concerns, a Virginia-based nonprofit that promotes compassion for domestic fowl. "Chickens are cheerful birds, quite vocally so, and when they are dispirited and oppressed, their entire being expresses this state of affairs as well."

In a recent review of scientific data on chickens, neuroscientist Lori Marino found that they are all unique, with emotional, behavioral, and cognitive

complexity. They can anticipate future events, perform basic arithmetic, and communicate using at least 24 vocalizations, each with its own meaning—from "there's delicious food over here" to "watch out for the hawk overhead!" They express empathy for other birds in distress and may even possess self-awareness, a capacity thus far detected only in great apes (including humans), bottlenose dolphins, elephants, and magpies.

## Brainy Birds

In *The Inconvenient Truth About Thinking Chickens*, neuroscientist Dr. Lori Marino examines years of research on these birds and found compelling evidence of their intelligence. Did you know that chickens ...

- Can perform very basic arithmetic
- Have the capacity to reason and make logical inferences
- Perceive time and may be able to anticipate future events
- Communicate with a "language" of distinct vocalizations
- Have complex ranking systems unique to both hens and roosters

Precisely how the red junglefowl of Southeast Asia ended up domesticated on every continent but Antarctica (and their absence there is only to protect penguins from avian flu) is something of a mystery. Moreover, the question of when chickens arrived in North America is not settled, but

most researchers agree it was sometime after the 16th century, when Dutch and Portuguese slave traders brought the birds from Africa, where they had already been recorded in Egypt some 3,500 years prior.

## Hatching plans

Despite their singular popularity as an ingredient, chickens have virtually no legal protection. The federal Humane Methods of Slaughter Act, which requires that animals are rendered insensible to pain before being slaughtered, does not apply to chickens, which means they can be killed in the most horrific ways.

New technologies, however, could make raising and killing chickens for food obsolete. Companies like Beyond Meat, Gardein, and Tofurky, for instance, have become so good at imitating the mouthfeel of chicken that it's nearly impossible to tell mock from meat. Seth Tibbott, founder of Oregon-based Tofurky, says the rapid development in this industry is breathtaking. "In the 39 years that I have been in business, we have seen both times of growth and times of decline in the plant-based category, but I have never seen anything like the growth that I am seeing now." He attributes this success to consumers looking for healthier options combined with the improved taste and texture of meat substitutes.

Soon to compete with analogue meats, both for shelf space and customer mindshare, is "clean meat"—real animal meat that is grown in a lab using cells. Among the first publicly available lab-grown chicken products will be in the form of patties, nuggets, and sausages, says Shir Friedman, co-founder of SuperMeat, just one of many companies developing the technology to convert cells to muscle tissue. "We believe that in three years we

200 million

The number of male chicks killed each year after they hatch in the US egg industry

275

The average number of eggs each hen is forced to lay annually

93

The pounds of chicken meat consumed per capita in the US

42

The average lifespan, in days, of a chicken in the meat industry

will be serving in restaurants," she says, adding that the process is painless for the chickens, with the cells extracted under local anesthesia. These cells are then grown in conditions mimicking the chicken's physiology, essentially tricking them into believing they are growing within an animal. In addition to not killing animals, SuperMeat claims that clean meat requires 99 percent less land and 90 percent less water, and releases up to 96 percent fewer greenhouse gas emissions.

This cellular agriculture movement may seem new, but the fundamental science behind it has been around for a century, when researchers began exploring how animal cells could be manipulated. Such studies have inspired radical approaches to saving the planet. In 1931, Winston Churchill, the future prime minister of Great Britain, boldly predicted that "We shall escape the absurdity of growing a whole chicken in order to eat the breast or wing by growing these parts separately under a suitable medium."

Of course, a living, breathing chicken is not just a breast or a wing. They are someone, not something, and to consider them as anything less than individuals with feelings and desires of their own is to deny their personhood. But chickens and other animals may benefit from what humans do in an economy-driven society: make things better and cheaper. Whether the result of lab-grown or plant-based meats is reduced suffering, improved health, or a cleaner environment, everyone wins. And perhaps one day all chickens will be roosting in trees again. **WN**

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10

The average natural lifespan, in years, of a chicken

1.5

The average lifespan, in years, of a chicken in the egg industry

# Good Egg

The average person in the US consumed 274 eggs in 2017, sourced from the estimated 374 million hens used in egg production in the US alone. But thanks to these inventive plant-based products, scrambles, quiches, and frittatas can all be enjoyed — without cruelty.

## VeganEgg

**Follow Your Heart** hit the jackpot with this innovative algae-based mix when it was introduced in 2015. Following a shortage of its core algae ingredient, it's now made from organic soy milk while the company searches for allergen-friendly options.

## Scramblit

Made just from pumpkin seeds, turmeric, garlic powder, and black salt, this liquid vegan egg mix made by San Francisco Bay Area startup **Spero Foods** contains 20 times the antioxidants and more protein than animal eggs per serving.

## Vegan Easy Egg

Developed as an allergen-friendly alternative, **Vegan Easy Egg** employs chickpea and corn flours as key ingredients to help mimic traditional egg dishes.

## Just Egg

**JUST**, maker of Just Mayo, launched its mung bean-based egg replacer this year, available at Veggie Grill locations and retail outlets throughout the country.

## Egg-Free Omelett Mix

Created by Berlin-based artisanal vegan company **Terra Vegane**, this organic blend of potato starch, chickpeas, amaranth, and cassava was developed specifically for making omelettes.

## Vegan Egg Yolk

One of the only vegan egg yolk replacers on the market, this product by **Vegg** uses nutritional yeast and black salt to create a runny yolk that can be used for hollandaise sauce, spaghetti alla carbonara, and French toast.

