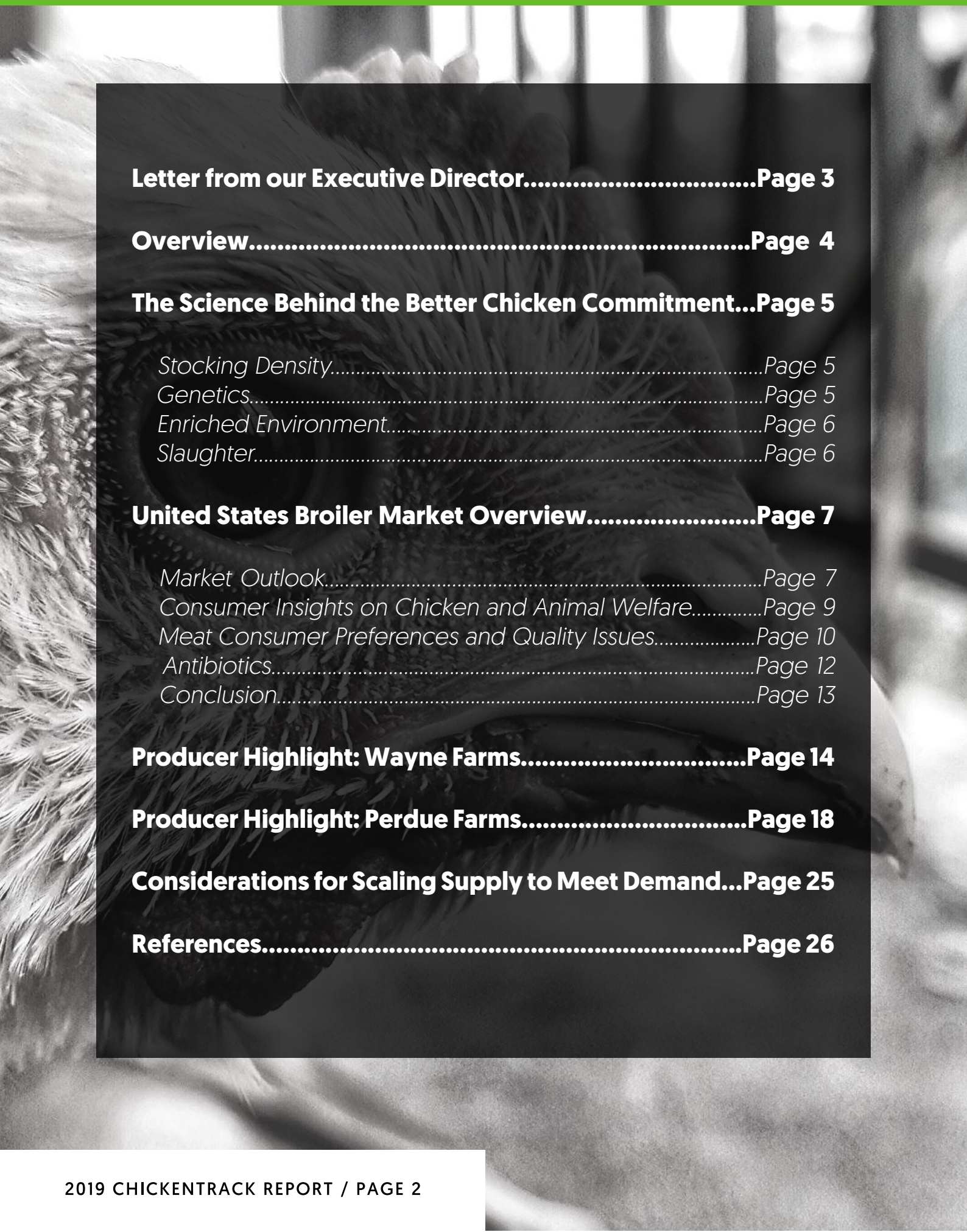
Chicken Track

ANNUAL REPORT 2019

COMPASSION in world farming

CHICKENTRACK 2019



A FOREWORD FROM OUR EXECUTIVE DIRECTOR

We stand at a critical moment for broiler chickens. Over 130 food companies have stepped up and committed to improving broiler welfare by 2024, with consumers demonstrating increasing demand for higher welfare products, and industry – notably including two forward-thinking, large-scale producers – responding to the market by taking steps to invest in higher welfare production systems. However, a successful market shift is not guaranteed with commitments alone, and significant work is required over the next five years.

To ensure a stable and effective market transition, it is imperative that companies begin planning and making progress against commitments now. Producers have an important role to play in investing in higher welfare systems, from engaging farmers to decreasing stocking densities to building CAS facilities, but they cannot do it alone. Purchasers – from food service companies to manufacturers – must also begin indirectly investing in these systems, working with producers to roadmap supply transitions and, as soon as possible, begin target-setting and sourcing broiler chickens that meet higher welfare standards before their commitment deadline.

Compassion USA recognizes the scale, complexity, and importance of the work required to achieve higher welfare standards for broiler chickens, and that we must help catalyze conversations needed to support a market shift. ChickenTrack is an extension of that work.

This year's report outlines evolution in the market, highlights two producers – Perdue Farms and Wayne Farms – which are scaling up the supply of higher welfare broilers, and lays the foundation for future ChickenTrack reports. Beginning next year, ChickenTrack will track and highlight the public progress that individual companies are making towards their commitments. Public reporting has been the foundation for EggTrack (Compassion USA's annual report on the transition to cage-free egg production), and will serve as such for ChickenTrack, ensuring that we foster transparency, company ownership of commitments, and progress made against them. Importantly, ChickenTrack will recognize progress against specific criteria of company commitments, such as decreasing stocking density and expanding access to enriched, stimulating environments. While breed, stocking density, enrichments, and CAS are all fundamental to ensuring higher welfare for chickens, they do not have to all be achieved at once and challenges in one area should not prevent progress in another.

ChickenTrack complements Compassion USA's broader collaborative engagement with food businesses. Working with individual companies, we support the development of comprehensive animal welfare policies, roadmap supply chain transitions, and answer technical animal welfare questions. For broilers, we have developed a series of resources summarizing the latest scientific evidence and guidance for higher welfare broiler production, which are featured on the ChickenTrack webpage. Compassion USA is also focused on fostering cross-industry discussion and collaboration through events like our annual Better Chicken Leadership Forum, where we host producers, breeders, retailers, food service companies, certification schemes, and pet food companies to find solutions for the challenges companies may face in transitioning their supply chains.

We applaud all those committed to improving the welfare of the billions of chickens in our food system. With continued collaboration and dedication, we are confident that we will achieve transformative change for broilers.

Rachel Dreskin
US Executive Director
Compassion in World Farming

OVERVIEW

Over nine billion broiler chickens are reared annually in the United States. As awareness of the welfare challenges associated with intensive broiler production has grown, consumers are increasingly seeking higher welfare broiler chickens, raised according to meaningful standards that translate into measurable welfare improvements. Recognizing the importance of broiler welfare for consumers and animals alike, over 130 leading food companies have signed up to the Better Chicken Commitment (BCC; formerly known as the Joint Animal Protection Organization Statement on Broiler Welfare Issues), committing to improve the lives of broiler chickens in their supply chains by 2024. The five tenets of the BCC are:

1. **To transition to strains of birds that demonstrate higher welfare outcomes and meet the criteria of the RSPCA Broiler Breed Welfare Assessment Protocol or Global Animal Partnership (GAP).**
2. **To reduce stocking density to a maximum of 6 pounds per square foot and prohibit broiler cages.**
3. **To provide birds enriched environments including litter, lighting, and enrichment that meets GAP's new standards.**
4. **To process chickens in a manner that avoids pre-stun handling and instead utilizes a multi-step controlled atmosphere processing system (CAS) that induces an irreversible stun.**
5. **To demonstrate compliance with the above standards via third party auditing.**

ChickenTrack aims to track the progress companies are making towards these goals, create transparency throughout the transition, and catalyze a broader conversation around broiler welfare. In this inaugural edition, ChickenTrack provides an overview of the current broiler market, offers insight into the necessary and critical changes that will enable a successful higher welfare broiler market, and profiles Perdue Farms and Wayne Farms—two producers leading the charge to supply companies and consumers with broilers that meet the BCC. Both companies are demonstrating the scalability of welfare improvements, not only to purchasers who are beginning to seek the supply to meet their 2024 commitments, but also to other producers who may be considering higher welfare practices.

Beginning in 2020, ChickenTrack will expand to track and recognize individual food companies' progress towards their commitments across all sectors of the industry, from food service to manufacturers. Specifically, the report will track company progress across each criterion of the BCC. For progress to be included in the report, data must be shared publicly by July 31 of that year. Public progress reporting ensures transparency and demonstrates that a company holds itself accountable to the commitments it makes—communicating to investors, customers, and other key stakeholders that the company takes its animal welfare and wider social responsibility targets seriously.

CIWF recognizes that significant work is required to achieve higher welfare standards for broiler chickens. Some of the work comes in the form of overcoming challenges, such as mitigating costs, while some provides opportunity, such as offering a more humane and higher quality product to consumers in a crowded chicken market. Beyond this report, CIWF is working with food companies across all sectors to ensure a stable and economically-viable market transition, providing technical animal welfare expertise and resources, market research and insights, and a commitment to collaborative engagement. We look forward to our continued work with food companies to support them in their pursuit of better animal welfare.

THE SCIENCE BEHIND THE BETTER CHICKEN COMMITMENT

Under standard industry practice, nearly all broiler chickens raised for meat in the United States live in conditions that limit their physical health, mental wellbeing, and ability to express important natural behaviors.

Stocking Density

Broiler chickens are typically housed in indoor barns, at such high densities (up to 9 lb/ft^2 at their final target weight[i]) that they are unable to move freely without disturbing, walking over, and scratching other birds.[ii] At densities greater than 6 lb/ft^2, the physical condition of the chickens begins to decline. For instance, the restricted space results in birds spending more time inactive and resting on the littered floors, leading to poorer walking ability and higher incidence of contact dermatitis lesions to the breast, legs, and foot pads.[iii] Furthermore, housing chickens at high densities inhibits their ability to effectively dissipate metabolic heat, which can lead to cellular damage to the liver[iv] and gut resulting in poorer nutrient absorption[v] and reduced resilience to infection.[vi] During warmer environmental conditions, significant flock mortality can occur in densely-housed birds if the ventilation systems fail, because these chickens lack the space necessary to effectively cool themselves through panting and wing raising.

Given a choice, chickens will actively work to access areas with more space allowance,[vii] with research showing that broilers find higher densities aversive.[viii] [ix] Chickens provided with a greater space allowance more frequently walk, preen[x], forage, perch,[xi] and rest uninterrupted.[xii] Additionally, clearings of space are needed to allow for play behavior, such as sparring and frolicking, which is not possible at high stocking densities.[xiii] Play behavior indicates the birds are experiencing a positive state of welfare – that is, welfare that is beyond the absence of negative states, such as frustration, pain, or fear.

Genetics

The genetics of the most popular modern production breeds has pushed chickens to the ceiling of their growth potential. This has compromised their health and physically limited their ability to express natural behavior. Since the 1950s, selective breeding in chickens has increased broiler growth rates by more than 400%, with an approximate 80% increase in breast muscle yield, while using 50% less feed.[xiv] However, commercial broiler lines selected for fast growth and greater feed conversion gain weight rapidly without proportional improvements to their skeletal or cardiovascular integrity,[xv] [xvi] leading to higher rates of mortality,[xvii] organ failure (e.g., sudden death syndrome, ascites[xviii]), and lameness than slower growing breeds.[xix] [xx] [xxi] The current strains selected heavily for performance traits are significantly less active, spending the majority of their time inactively sitting on litter.[xxii] [xxiii] Prolonged contact with soiled litter can lead to painful lesions on the footpads, hocks, and breast.[xxiv] [xxv] [xxvi]

Accelerated growth and greater breast meat yields have also inhibited the normal immune function of modern broilers[xxvii xxviii] and produced serious myopathies in the breast muscles, including wooden (or "woody") breast, white striping, and spaghetti meat (or "stringy-spongy").[xxix] These breast tissue pathologies result from the excessive demands for growth of the breast muscle fibers, resulting in chronic inflammation and discomfort in the first two weeks of age, well before these conditions result in meat quality downgrades at processing.[xxx xxxi]

In contrast, broiler breeds selected for higher welfare outcomes show improved health, higher activity levels, and better abilities to cope with environmental variation, such as heat stress.[xxxii xxxiii] These chicken strains exhibit greater expression of highly-motivated natural behaviors, including foraging, scratching, perching, and comfort behaviors (e.g., dust-bathing, preening, leg and wing stretching), indicating these birds are experiencing a more positive welfare status.[xxxiv xxxv xxxvi]

Enriched Environment

In standard industry practice, the barren environment – compacted litter; near-constant low intensity of artificial lighting with very short periods of continuous darkness; lack of key stimulating, interactive resources – inhibits chickens' natural activity and species-specific behaviors, resulting in poor welfare.

Suitable lighting consists of a minimal light intensity of 50 lux to encourage normal eye development and activity levels, along with a minimum of six hours of continuous darkness to allow for synchronized resting for flocks. A sufficiently long continuous dark period is particularly important for birds to obtain the undisturbed rest needed to support good musculoskeletal health.[xxxvii xxxviii xxxix] Research supports the use of natural lighting for broiler chickens as it improves bird activity, walking ability, and litter quality.[xl xli]

In enriched environments, deep friable litter allows broilers to express highly-motivated foraging, ground pecking, scratching, and dust-bathing behavior. In addition, loose and dry litter leads to cleaner plumage and reduces the risk of contact dermatitis lesions to the breast and legs.[xlii xliii] Beyond appropriate lighting and litter, chicken welfare can be improved by the provision of biologically-relevant enrichments that lead to better health and the promotion of a variety of highly-driven natural behaviors,[xliv] including foraging, scratching, pecking, perching, play, and comfort behaviors. Environmental enrichment (e.g. perches, pecking objects, and straw bales) provides more opportunities for exercise, which strengthens the bones and muscles of growing chickens.[xlv xlvi] Additionally, perches improve bird welfare by giving chickens the ability to move off the floor, which leads to better footpad condition; allows birds to escape more dominant chickens; and enables them to have longer undisturbed resting periods.[xlvii xlviii]

Slaughter

Controlled atmosphere stunning (CAS) offers many welfare advantages over electrical water bath stunning. CAS provides a more consistently effective stun to induce a lack of consciousness and removes the need for handling, inverting, and shackling of live chickens – which is not only inherently stressful and painful, but also exposes birds to a greater risk of injury.[xlix]

UNITED STATES BROILER MARKET OVERVIEW

On November 3rd, 2016, Compass Group and Aramark – the two largest food service companies in the US – became the first companies in the United States to take a stand and commit to the Better Chicken Commitment (BCC). Since then, over 130 major food companies, including Campbell Soup Company, Chipotle, General Mills, Subway, and Unilever, have signed up to the BCC. These broiler welfare commitments closely follow pressure on the market to move away from battery cages in egg production, which has doubled the US cage-free flock in the last three years to 20.2%. However, as of today, while companies' broiler welfare commitments represent an estimated 10% of the market, there is little evidence that any major food company has begun to transition their broiler chicken supply chains.

Significant time and investment will be required to support producers as they make incremental improvements to production, and efforts must begin now to enable producers to expand supply to meet demand by 2024. Initial investments needed for longer term structural change, such as installation of CAS systems, require sizeable capital and a strict timeline. If purchasers do not begin to buy in to these improvements well before 2024, producers will be forced to bear the burden alone, which will stymie their ability to scale up at the rate needed. If the market is to make a successful transition to higher welfare broiler chickens, the cost of whole-scale transitioning cannot be borne by producers alone, which means purchasers should begin engaging with suppliers as soon as possible to support steady investment, such as through incremental target setting, longer-term contracts, and beginning to market higher-welfare products to help shoulder the burden of cost increases.

In this report, we examine the current state of the market with respect to both conventional and higher welfare chicken, as well as market dynamics which may affect poultry producers and purchasers as they look to evolve their supply chains for the future – including a specific look at consumer interest in animal welfare, meat quality issues, and antibiotics.

Market Outlook

The United States market for chicken is robust. In 2018, nine billion chickens were produced, yielding 56.8 billion pounds of meat and $26.2 billion in sales. By pound, there has been a 13% increase in total production in the last decade (though, interestingly, only a 0.3% increase in total number of chickens, indicating increasing growth rates and/or a higher percentage of "jumbo" chickens, for whom welfare issues are intensified).[l] This growth appears to be driven by chicken's consumer reputation of being healthy, versatile, and affordable.[li]

Domestically, chicken consumption is at an all-time high and driving market growth (exports comprised 16.8% of U.S. production in 2018, down from a peak of 19.9% in 2012).[lii] National consumption of broilers reached 59.8 pounds per capita in 2016 – a 3% increase over the last decade and 116% increase over the last 40 years. Meanwhile, aggregate meat consumption stood at 132.6 pounds per capita in 2016, signaling a return to levels prior to the 2008 recession level.[liii] Market analysts have speculated that this may indicate we are reaching market saturation and that continued growth of the chicken industry will largely depend on the shifting balances in protein consumption.[liv] Right now, the balance is shifted in favor of chicken, having captured some of beef's market share as consumers turn away from red meat due to relative cost, nutritional qualities, and environmental footprint.

UNITED STATES BROILER MARKET OVERVIEW

Per capita beef consumption stood at 40.5 pounds in 2016, down from a peak of 67.9 pounds in 1976. Conversely, per capita chicken consumption stood at 27.7 pounds in 1976 and has since more than doubled.[lv] If the meat market has already or will soon hit a ceiling as some experts propose, future growth in individual categories may be dependent on the relative strength of an expanding list of competitors – including plant-based proteins and fish for the same attributes that US consumers currently value chicken.

The rapid growth of plant-based proteins is commanding the attention of increasingly protein-curious and sustainability-focused consumers. Overall, the plant-based meat market is estimated at $12 billion in 2019 and is projected to grow at a compound annual rate of 15% from 2019 to 2025, reaching $28 billion by 2025.[lvi] Mintel, for example, notes that "with consumer interest in protein at a high, poultry is not only poised for success but also charged with defending its position."[lvii]

While the majority of public discourse and product launches of plant-based proteins in the US has been focused on beef and pork substitutes, a bevy of chicken-alternative brands have seen significant growth in US sales from 2017-2018 (Gardein +43%, Morningstar +27%, and Beyond Meat Chicken Strips +12%).[lviii] Globally, big product launches may indicate what's to come in the US market – in March, McDonalds launched the chicken nugget-like "Vegetarnuggets." In June, KFC launched a pilot of "The Imposter" chicken patty-like burger in the United Kingdom, which initially sold out after just a few days; and in August, KFC tested plant-based chicken wings and nuggets at an Atlanta, Georgia location, accompanied by a significant media push. In addition to fully plant-based options, companies are expanding plant-forward products to target a growing population of flexitarians – such as Perdue Farms' Chicken Plus line, which launched this month in the US. The Chicken Plus line includes nuggets, tenders, and patties blended with cauliflower, chickpeas, and other plant proteins, which collectively equates to half a serving of vegetables.

While US fish consumption has been very steady over the last 30 years[lix], there is reason to believe the sector may see growth in the near future due to increasing public discourse on nutrition and the role of various proteins in a sustainable diet.

For instance, while the current US Dietary Guidelines recommend an overall 35% decrease in meat and egg consumption from current levels, they recommend a tripling of fish consumption.[lx] Similarly, the EAT-Lancet Commission on Food, Planet, and Health recommends more than doubling current fish consumption, while recommending meat reductions beyond that of the US Dietary Guidelines.[lxi] There are significant potential environmental and animal welfare challenges which may limit market growth, as well, though we will not attempt to address them in this report.

Overall, while industry groups project continued strong growth in poultry, the future may not be as straightfoward as predicted. The potential ceiling in domestic meat consumption, the rise of plant-based alternatives, and growing societal concerns about balanced nutrition, environmental sustainability, and animal welfare should all be considered as companies make decisions about their future business priorities.

On the following page, we take a closer look at market dynamics related to animal welfare, meat quality and consumer preferences, and antibiotics.

Consumer Insights on Chicken and Animal Welfare

Consumers are becoming increasingly concerned about where their food comes from and how it was produced. Animal welfare weighs heavily in this equation and frames consumers' perspectives of the world's largest food companies. A survey by Ketchum found that Americans ranked animal welfare alongside children's education and hunger as causes they were most likely to support in 2018.[lxii] In Consumer Reports' December 2015 Natural Food Labels Survey, researchers found that better living conditions for farm animals were viewed as "very important" or "important" to 52% of consumers and "important" to an add tional 32%.[lxiii]

Companies committed to improving the welfare of animals in their supply chains are well-aligned with consumers' rising expectations for animal welfare. As consumers look to align their values with their purchasing behavior, consumers are increasingly interested in purchasing chicken products that reflect their growing concern for animal welfare. Approximately three-quarters of respondents to a 2018 survey conducted for the National Chicken Council said they were concerned about how chickens are raised for meat. A similar percentage said they were concerned about how chickens are bred to optimize meat production.[lxiv]

Translating that concern to the grocery aisle, Mintel reported that 29% of consumers chose the "humanely raised" label as most important to them when buying poultry, and 34% agreed with the statement "poultry manufacturers should take better care of their poultry."[lxv] Most recently, a survey by IRI for the NCC found that "humane" beats "taste," "sustainable," and "easy to store" as the top attribute driving increased consumption.[lxvi]

Interest in more ethical poultry products is translating into sales: Mintel found that while total sales of poultry were down in 2016, the brands performing well were those with ethical claims.[lxvii] Mintel also found that consumers are willing to pay a premium of at least a dollar more for a "more ethical poultry product," as compared to conventionally raised chicken.[lxviii] Lake Research Partners also found consumers are willing to purchase humanely-raised chicken for a price premium, and that three out of five would pay at least 6% more.[lxix] Recent research by agricultural economist Jason Lusk found that median consumer willingness to pay premiums for chicken breasts range from $0.26/lb to $0.54/lb, depending on whether information about slower growth attributes was provided, and if so, whether it was presented positively. When consumers were given no information, they were willing to pay an additional $0.46/lb, translating to a 14.3% premium. Lusk's study estimated an 8.5% willingness-to-pay increase would be needed to offset the added producer costs of an industry-wide conversion to slower growing breeds (to note, Lusk's study did not include the cost of CAS).[lxx] These findings represent a positive indicator that, if provided with the right information, consumers will be willing to pay enough of a premium to cover costs of higher welfare production.

One way for companies to evolve and differentiate themselves in an increasingly competitive environment is to lean into consumer demand for transparency, animal welfare, and higher welfare chicken. With products such as Wayne Farms' NAKED TRUTH, Applegate's GAP-certified range, and Perdue's forthcoming line, consumers will have increasing ability to shop in alignment with their values in retail and food service alike.

Meat Consumer Preferences and Quality Issues

White meat chicken breast currently drives demand for chicken in the US, making up 59.7% of dollar sales of all chicken products in 2018;[lxxi] however, darker meat, specifically chicken thighs, is accruing more and more consumer interest. In 2018, legs and thighs made up 7.3% and 11.9% of the market, respectively. According to Bloomberg, industry-wide thigh sales increased 7% in the year ended June 16, 2019, while breast-meat sales were flat.[lxxii] In the past decade, retail sales of chicken thighs have increased nine-fold. This rising demand has driven the price of thighs up, narrowing the gap between white and dark chicken meat. In fact, demand has increased so much for thighs that prices have eclipsed that of the traditionally more expensive breasts. As of July 10, jumbo boneless, skinless chicken breasts were $1.13 a pound, and the equivalent boneless, skinless thighs were $1.24.[lxxiii]

This shift in consumer interest from white to dark meat is significant, because it is consumer demand for white meat that largely drove the industry to breed a chicken that would grow as quickly as possible to deliver as much white meat as possible. Shifting preferences in consumer tastes may well justify increased investment in higher welfare chicken breeds that increase the ratio of dark meat due to the breeds' stronger legs and more balanced body.

In addition to shifting consumer preferences, meat quality issues that detract from customer and consumer expectations for high quality, nutritious chicken meat are on the rise. Muscular myopathies, which manifest as a chronic, painful condition for chickens and as product quality issues for the industry and consumers, are of increasing concern. Woody breast, white striping, and spaghetti meat (also known as "stringy spongy") are three myopathies affecting the market today. Woody breast is a condition found in chicken breast that degrades the quality of meat to the point where the breast is tough and difficult to chew. White striping, on the other hand, is a visible condition in which fat and collagen congeal in white stripe-like formations across the exterior of chicken breasts.

Spaghetti meat, a more recently discovered myopathy, is a disorder in which the muscle fibers in chicken breast separate and then string together to form spaghetti-like tendrils.[lxxiv] While spaghetti meat can occur in isolation, it often accompanies white striping.[lxxv] All three abnormalities are strongly linked to accelerated weight gain and genetic selection for rapid breast muscle growth in the most popular modern broiler breeds.

In modern broiler strains, fast muscle growth is achieved mainly through hypertrophy – a rapid increase in size of existing muscle fibers, rather than the addition of new fibers. These fibers increase in size so quickly, they outgrow their support systems, including oxygen supply and waste elimination, leading to degeneration and often permanent damage.[lxxvi] Recent research has shown that woody breast begins to manifest in muscles early on, well before these conditions result in meat quality downgrades at processing. As early as week one, researchers observed vein inflammation. In week two, muscles showed initial signs of degeneration and inflammation, progress-

-ing to more severe inflammation and the beginning of lesion development in week three. Muscle fibrosis (scarring and damage of tissue) and necrosis (death of tissue) began to appear in week four. All these conditions increased in severity and occurrence in weeks five through seven.[lxxvii] Similar tissue pathology has been frequently associated with painful episodes in humans, indicating that these myopathies are not only a quality issue, but also a serious welfare concern that is impacting quality of life.[lxxviii]

Several studies have also sought to understand the impact of these disorders on the nutritional quality of chicken, with overall findings pointing to white striping and spaghetti meat resulting in higher fat, lower protein, and higher moisture content. Studies have found that white striping significantly affects the fat and protein content, in the most severe cases contributing to a 224% increase in fat and 9% decrease in protein.[lxxix] Spaghetti meat is mainly associated with a decrease in the protein content and increase in the moisture level of chicken breast.[lxxx]

Importantly, this is not a small problem impacting a limited number of birds. Recent studies have shown muscular disorders, including woody breast and white striping, may be impacting up to 96% of all broiler chickens.[lxxxi] Estimates point to a projected industry loss of $200 million annually due to woody breast alone. While these muscular disorders impact companies' supply chains, consumers are becoming more aware of and averse to them as well. Over 50% of consumers have reported they would not buy chicken breasts impacted by white striping,[lxxxii] and consumers rated breasts impacted by woody breast as below-average in studies.[lxxxiii]

While food companies across the industry are struggling with meat quality issues from current production breeds, the introduction of higher welfare breeds may significantly reduce meat quality abnormalities. Additionally, taking advantage of increasing demand for darker meat, producers may shift the balance in chicken genetics towards a healthier, more robust bird with smaller breast muscles but stronger, well-de veloped legs.

The industry has an opportunity to tackle both meat quality and welfare simultaneously. Joe Sanderson, CEO of Sanderson Farms, the third-largest chicken producer in the US, said breeding birds with more dark meat makes "all the sense in the world."[lxxxiv] The link between fast-growth, high-yield genetics and impacts on meat quality is clear, and the evidence for how these myopathies impact welfare continues to build. Companies looking to invest in a high-quality, nutritious supply of chicken while simultaneously addressing welfare issues are in a unique position to do so now given the market conditions.

Companies Shifting to Dark Meat Offerings

- **Sweetgreen** added blackened chicken thighs to the menu in Jan 2019.
- **Panera Bread**'s dinner menu now offers items only made with chicken thighs.
- **Bell & Evans** plans to introduce all dark meat chicken meatballs and breaded chicken thighs.
- **Chipotle** bought more than 115 million pounds of chicken in 2018, 600,000 pounds more than it used in 2016 – all of it dark meat.
- **TGI Fridays** test kitchen is working on a sweet-and-sour tempura dish featuring thighs after replacing 25% of the white meat in chicken quesadillas with dark meat.

Antibiotics

The broiler industry is no stranger to rapidly shifting to meet consumer demand. For decades, broiler production relied heavily on antibiotic drugs for both growth promotion and disease prevention. However, consumer demand for reduced drug use and increasing regulatory pressure led the industry to rapidly adapt. Consumer concern about the use of antibiotics has been building over the past decade, with 44% of consumers now expressing that "antibiotic-free" labels are one of the most important to them when buying poultry.[lxxxv] This consumer demand was compounded by the FDA's Guidance for Industry #213 issued in December 2013, which resulted in collaboration with the industry to eliminate all production uses (e.g., growth promotion, feed efficiency) of medically-important antibiotics in the feed or drinking water of food-producing animals, meaning such drugs should now only be used for therapeutic purposes under veterinary oversight.[lxxxvi lxxxvii] It is important to note that the FDA did not call for the elimination of antibiotics in production, but rather for limiting the use of antibiotics to only when necessary to treat, control, or prevent disease in order to preserve the effectiveness of those drugs for fighting disease in both humans and animals.

As a result, poultry producers (such as Perdue Farms and Tyson) and purchasers (such as McDonalds, Taco Bell, and Aramark) pledged to limit antibiotic use in their supply chains.[lxxxviii] Even Sanderson Farms, which ran a national ad campaign referring to antibiotic-free chicken as a "gimmick," finally pledged to phase out the use of medically important antibiotics in November 2018. Driven by consumer concerns, some companies, like Chick-fil-A and Panera Bread, have implemented pledges to guarantee chicken with "no antibio ics ever."

The industry's collective response to both consumer demand and FDA guidance led to a 47% decrease in the sales volume of medically-important antibiotics for use in chickens between 2016 and 2017.[lxxxix] In 2018, 51% of all US broilers were raised in "no antibiotics ever" programs, while a further 18% used ionophores only (per World Health Organization guidelines), totaling 69%; this compares to a combined percentage of only 32% from 2014. Meanwhile, the use of antibiotics deemed non-medically-important for humans by the US Food and Drug Administration, but which are not approved by the World Health Organization, was about the same in 2018 as it was in 2014: 24% and 23%, respectively.[xc]

This focus on reduction in antibiotic use has translated into an opportunity for growth: 37% of chicken is now marketed as "no antibiotics ever," with a compound annual growth rate of 34.2% over the past three years.[xci] While the case for antibiotic reduction has been building for years, once the industry could no longer proceed with business as usual, companies moved incredibly quickly.

Removing the routine use of antibiotics has also highlighted the role of higher welfare practices in raising a healthier chicken. Without antibiotics to mitigate disease, overcrowded living conditions for broilers present a threat to flock health. Coccidiosis and necrotic enteritis, two of the most devastating bacterial diseases for chickens, have been cited as the greatest threats to antibiotic-free broilers.[xcii] In place of antibiotics to prevent outbreaks, many companies have experimented with probiotics, prebiotics, and enzymes, to preserve broiler health. However, welfare-oriented inputs also help ensure flock wellbeing. Decreasing stocking density and increasing litter quality, both key components of the BCC, can help decrease the chances of an outbreak. Taking a holistic approach to animal welfare not only addresses growing consumer and other stakeholder interest, but also enables farmers to preserve flock health and further reduce the need for antibiotics.

UNITED STATES BROILER MARKET OVERVIEW

Conclusion

The US broiler chicken industry has seen tremendous growth in the past 50 years. Throughout that time, the industry has evolved to produce a high-yielding, fast-growing chicken that has met consumer demands for white meat, but has also resulted in a number of unintended consequences related to product quality, nutrition, and welfare – and now faces changing consumer tastes and ethical expectations.

If poultry producers and purchasers are to remain competitive in an evolving marketplace, consumer expectations on quality and animal welfare, as well as interest in diversifying their protein sources, must be top of mind. We have seen the poultry industry move more quickly than the beef and pork industries in moving away from the routine use of antibiotics. We are seeing explosive growth of the protein-alternative market. We are beginning to see companies like Perdue Farms and Wayne Farms evolving their businesses to meet new expectations and take advantage of new market opportunities. Importantly, these evolutions to address quality, consumer expectations, and new competitors have the potential to improve the welfare of billions of broiler chickens raised each year in the United States.

As ChickenTrack begins to track progress towards broiler welfare commitments in 2020, companies have an opportunity to transparently communicate, via public reporting, how they are beginning to address welfare issues and make progress in their supply chains. The stakes are increasing when it comes to transparency on issues consumers care about, and companies who provide strong, detailed reporting stand to gain from reinforcing their social license.

How a food company communicates with their customers around animal welfare, reporting progress against targets for example, is critically important.

At the same time, CIWF recognizes that between this and next year's report, there is significant work to be done for companies to be able to report progress against their commitments in 2020. Encouragingly, we are seeing the market emerge for large-scale higher welfare broilers. Included in this year's ChickenTrack report are two case studies that highlight the work being done by both of these producers to build the supply to meet the demand of company commitments. This critical progress means that companies with commitments can begin talking to producers, planning their supply chain transition, and buying into higher-welfare chicken today. With only five years until 2024, CIWF is committed to catalyzing the cross-sector collaboration needed to transform the industry to be better for animals, for consumers, and for our food system. We look forward to the work ahead and hope this report provides valuable insights to those pursuing a higher welfare chicken supply chain.

PRODUCER HIGHLIGHTS: WAYNE FARMS

Company Overview

Wayne Farms LLC, based in Oakwood, Georgia, is the seventh largest producer of chicken in the U.S., representing 6% of the market.

Wayne Farms owns and operates nine slaughter plants and two further processing facilities throughout the Southeast, produces more than 2.6 billion pounds of poultry products each year, and employs more than 9,000 individuals.

The Journey to Higher Welfare

After 60 years of doing business with some of the largest industrial, national, and food service companies across America, in June of 2017 Wayne Farms launched its first ever Global Animal Partnership (GAP) Step 2 certified line of chicken products, NAKED TRUTH® Premium Chicken. By taking the route of GAP certification, Wayne Farms is able to transparently assure its customers that their chicken meets customers' standards on breed, stocking density, litter, lighting, and enrichment as well as checking the box for verifi cation by a reliable third-party audit.[xciii]

Underpinning Wayne Farms' expansion into a line of GAP Step 2 certified chicken is a recognition that animal welfare needs to be core to the business. Company leadership continuously seeks out opportunities to align their business with evolving science and stakeholder expectations. In November 2017, Wayne Farms established an Animal Care Advisory Committee (ACAC) made up of external animal behavior experts as well as key internal stakeholders responsible for animal care to address an ongoing desire to improve their animal welfare practices, based on emerging discoveries, viewpoints, and technologies.[xciv]

In an evolving market that demands more transparency and policies that translate to meaningful improvements from companies, Wayne Farms appears prepared to embark down a path that meets those demands. The company anticipates expanding capacity for new offerings as demand increases and as companies begin transitioning their supply chains to meet their purchase pledges. This case study will cover the strides that Wayne Farms has been making to build the supply of enhanced welfare chicken using GAP certification to meet the commitments made by the "Class of 2024."

Global Animal Partnership (GAP)

Global Animal Partnership is a 501(c)(3) non-profit organization that sets farm animal welfare standards and provides certification for all stages of production, from hatching to breeding to processing. After 10 years, GAP has grown to include 3,800+ farms across seven countries, with products available in 5,000+ outlets. GAP's 5 Step tiered standards allow for continuous improvement in farmed animal welfare and reflect the latest research in agricultural science combined with achievable, practical application.

PRODUCER HIGHLIGHT: WAYNE FARMS

"Conscientious consumers want to know where their food comes from, and they continue to raise the bar regarding animal welfare. They're paying more attention to labels, and they're opting for high quality chicken products sourced from flocks whose care has been verified by a trusted third party. NAKED TRUTH® products are literally made to order for that consumer."

– Tom Bell, Vice President and General Manager of Prepared Foods

Breed

Wayne Farms is awaiting the results from GAP-funded breed trials currently taking place at the University of Guelph. The company is not conducting any independent breed trials.

University of Guelph Breed Trials

In 2016, GAP committed to updating the chicken breeds allowed under its standards, replacing breeds with poor welfare outcomes with breeds meeting specified welfare outcomes by 2024.[xcv]

In embarking on this work, GAP recognized there was a need for a large-scale, comprehensive study to produce publicly-available research on breed differences. In 2017, GAP provided a grant-in-aid to the poultry research team at the University of Guelph to conduct a two-year research project that would help determine which genetic strains are best suited for commercial standards, while objectively evaluating a list of parameters related to behavior, growth, health, and production with the end goal of improving welfare and addressing the many unintended issues resulting from fast-growing breeds.[xcvi]

This study is still underway and will be complete in late 2019. Based on the results of the study, GAP will determine a list of breeds that will be accepted within the standards, which will inform the direction that Wayne Farms and other GAP-certified producers will take regarding higher welfare breeds.

Stocking Density

Chickens raised by Wayne Farms for the NAKED TRUTH® chicken line are stocked at densities specified by GAP standards, which aligns with the "Joint Animal Protection Organization Statement on Broiler Welfare Issues." According to GAP standards, chickens must have enough space to express natural behavior, including standing, turning around, and preening, without touching another chicken. Currently, GAP requires that stocking density must not exceed 6.5 lb/ft^2 for birds placed between January 1st, 2018 to June 20th, 2020 for Steps 1 and 2 of the certification. Starting July 1st 2020, stocking density must not exceed 6 lb/ft^2 for Steps 1 and 2. The transition to a lower stocking density is staggered this way in consideration of the fact that farmers may need to take incremental steps to eventually meet the lower overall stocking density.[xcvii]

Wayne Farms will be fully transitioned to the required stocking density standard of 6 lb/ft^2 in all its GAP Step 2 Certified houses by July 1, 2020.

PRODUCER HIGHLIGHT: WAYNE FARMS

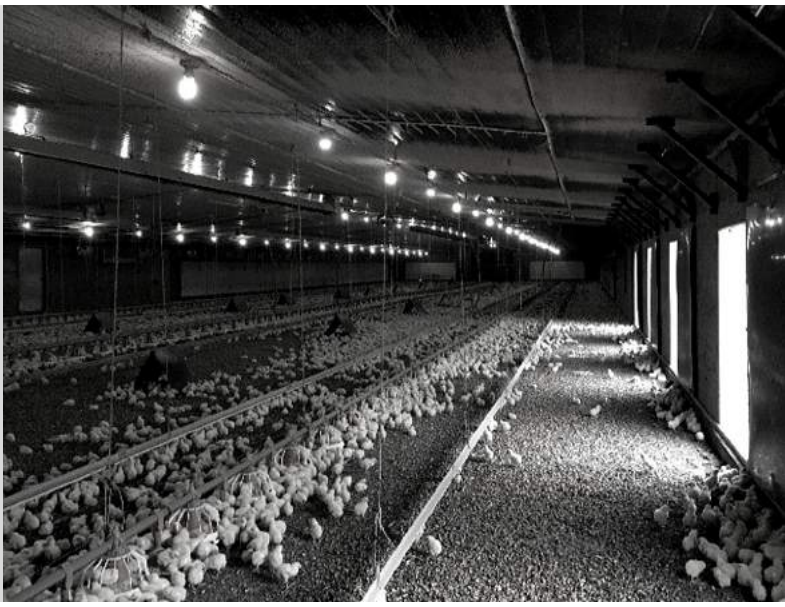
Litter

Wayne Farms ensures that all chickens raised for the NAKED TRUTH® chicken line meet GAP standards for litter management. All chickens are provided with a minimum total of three inches of non-toxic litter that must be managed to minimize caking to no more than 10% of the littered area and to ensure that litter remains friable.[xcviii]

Lighting

For the chickens raised for the Wayne Farms' NAKED TRUTH® chicken line, light intensity in housing during daylight hours (from either artificial or natural light, or a combination) must be at least 50 lux. Notably, starting January 1, 2022, all operations certified to GAP Step 2 and above will be required to provide natural light through windows, solar tubes, or semi-transparent roofing placed evenly throughout the house.[xcix]

Wayne Farms has begun installing windows for natural light and will be fully transitioned by the January 1, 2022 deadline.



Enrichments

To encourage the expression of natural behaviors, Wayne Farms is committed to providing enrichments for chickens in its NAKED TRUTH® chicken line. According to GAP Standards, an enrichment is an addition to the chicken's environment that encourages the expression of natural behavior such as foraging, without losing their novelty. Examples include, but are not limited to: bales of straw or hay, raised platforms and perches, provision of forages or brassicas, and scattered grains. Enrichments must be provided by the time the chicks are ten days old and must be maintained throughout the life of the chickens. For Step 2 of GAP, Wayne Farms must ensure that the indoor environment contains at least two different types of enrichment and there must be a minimum of one enrichment for every 750 ft^2 of indoor space.[c]

Wayne Farms is currently testing different enrichments in in its houses for usage, durability, and farmer acceptability. All of Wayne Farms' GAP Step 2-certified houses have two enrichments, currently tents and perches, with a minimum of one enrichment for every 750 ft^2 of indoor space.

Controlled Atmosphere Stunning (CAS)

In May 2019, Wayne Farms opened the doors of its first CAS processing plant, which will be used to process all the chicken raised for NAKED TRUTH® starting in November 2019.

Wayne Farms currently has one line dedicated to CAS and has found that CAS provides a calmer environment for employees working the line, since chickens are rendered unconscious before being hung and lights are always on. From an animal welfare standpoint, the system Wayne Farms uses allows a progressive stunning process and eliminates the live dumping of chickens, minimizing activity that could lead to injuries for the birds.

PRODUCER HIGHLIGHT: WAYNE FARMS

Third Party Auditing

Because Wayne Farms has taken the route of GAP certification, third party auditing is built into the process. Under GAP, every farm must be audited once every certification cycle. A certification cycle is 15 months, which allows for chickens and operations to be assessed seasonally over a 5-year period.

Summary of Goals and Progress

	Goals	Progress to Date
Breed	Meeting customer demand for higher welfare breeds in line with Joint Animal Protection Organization Statement on Broiler Welfare Issues.	Waiting on results of Guelph study which will determine which genetic strains are best suited for commercial standards while achieving higher welfare outcomes.
Stocking Density	Implementing GAP Step 2 standards on stocking density.	Current stocking density under GAP must not exceed 6.5 lb/sq ft.
Lighting	Implementing GAP Step 2 standards on lighting (50 lux indoor light intensity, 8 hours of continuous light, 6 hours of continuous darkness, and natural light required Jan 1, 2022).	Has begun installing windows for natural light and will be fully transitioned by the January 1, 2022 deadline.
Enrichment	Providing two types of enrichment, with at least one enrichment available for every 750 sq ft.	Has tested a number of enrichments with tents and perches currently installed in all GAP Step 2 houses. Wayne Farms continues to test new options.
CAS	Transitioning to CAS for all GAP 2 certified chicken.	CAS system operational in Enterprise, AL since May 2019.
Third Party Auditing	Comply with GAP Step 2 standards to achieve certification.	Processing 200,000 GAP Step 2 certified chickens per week.[ci]

PRODUCER HIGHLIGHTS: PERDUE FARMS

> "Our Commitments to Animal Care represents a revolutionary change in the way we think about raising chickens. We moved from thinking only about the things a chicken needs to considering what a chicken wants. In other words, what lets a chicken be a chicken?"[civ]

Company Overview

Perdue Farms, based in Salisbury, Maryland, is the fourth largest producer of chicken in the U.S., representing 7% of the total market. Perdue Farms owns and operates 12 harvest plants and three further processing facilities, raises 682 million chickens every year, and employs 21,000 people.

The Journey to Higher Welfare

As Perdue approaches its 100th anniversary in 2020, the company has stated that its path forward is about getting better, not just getting bigger. As part of this path to be continually better, Perdue is actively advancing their animal welfare programs.[cii]

In the summer of 2016, Perdue held its first Animal Care Summit and announced a four-part plan that defined how the company would work towards improved poultry welfare.[ciii] In this plan, Perdue committed to:

- Evaluate and implement production systems specifically designed to go beyond just the "needs" of chickens to also include what their chickens "want."
- Transform relationships with the farmers by listening and communicating effectively, evaluating pay structures to incentivize best practices, and taking their wellbeing into consideration when implementing production systems.
- Be transparent in programs, goals, and progress to build lasting trust and relationships with stakeholders.
- Build an internal corporate culture which recognizes that raising animals should be a journey of continuous improvement.

Since these initial commitments, Perdue has held annual Animal Care Summits with farmers, customers, academic leaders, and NGOs, and has begun to research and implement improvements along its production chain.

Most significantly, Perdue has committed to meeting the demand for higher welfare chicken and has transparently reported on that progress – sharing both successes and shortcomings along the way.

PRODUCER HIGHLIGHT: PERDUE FARMS

Breed

Perdue recognizes that there are health and welfare challenges associated with today's fast-growing chickens, including musculoskeletal and metabolic issues. Perdue is supportive of customer demand for breeds with higher welfare outcomes, and to meet that demand, has begun exploring crosses of higher welfare strains.[cv]

To begin exploring higher welfare breeds, Perdue consulted with experienced geneticists from breeding companies to refine their breed and cross selection. They conducted pen studies from 2016 to 2017 with 11 different breeds in nine crosses to evaluate the results for health status, growth rate, feed efficiency, meat quality, and other performance and welfare characteristics.[cvi]

In 2018, following the results of the pen trials, Perdue identified the breeds that exhibited improved activity traits, better leg health, lower incidents of muscle myopathies – such as white striping and woody breast – and that had feed conversion and yields which were economically viable alternatives for customers seeking higher welfare breeds.

That same year, three of these alternative breeds were highlighted on a "Meet the Breeds" page on Perdue's website, providing stakeholders with more information about these breeds and insight into the setup of the experimental trials.[cvii]

From 2018 to 2019, Perdue continued its work to gather information on activity, welfare, and commercially-important characteristics of the breeds it has been trialing. Trials are currently underway at Perdue's research farm in Westover, Maryland to generate behavioral activity data. Data thus far has shown that virtually all alternative breeds are more active, use enrichments more frequently, and have an increased tendency to use outdoor areas.[cviii]

PRODUCER HIGHLIGHT: PERDUE FARMS

Stocking Density

When Perdue made their initial commitments in 2016, they committed to study and implement new space criteria for chickens based on bird activity and health, recognizing that stocking density is tied to two of the five freedoms – freedom from discomfort and freedom to express normal behavior. Having too high a stocking density can limit chickens' access to feed and water, ability to express natural behavior, and ability to dissipate metabolic heat, as well as negatively impact the poultry house conditions.

In their 2017 Animal Care Progress update, Perdue reported they had increased bird space allowances on Perdue-contracted farms by 3% overall. This was achieved by decreasing stocking density from an average of 7.06 pounds per square foot at processing to 6.85 pounds per square foot across the business (Note: Perdue stocking densities vary across product lines and are not currently shared publicly). Acknowledging that the number of chickens raised in each barn directly impacts farmer income, Perdue initiated "space pay" for farmers who transitioned to lower stocking densities to ensure that farmers were being compensated for the decreased output per house.[cix]

Furthering the investigation into the impacts of reduced stocking density, in 2018 Perdue reported on the performance and behavioral results of a pilot project that examined increasing bird space allowances by 10%, compared to typical standards of practice in the US. The results indicated that all chickens provided with more space gained more weight, but that smaller birds used more feed to gain weight, as more space also meant greater bird activity.[cx]

From 2018 to 2019, Perdue further investigated the effect of additional space on chicken behavior. In a side by side comparison of a 7.9 lb/ft^2 and 5.3 lb/ft^2 stocking density, Perdue found that:

- Walking and running increased by 30 percent, from 4.7% to 6.2% of activity.
- Sitting decreased by 2.5% with increased space.
- Rate of perching increased 30% at the lower stocking density.
- Higher availability of feeder space partially offset the negative effect of reduced floor space on performance.

Lighting

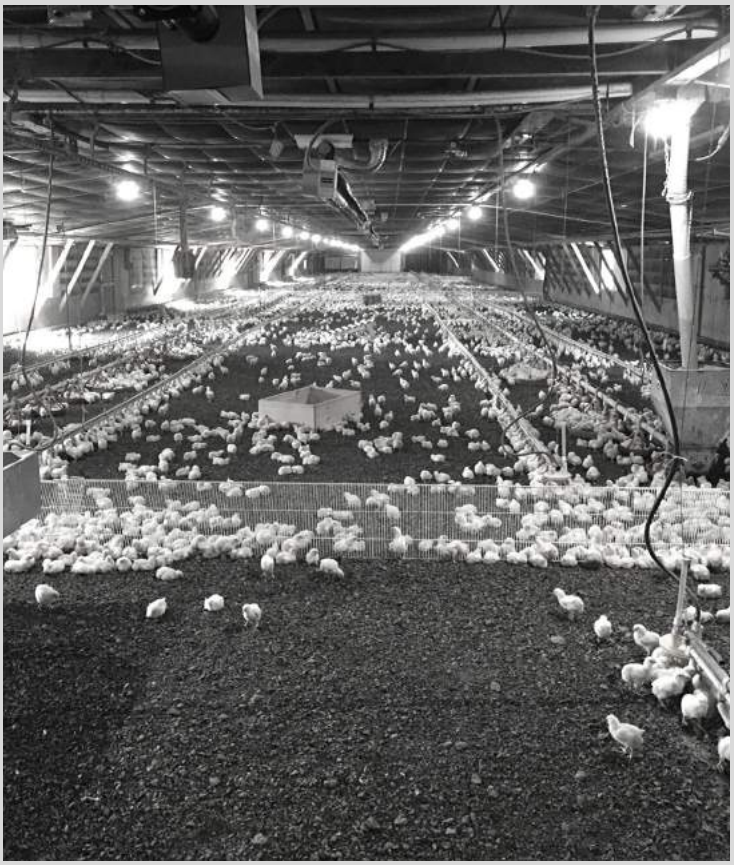
In 2016, Perdue began to evaluate and implement new lighting standards. To date, Perdue has:

- Implemented a 6-hour continuous lights-off resting period for all poultry (except for short chick acclimatization and pre-harvest intervals).
- Implemented new light intensity standards across all growing programs, and added natural light as described on the following page. When using electrical lights, light intensity should never be below 0.25 foot-candles.
- Committed to installing windows in all houses, with goals set to increase that percentage incrementally over the next three years (50% by summer of 2019, 75% by summer of 2020, and 100% by 2021), and achieved installing windows in 48% of houses by July 2019.
- Surveyed farmers about their experience with windows – of 62 total responses, 94% contained positive comments and 20% of surveyed farmers reported spending more time in barns with windows than in those without.

PRODUCER HIGHLIGHT: PERDUE FARMS

Building off their work and findings, Perdue determined that windows and natural sunlight not only created a better environment for the chickens, but also for the farmers that care for the birds. For chickens, provision of natural light in the chicken houses not only increases activity during the daylight hours, but also encourages birds to rest during the periods of continuous darkness. For farmers, windows created a more positive environment, which resulted in farmers spending more time in these houses and with the chickens.

To ensure this program was implemented with farmer support, Perdue developed a program to include windows in all new houses and to help farmers with existing houses install new windows. As part of this program, Perdue pays for the cost of converting existing houses; the farmer signs a promissory note for the cost, and then the farmer is paid extra by Perdue over a three-year period to offset the loan amount.



Enrichments

Recognizing the role that enrichments play in increasing activity levels and providing opportunities for natural behaviors, Perdue funded two Master's degree programs, one at the University of Delaware and one at the University of California, Davis. Between 2017 and 2018, these students studied poultry house enrichments. One study evaluated two distinct perch designs and found that design and shape significantly impact utilization by chickens. Following that research, perches were incorporated into Perdue's Research farm for further study.

To further expand the use of enrichments on-farm, in 2018 Perdue created a contest for its farmers to design a new form of chicken enrichment that would encourage natural behaviors, enhance bird comfort, lead to better space utilization, and increase chickens' ability to cope with environmental challenges. Thirty-three farmers ended up participating, and the winner was announced at Perdue's 2019 Animal Care Summit. The Carpenter Bench, designed and built by the Carpenter family from Wadesboro, North Carolina, won the competition and the $5,000 first place prize. Approximately 20% of Perdue chickens are grown in enriched housing as of July 2018, and the first place (Carpenter Bench; Figure 2 on the following page) and second place (Chicken Tree; Figure 1) designs are being included in all chicken houses that add enrichments going forward.

PRODUCER HIGHLIGHT: PERDUE FARMS

Figure 1. Chicken Tree

Figure 2. Carpenter Bench

Activity

In 2016, Perdue set a goal to double bird activity over three years, recognizing that active chickens – those that can express natural behaviors, such as foraging, dustbathing, and play – are healthier.[cxi]

Perdue's first step in tackling this goal was establishing how to measure activity. Perdue worked with the University of Delaware to develop a process using ceiling-mounted Passive Infrared Detectors (PIDs) to track bird motion and activity. Once a benchmark for activity (eating, drinking, resting, and playing) was established, Perdue began exploring the effects that changes to lighting and enrichments have on acti ity levels.

Three years after beginning this work to investigate the impact of space, lighting, enrichment, and breed on activity, Perdue reported their findings. Perdue found that installing windows to provide natural light not only increases activity by 30% during daylight hours, but also encourages birds to rest during "lights-off" periods. Following its work on enrichments, Perdue found that enrichments increase activity by about 10% and that enrichments must be placed strategically to avoid clustering and limitations of movement. Lastly, providing more space increased activity by 30%. With this positive change, an additional 30% stands between current progress and Perdue's goal to double activity. Perdue reported in their 2019 Animal Care report that they will continue to study other factors that contribute to activity such as improved leg and/or overall health, management practices, and access to outdoors.[cxii]

PRODUCER HIGHLIGHT: PERDUE FARMS

Controlled Atmosphere Stunning (CAS)

Perdue began its journey towards implementing Controlled Atmosphere Stunning (CAS) in 2016, with a commitment to installing CAS at all Perdue harvest plants. In line with this commitment, Perdue's first controlled atmosphere stunning system was installed at their Milford, Delaware harvest plant in 2017 and operational by the end of the year.[cxiii] Since opening the Milford CAS plant, Perdue has observed significant advantages, such as:

- 100% of birds have been stun-killed and are insensitive to pain when they reach the harvest knife.
- Bruising associated with electrical stunning has been eliminated.
- The process is considerably easier and calmer for both the birds and employees.

In 2019, Perdue continues to work towards installing CAS across 100% of their business and is working on installing a second CAS system by summer of 2021.

Third Party Auditing

In 2018, Perdue began to develop a certification program that can be audited to verify that their chicken meets the standards outlined in the "Joint Animal Protection Organization Statement on Broiler Chicken Welfare Issues." This certification program, "The Perdue Better 4 Chickens Process Verified Program," was announced in 2019 and is expected to be launched within the year. Currently, Perdue is working with interested NGOs and third party auditing agencies to move this program forward.

PRODUCER HIGHLIGHT: PERDUE FARMS

Summary of Goals and Progress

	Goals	Progress to Date
Breed	Meeting customer demand for higher welfare breeds, in line with Joint Animal Protection Organization Statement on Broiler Welfare Issues.	Conducted pen trials with 11 breeds and measured variation in health, growth rate, activity, feed efficiency, meat quality, and other performance and welfare characteristics. Trials are currently underway to generate behavioral activity data. Data so far has shown that virtually all alternative breeds trialed are more active, use enrichments more, and have an increased tendency to use outdoor areas.
Stocking Density	Studying and implementing new space criteria to encourage activity.	Decreasing stocking density from an average of 7.06 pounds per sq ft to 6.85 pounds per sq ft. (Note: Perdue stocking densities vary across product lines and are not currently shared publicly).
Lighting	Evaluating and implementing a six-hour minimum 'lights off' resting period for all poultry and installing windows in all current and future broiler houses by 2021.	Windows installed in 48% of houses.
Enrichment	Studying and implementing the use of enrichments to encourage activity and other natural behaviors.	Perdue expects to be over 25% enriched in the coming year, and as houses add enrichments, they will be including the Carpenter Bench and the Chicken Tree.
CAS	Installing CAS at all harvesting plants.	CAS system operational in Milford, DE since Nov 2017. Second CAS system to be installed by summer of 2021. With this 2nd system Perdue will have CAS for approximately 25% of its chickens.
Third Party Auditing	Developing a process/certification to ensure and communicate that higher welfare criteria are verified by a third party.	Developed the Perdue Better 4 Chickens Process Verified Program, which will create an avenue for third party certification of production standards in line with the Joint Animal Protection Organization Statement.
Transparency and Reporting	Publishing annual animal care reports and host annual Animal Care Summit to provide updates to valued stakeholders.	Published Animal Care Reports in 2016, 2017, 2018, and 2019; and hosted Animal Care Summits in 2017, 2018, and 2019.

CONSIDERATIONS FOR SCALING SUPPLY TO MEET DEMAND

Perdue and Wayne Farms' investments in higher welfare broiler production are critically important to setting the industry on a path to meet 2024 commitments. However, work to date only represents the first step. There needs to be significantly expanded investment and sufficiently allotted time to expand the physical infrastructure and supporting knowledge to enable higher welfare production at the scale needed to meet all company commitments. A better understanding of timelines and resources needed should enable food companies to have more detailed conversations with suppliers and create a supply chain transition plan, as well as enable companies to begin incrementally buying into improvements.

Below, we take a closer look at timelines and considerations across different production elements to better inform company supply chain roadmapping. While the table below is intended as a reference point, it is important to recognize that timelines can vary widely depending on external factors, such as the availability of local construction crews. Thus, sequencing scale up with sufficient buffer time – and accounting for a significant influx in demand as we approach 2024, which may result in production bottlenecks – is critical to ensure transition timelines can be met.

	Retrofitting	New
Housing		
Upgraded housing is needed to accommodate enrichments such as natural light, as well as the expanded physical footprint required by decreased stocking density (assuming production levels remain constant or grow). Timelines for retrofitting existing houses and building new houses are largely dependent on the availability of local labor and weather. As such, while making specific changes like installing windows may only take a week, retrofitting a house could take up to five months. For a new house, construction could take up to a year, from groundbreaking to completion.	**1-5 months**	**6-12 months**
Enrichments	Building, Installing, Training, Building Farmer Buy-In	
Building and installing enrichments is only one factor in ensuring they contribute to higher welfare outcomes; training farmers and fostering their buy-in is critical and will likely take a couple years.	**Over 12 months**	
CAS	Retrofitting	New
A CAS facility can be retrofitted into an existing processing facility or built alongside a new one; in either case, it will take roughly a year to install a CAS system, and could take significantly longer due to production delays by manufacturers or location-specific build delays. If a producer is procuring CAS systems for the first time, additional time will be required to evaluate manufacturers and specific models.	**1 Year**	**1 Year**
Product Rollout	Product Development, Packaging, Marketing	
Rollout timelines can vary significantly, depending on the product itself and company strategy, but it is unlikely to take less than three months and could take up to a year or more.	**3-12 months**	

Note: Given the ongoing breed research at the University of Guelph, we have not included breed in this analysis; however, we recognize that scale up of higher welfare breeds could take multiple years and plan to focus more on these considerations in the 2020 ChickenTrack report.

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