

THE  
**PEW**  
CHARITABLE TRUSTS

# THE BUSINESS OF BROILERS

Hidden Costs of Putting a Chicken on Every Grill



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## About the report

This report draws on information and data from a wide range of technical and trade publications, federal and state government reports, peer-reviewed journals, news stories, and interviews with or correspondence from poultry growers. The research team accessed material written by economists and agricultural experts, anthropologists, historians, sociologists, journalists, attorneys, environmental policy analysts, and business experts. The listed citations represent a fraction of the material that was reviewed and considered in preparation of the report. For the reader who is interested in learning more about the topic, these citations will open the door to a wealth of additional information written over a long period of time documenting the evolution of our current poultry-growing system.

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# OVERVIEW

From chicken breeding to grocery store packaging, the 21st-century broiler chicken business is possibly the most industrialized sector in livestock agriculture. The industry is dominated by a handful of large corporations that own the birds, feed mills, cooking operations, and transportation networks. These corporations do not, however, raise the chickens. Virtually all of America's broiler chickens are raised by "growers"—individual farmers who operate under contracts with the large processing companies.

From one perspective, the system is astoundingly efficient, catapulting U.S. chicken consumption well over that of beef and pork. Factory-style production allows consumers to spend their food dollars on what appears to be an inexpensive meat that has been sliced, diced, deboned, and often cooked for them. But, in reality, this system is costly—for the environment, for many communities where chickens are raised for industrial production, and sometimes for chicken growers themselves. It puts many communities' water supplies at risk and places the burden for waste management on the contract growers. And when waste management practices fail, the cost of cleaning up polluted waterways falls on the public.

In its 2011 report "Big Chicken: Pollution and Industrial Poultry Production in America," The Pew Charitable Trusts examined 50 years of data to take a fresh look at industrial poultry production and to make policy recommendations for managing chicken waste to mitigate its toll on land and water. In this report, we take a closer look at this highly integrated contract production system, which in many respects is unique to this industry, and what it means for the environment

and the growers who raise America's broiler chickens. Among our findings:

- Large processing plants benefit from nearby large-scale growing operations but in doing so force regional concentration and density of broiler waste production. This density makes sound management of that waste increasingly difficult due to its volume and, in many cases, has led to contamination of local streams and lakes. Protecting water resources from poultry waste requires a wider look at the cumulative impacts of processing plants and all their associated chicken-growing operations.
- Few growers are able to make a living solely from the broiler business. A 2001 study by the National Contract Poultry Growers Association and the U.S. Department of Agriculture revealed that 71 percent of growers whose sole source of income was chicken farming were living below the poverty line. They may not make enough money to pay for proper waste management, and poultry processing companies are often not held legally responsible for cleaning up. Proper waste management will require increased accountability from processing companies and a reasonable level of financial, technical, and other support for growers.
- Poultry processors contract with individual farmers to tend company-owned birds according to very detailed specifications and directions. Each company has unique and frequently changing requirements for barn size, ventilation, watering systems, and other equipment but obligates growers to pay for these costly fixed assets. Under this system, even highly capable and environmentally responsible growers

can be constrained by heavy debt. Poultry production that protects the environment must provide growers with opportunities and resources for innovation and proper management.

In this report, we also provide recommendations for correcting some of the most persistent problems associated with contract poultry production. These proposed reforms, which are detailed at the end of this report, are:

- Poultry processing companies should share responsibility for the waste products that are generated by poultry processing.
- The cumulative environmental effect of concentrating poultry production within a limited geographic area should be considered when siting or enlarging processing plants.

- Regulation should improve oversight of the contract system of poultry production to ensure that poultry growers are able to make well-informed decisions that protect the environment and public health.

These reforms will not come easily, but if adopted, they can help to create a more sustainable future for an American food staple.

# THE BUSINESS OF BROILERS

## Changing chicken, changing tastes

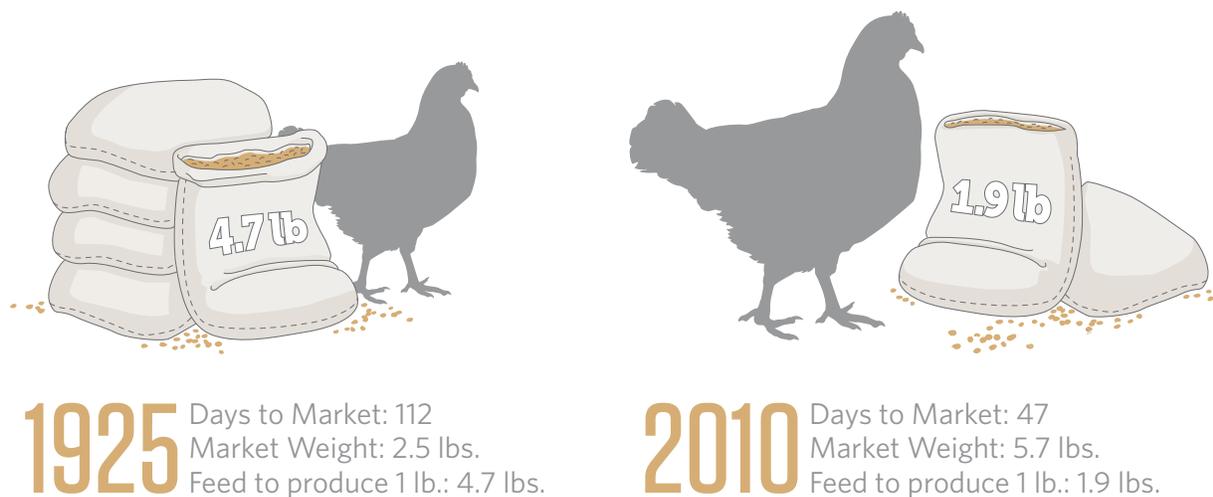
Chickens have changed America—and America has changed chickens. Over roughly 50 years, the chicken business has profoundly altered how many farmers earn their livelihoods and how livestock agriculture affects rural communities and the natural resources we all share. To understand these changes, let's start with the chicken itself.

Long before chicken became an American favorite, meat chickens were a sideline agricultural product, secondary to egg production. The meat birds of the early 20th century were tough and unpalatable,<sup>1</sup> and they weren't

easy to prepare. Over time, however, spring chickens replaced old, spent laying hens on the dinner plate, and chicken became a luxury item. By the late 1940s, Americans had begun to show an appetite for chicken, and researchers were aiming for a bigger, meatier bird that would consume less feed and grow quickly.<sup>2</sup>

In 1925, it took 112 days to grow a 2.5-pound chicken. By 1950, that time had been cut to 70 days, with weight coming in at just over 3 pounds. In 2010, a broiler weighing 5.7 pounds could be produced in just 47 days.<sup>3</sup> In addition, as broilers were brought to market more quickly, the amount of feed consumed by these fast-growing birds dropped dramatically.<sup>4</sup> (See Figure 1.)

**Figure 1: Bigger Birds Eating Less<sup>5</sup>**  
U.S. broiler size and feed consumption, 1925-2010



Source: National Chicken Council  
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## THE DANGERS OF ANTIBIOTICS

In 1976, microbiologist Stuart Levy conducted a study on a chicken farm in Massachusetts. He added an antibiotic—tetracycline—to the animals' feed and monitored the bacteria in the birds and their farmers.<sup>6</sup> Within two weeks, virtually all of the bacteria in 90 percent of the chickens were resistant to the drug. About five months later, resistant bacteria had migrated in significant numbers to the farmers. The study provided direct evidence that feeding antibiotics to food animals breeds resistant bacteria that end up in people, especially those in direct contact with the livestock.

Subsequent scientific research consistently reinforces these initial findings,<sup>7</sup> yet U.S. chicken-processing companies use antibiotics in even greater quantities than when Levy first did his research. Processing companies require chicken growers to use designated feed premixed with antibiotics in the same way that restaurant franchise chains require franchisees to buy and serve food from a designated menu.

These antibiotics are used most often not to treat sick animals, but to make healthy ones grow faster and to compensate for overcrowded and unsanitary conditions. Federal regulators and the food and drug industries do not report the amount of antibiotics used in poultry production. The U.S. Food and Drug Administration, however, reports antibiotic sales figures for food animal production overall. According to the agency's report, drugmakers in 2011 sold 29.9 million pounds of antibiotics for use on industrial farms—the highest amount ever reported and four times the amount sold to treat sick people.<sup>8</sup> In a 2009 report, FDA disclosed that about 90 percent of all antibiotics were sold for use in food animals' feed and water.<sup>9</sup>

The United States leads the way in global antibiotic consumption by animals. Industrial farms in the United States use about 300 milligrams of antibiotics to produce each kilogram (2.2 pounds) of meat, which is about six times more than the per-kilogram rate reported in Denmark, the world's leading pork exporter.<sup>10</sup>

The FDA, USDA, and Centers for Disease Control and Prevention stated in 2010 testimony before Congress that the agencies recognized a definitive link between the use of antibiotics in food animal production and antibiotic-resistant infections in people.<sup>11</sup> In addition, the American Medical Association, the American Academy of Pediatrics, the Infectious Diseases Society of America, and many other leading medical and scientific organizations sent a joint letter to Congress that concluded, "The evidence is so strong of a link between misuse of antibiotics in food animals and human antibiotic resistance that FDA and Congress should be acting much more boldly and urgently to protect these vital drugs for human illness. ... Overuse and misuse of important antibiotics in food animals must end in order to protect human health."<sup>12</sup>

Because they are in daily, direct contact with food animals, independent poultry growers are at heightened risk of contracting antibiotic-resistant infections compared with the general population. According to one study, poultry workers were significantly more likely than others in nearby communities to carry multidrug-resistant *E. coli*.<sup>13</sup> Yet despite this risk, independent growers continue to feed these drugs routinely to animals as required by large processors, providing more evidence of the dominant position that these companies command in chicken production.

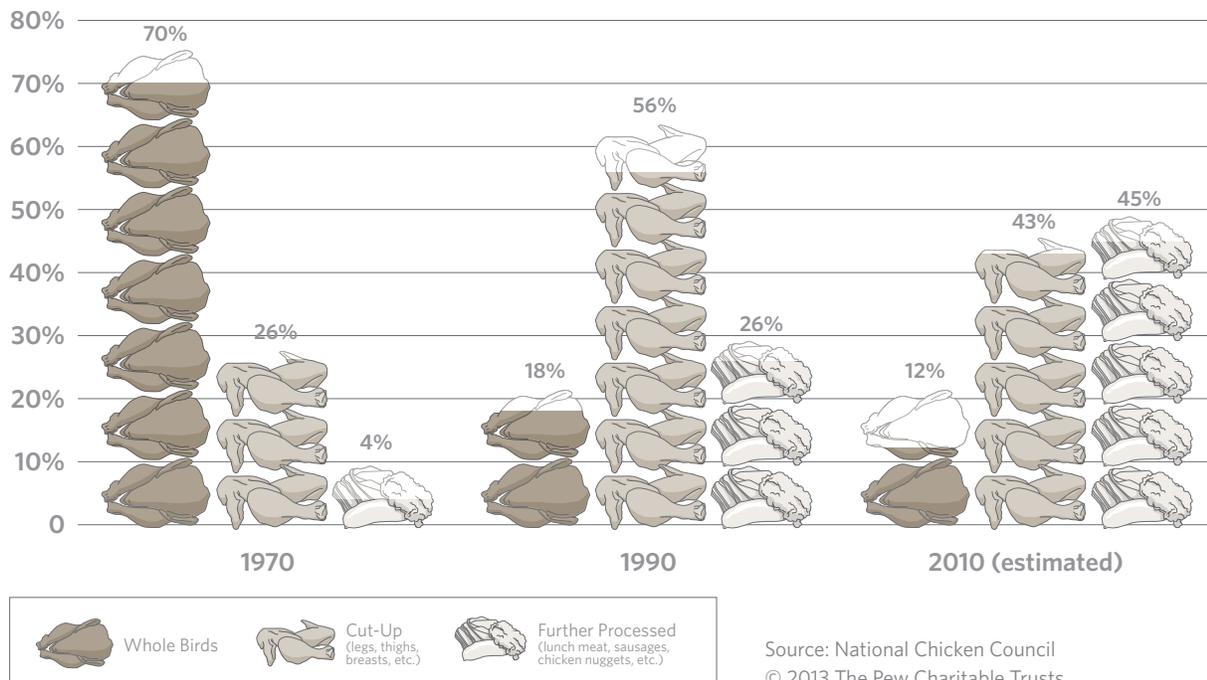
Some growing success has been a matter of genetic selection, and some has been a matter of chemistry. For instance, early attempts to bring chickens inside, and thereby stretch the season for chicken meat, failed until vitamin D was added to feed to offset the loss of barnyard sunshine.<sup>14</sup> Closer quarters, however, induced new side effects related to the stress of crowding and unsanitary conditions.

In response, in the 1940s, researchers found that these problems could be overcome with routine antibiotic use.<sup>15</sup> These practices have now become widespread, despite broad consensus within the medical and scientific communities that the use of antibiotics to produce meat and poultry breeds drug-resistant bacteria that infect people, making human diseases more difficult and costly to cure and more likely to cause death (See “The dangers of antibiotics,” preceding page.)

In other ways, the chicken remains true to its basic nature. The birds can suffer in cold weather or heat extremes, and they require plenty of water. Though today’s broilers consume less, feed still accounts for an estimated 40 to 70 percent of the costs of raising a chicken, according to industry and government sources.<sup>16</sup>

As chickens have changed, so have the tastes of Americans. Consumers are eating more chicken today than in past decades, but cooking far fewer whole birds at home. They have demonstrated a willingness to pay premiums for convenience, so the price of deboned and skinned chicken breasts or other specialty products can make up for the lower price of less desirable parts, which in many cases can be exported. “By adding cut-up and processing lines to the end of existing slaughter lines,” explains USDA, “poultry plants were able to increase net revenues” selling to segmented markets.<sup>17</sup> (See Figure 2.)

**Figure 2: Changing Preferences for Chicken<sup>18</sup>**  
Percentage of broiler sales by type



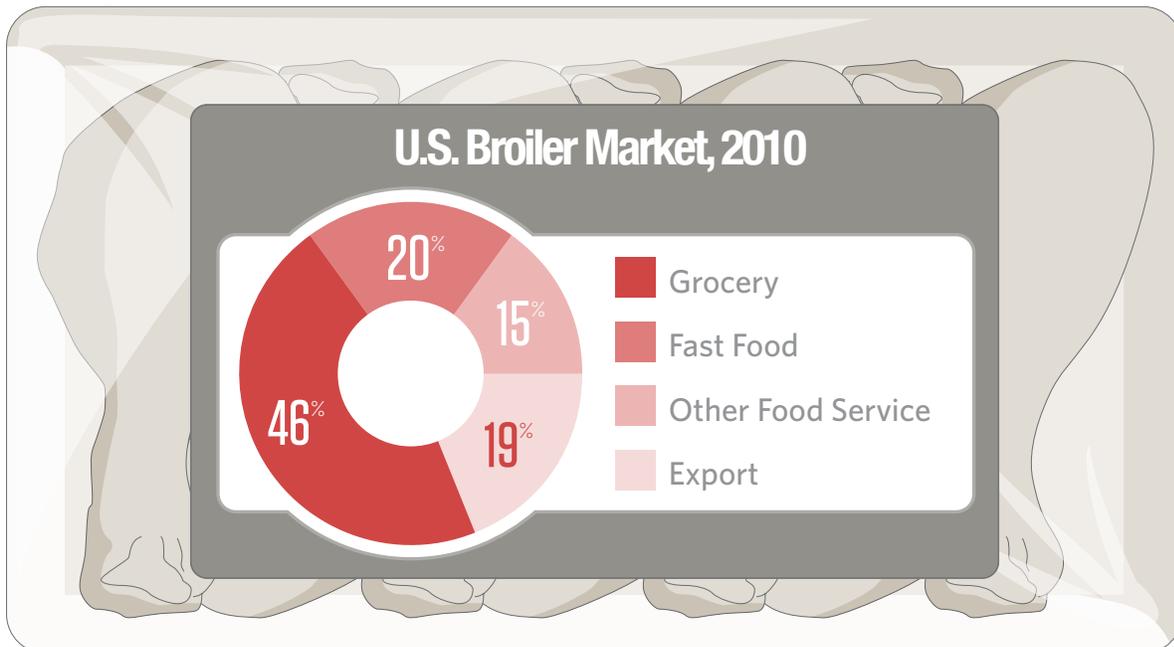
Source: National Chicken Council  
© 2013 The Pew Charitable Trusts

Today, the details on a poultry processor's balance sheet can include different per-pound prices for wings, backs, breasts, or specialty products, as well as income from exports of chicken "paws" (feet)<sup>19</sup> or from pet foods made out of chicken meal and poultry fat.<sup>20</sup>

According to USDA statistics, over 19 percent of U.S. broiler production in 2012 was exported,<sup>21</sup> with most of it headed to Mexico, Hong Kong, Russia, and China.<sup>22</sup> For the production sold in the United States, data from the broiler industry indicate that over half went to retail grocery stores and the remainder to "food service,"<sup>23</sup> a category that includes fast-food and full-service restaurants as well as food buyers in schools, hotels, recreational facilities, and other institutions.<sup>24</sup> (See Figure 3.)

The popularity of chicken in its many forms fueled production, and in 2010 USDA reported that the per capita supply of chicken in the United States exceeded that of beef for the first time.<sup>26</sup> Despite demand, however, chicken remains a low-margin commodity, with prices staying low, particularly in comparison with other meats. Processors, then, aim for volume sales, but they can themselves feel the squeeze of big-volume buyers that demand low prices. Within this enormous and seemingly still-growing marketplace, those who actually grow the chickens may serve as the supply chain's "shock absorber," forced to accommodate the unrelenting pressure to increase production while lowering costs.

**Figure 3: Chicken Destinations<sup>25</sup>**  
U.S. broiler market distribution by sector, 2010

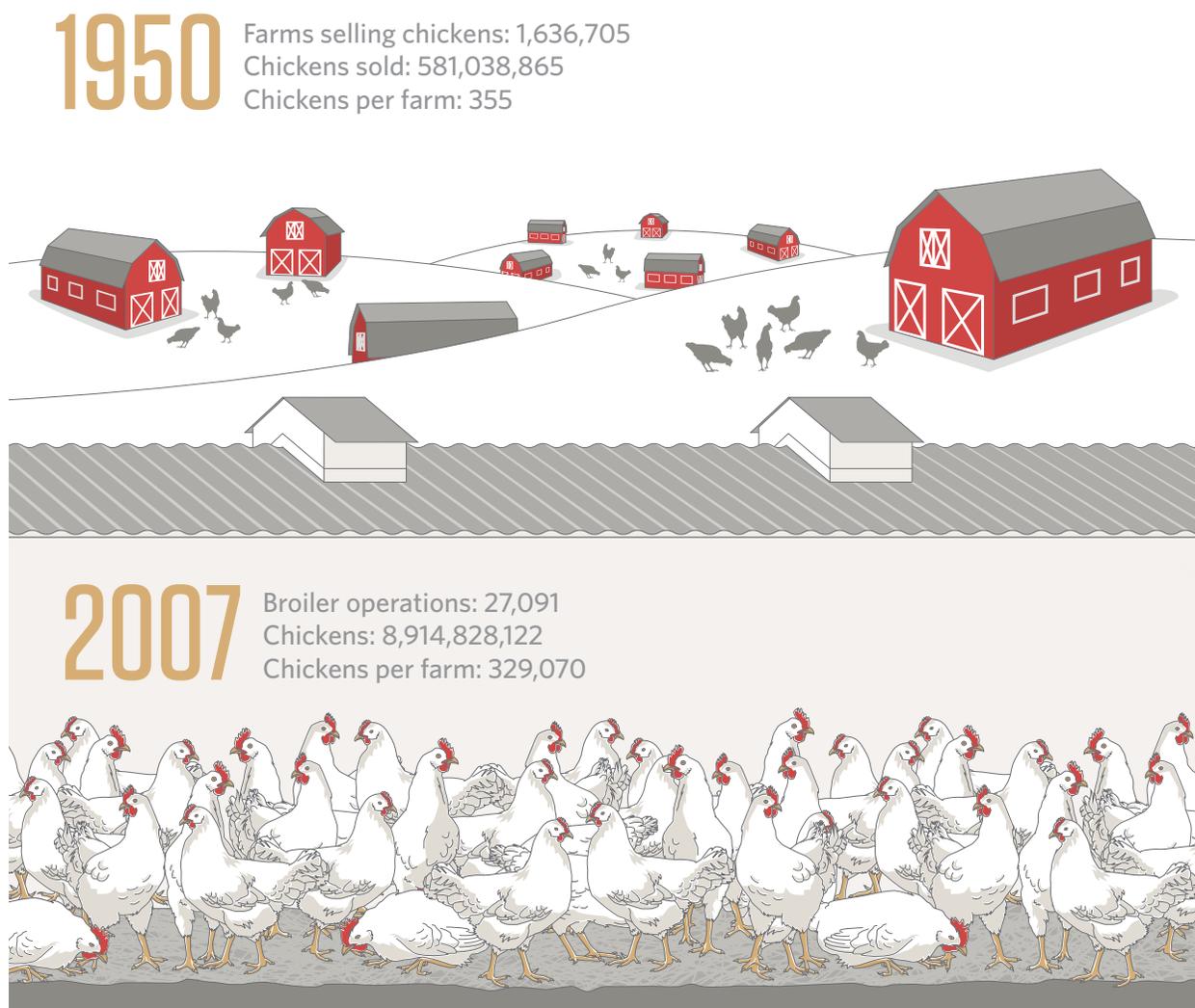


## Fewer farmers, bigger flocks, and bigger boardrooms

In 1950, the chickens that Americans ate came from more than 1.5 million farms across the country.<sup>27</sup> But as broiler production became more technologically advanced, the

number of growers who were able to stay in the business declined dramatically.<sup>28</sup> Farms with small and midsize flocks began disappearing from the American landscape. In their place, a new form of poultry farming took over—not necessarily larger when measured in acres, but dramatically larger in flock size. (See Figure 4.)

Figure 4: The History of Broiler Production on U.S. Farms<sup>29</sup>



Source: USDA, National Agricultural Statistics Service  
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Between 1950 and 2007, the last year for which complete agricultural census data are available, the number of farms producing chickens for meat dropped by 98 percent, even as Americans were consuming far more chicken—in excess of 85 pounds per person per year, according to USDA.<sup>30</sup> That increased volume of nearly 37 billion pounds of federally inspected meat<sup>31</sup> came from fewer than 28,000 farms in 2007.<sup>32</sup> Today, only a small number of commercial broiler-growing operations produce less than 100,000 broilers in a year, and most broilers come from operations that produce more than half a million birds annually.<sup>33</sup> These large facilities, in turn, supply larger and larger processing plants.<sup>34</sup> (See Figure 4.)

Though still promoted by the industry as “family farming” (and in many cases still regulated accordingly), broiler production is now a thoroughly industrial process. Not only are fewer farmers growing more chickens, but the majority of those that remain no longer function as independent entrepreneurs connected to a network of other small enterprises serving local markets. The remaining farmers operate in a big business structure more akin to assembly line manufacturing than traditional farming.

## The broiler business today

The broiler business that has evolved over the past few decades is characterized by:

- Vertical integration and horizontal consolidation—the corporate control or ownership of multiple aspects of the chicken production business and the market dominance by a handful of companies.
- Contract production in which farmers do not own the animals they grow but are paid for their labor and the use of their farms under a system unique to this industry.
- Regionalization of poultry processing and, in some cases, the creation of regionally concentrated markets controlled by one or a few larger buyers that are able to drive down prices paid to growers.

The following sections of the report will examine each of these aspects of the broiler business in turn.

# GROWING CHICKENS VERTICALLY, EXPANDING HORIZONTALLY

Vertical integration is a long-used business strategy under which a single company owns or controls various aspects of its supply chain. The approach can derive from a desire to control the costs or quality of inputs or to better manage distribution and sales. One of the more famous vertically integrated companies of the 19th century, Carnegie Steel Co., controlled not only the steel mills, but also coal and iron ore deposits as well as shipping and rail assets. Henry Ford established the same kind of vertical integration in the car industry in the 20th century, with Ford Motor Co.'s investments in glassworks, sawmills, and rubber plantations.

For chicken, the first steps toward what is now an extensive degree of vertical integration occurred in the 1930s, pioneered in part by feed mill owners who wanted farmers to keep buying their grain and also by those who transported farm products from rural areas to big city markets.<sup>35</sup> Tyson Foods Inc. is an example of vertical and horizontal integration in the industry.

In the 1930s, John Tyson, a trucker from Arkansas, decided to carry chickens along with his standard load of goods to the Kansas City area. Worried about shortages in inventory that would make his trucking runs less profitable, he eventually bought a small hatchery

and later built a feed mill.<sup>36</sup> Today, the company that Tyson started is, like other poultry companies, vertically integrated across the full spectrum of broiler production, with its own major subsidiary specialized in breeding, 36 hatcheries, 30 feed mills, 33 slaughter plants, another 22 plants that carry out additional preparation or cooking, and thousands of trucks and trailers.<sup>37</sup>

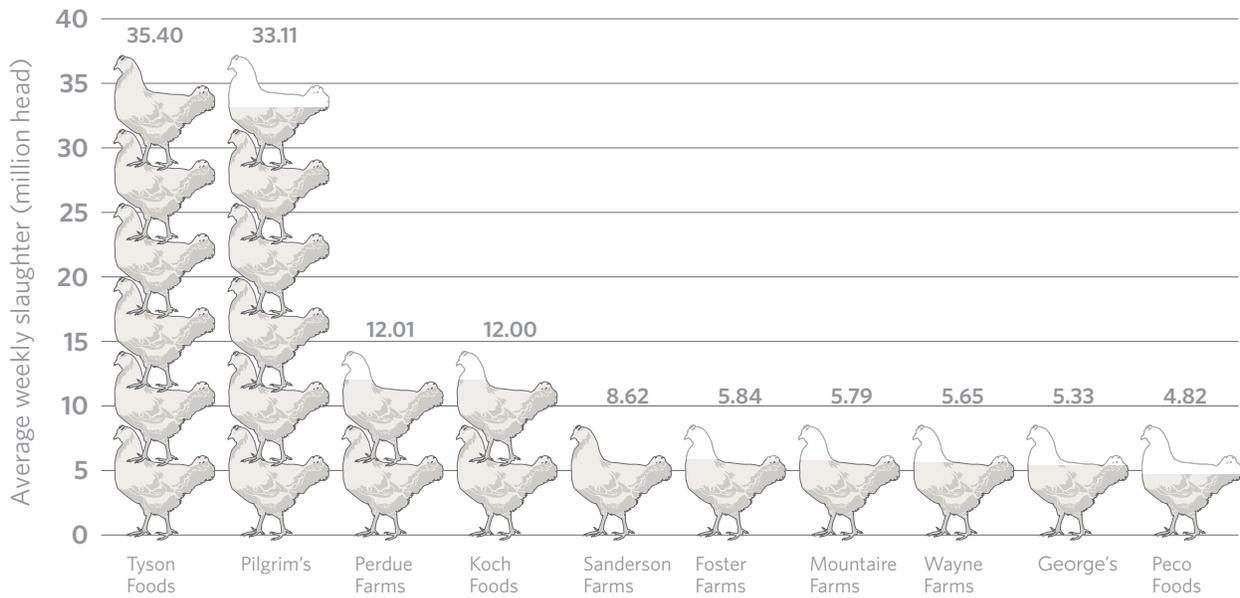
Though Tyson Foods stands out as the largest poultry production company in the United States today, its model is typical of the larger poultry integrators, who generally control their own breeding and hatchery operations, feed supply, veterinary services, distribution centers, transport fleets, and slaughtering plants. Broiler companies may also have processing plants that perform tasks such as deboning, slicing, and cooking, and marketing divisions that brand and sell to grocery stores, restaurants, institutions, and other retail outlets.

Corporate growth and consolidation closely followed the industry's vertical integration. For a time, budding integrators competed with specialized mom-and-pop chicken operations,<sup>39</sup> and farmers who wanted to grow birds under contract could consider options from multiple companies. By 1963, large winners were emerging, but the top four broiler firms still controlled

less than 15 percent of chicken sales.<sup>40</sup> In the years that followed, companies began to grow larger, and by the 1970s and 1980s, a frenzy of consolidation had occurred. The ranks of the integrators have continued to shrink over the years, allowing fewer and fewer companies to

control a larger share of the meat chicken market. Today, roughly 40 firms are involved in producing the vast majority of chicken, but a handful of these dominate the market.<sup>41</sup> (See Figure 5.)

Figure 5: Top 10 Broiler Producers in the U.S., 2012, in Millions<sup>38</sup>



Source: Gary Thornton in *Watt Poultry USA*  
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# CONTRACT PRODUCTION AND REGIONALIZATION

Because a processed chicken can be transported great distances but a live chicken does not travel well, a grower can generally hope to do business only with a processor relatively close to his or her farm. Writing on the chicken industry in 1992, *The Wall Street Journal* reported that the United States had already been “carved up into regional buying monopolies, where each region’s dominant processor can dictate terms.”<sup>42</sup> More recent reports from USDA noted that today’s broiler growers are “likely to have only one or two integrators” that they can do business with.<sup>43</sup> This regional concentration reduces competition for growers and has a direct impact on the fees paid to them.<sup>44</sup>

Some growers report that a single company is their only option for a growing contract even in regions with multiple processing plants. “I should be able to grow for any company whose terms I agree to,” says one Mississippi grower, “but with the way it is set up, I don’t have anywhere to run to.” This grower speaks of making an inquiry with a company only to be told that “the companies had an agreement among each other to not take each other’s growers.”<sup>45</sup>

Policymakers have long recognized that livestock markets are particularly vulnerable to price manipulation. The 1921 Packers and Stockyards Act was enacted to curtail unfair, fraudulent, or deceptive practices by meatpackers and processors. Nearly 70 years later, the law was amended to cover contracts between poultry processors and contract growers,<sup>46</sup> but enforcement of the law and its relevance to the rapidly changing meat industry is still a source of concern for

farmers and generates vigorous, ongoing debate among policymakers.

Early in 2010, the USDA and the Justice Department initiated an unprecedented series of joint public workshops around the country to investigate the state of competition in agriculture markets.<sup>47</sup> Hundreds of independent livestock producers attended the workshops, and many testified that it is increasingly difficult to survive economically. They urged the USDA’s Grain Inspection, Packers and Stockyards Administration, or GIPSA, to better regulate large agribusiness.

In 2010, GIPSA proposed rules intended to protect independent farmers and help reduce the power of consolidated meatpackers,<sup>48</sup> but it did not address critical concerns regarding the inability of poultry growers to negotiate with different integrators in a production region. For more on the proposal and related action, see “The grower’s world,” page 16.

## Heading south, where are all these chickens coming from?

There was a time when Delaware, along with neighboring Maryland and Virginia, ruled the roost in terms of broiler production. The Delmarva peninsula had developed its own poultry-growing industry and enjoyed good access to northern markets, particularly New York City. Small operations across the country still grew birds for local markets, but Delaware had become the undisputed capital of large-scale broiler production.

The state's prominence changed with World War II, however, when poultry plants in the area were enlisted to produce food for the troops. Because pork and beef were rationed and Delmarva's poultry operations were temporarily out of the civilian market, entrepreneurs in other parts of the country saw an opening. Southern firms filled the market void,<sup>49</sup> and a new regional identity for the industry was established. (See Figure 6.)

As reported in Pew's "Big Chicken" report, broilers are still a big business in Delmarva, but today's "Broiler Belt" is largely southern, encompassing portions of Texas and running from eastern Oklahoma and Arkansas through Alabama and Georgia, and north toward Delaware. In 2011, according to USDA survey data, five southern states produced almost 60 percent of all U.S. broilers.<sup>51</sup> Within those states, production was further concentrated into more localized "dense networks."<sup>52</sup>

As agricultural historians and anthropologists attempt to explain how a business so heavily reliant on feed grains took hold in a feed-poor area of the country, they look not only at the biology of the chicken, which fares poorly in colder weather, but also at the demographics and economic history of the South.<sup>53</sup> According to one historian, chicken "seemed ideally suited to replace the small-scale cotton agriculture that was dying out in the post-war South."<sup>54</sup> Contract growing was readily accepted, in part because farmers, feed dealers, and local merchants had grown accustomed to sharecropping and credit arrangements for agricultural production. Subsistence and small-scale farmers whose land was not fertile enough for other production were happy to have the opportunity to grow a cash crop.

In addition, at a time when manufacturing workers were increasingly unionized, processors in the southern states were able to find an ample supply of nonunion, lower-wage workers to take on the difficult jobs at the processing facilities.<sup>55</sup>

Figure 6: 2012 Broiler Production, in Millions<sup>50</sup>



Source: USDA, National Agricultural Statistics Service  
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## Making the cut

As the chicken business has grown, so too has the central component of production: the processing plant. Over the years, as Americans ate more and more chicken and small poultry farms disappeared, the number of processing plants remained relatively stable.<sup>56</sup> The plants themselves grew larger, however, and became more sophisticated, adding further processing operations to deliver increasingly popular cutlets, nuggets, and other precooked products.

A number of factors have allowed larger plants to achieve lower per-pound production costs. As the birds themselves became bigger and more uniform, some cutting operations could be handled by machines and unskilled labor rather than workers with expertise in butchering.<sup>57</sup> As a result, regions where large plants located or expanded may have experienced an increase in job growth without wage growth.<sup>58</sup> Over time, the speeds of processing lines within the plants increased along with meat yields, and large plants had a distinct economic advantage.

These economies of scale have helped to drive the increasing size of individual plants and put economic pressure on smaller facilities. As with the farms themselves, the lion's share of production now comes from the largest facilities. USDA analysis of processing plant data, for example, shows that the market share for large chicken plants—those with over 400 employees—ballooned from less than a third to about 88 percent of sales between 1967 and 1992.<sup>59</sup> The drive for larger facility sizes to reduce unit costs means that “the smallest plants have been losing a lot of jobs, with negative job growth rates throughout the past 30 years—in both urban and rural places,” according to a report by researchers at the Federal Reserve Bank of Kansas City.<sup>60</sup>

USDA analysts also note that there is a “complementary relationship” between the large-scale processing plants

and the overall structure of the industry. “Larger, more automated processing plants must obtain large and steady flows of uniform animal and bird types if they are to realize any potential scale economies,” concludes USDA.<sup>61</sup> Measuring by chickens rather than employees, the University of Georgia estimates that a modern processing plant slaughters more than 200,000 birds per day.<sup>62</sup> Overall, the size and speed of today's processing operations require roughly 1.1 billion chickens in the field at all times.<sup>63</sup>

This steady flow of predictable inputs is made possible by the tight coordination of vertical integration and the contracting mechanisms that allow processing companies to place specific types and numbers of birds into grow-out operations with contracted chicken growers on six- to seven-week cycles. Large processing plants both benefit from and further encourage large-scale growing operations, but as noted earlier, they also force further regional concentration and density of broiler operations, with resulting consequences on the environment and the local rural communities.

Unlike cattle or pigs, live chickens do not travel well. Broilers transported long distances can lose weight or die from stress, so processing companies generally prefer to ensure that chickens are grown in close proximity to their plants.<sup>64</sup> The “catchment area,” as it is called, is ideally within a 20- to 25-mile radius of a poultry complex that includes a processing plant and feed mill. In some instances, this area may extend to 75 miles.<sup>65</sup> These boundaries imposed on chicken production by the location and size of processing plants result in highly concentrated regions of broiler production. Although they have important implications for environmental management and for the farmers growing the chickens, these catchment areas are not subjected to a broad federal or state review based on their cumulative impacts on a region.

## Financing chicken growing

Much of this growth would not have been possible if the industry had not created a model of production that is sustained by significant taxpayer subsidies at almost every stage. Some of these subsidies are in the form of direct grants or expenditures, among them:

- Federal tax dollars support guaranteed loans for growers to build chicken barns to company specifications,<sup>66</sup> while both USDA and Environmental Protection Agency, or EPA, funding helps to construct manure storage facilities.<sup>67</sup>
- Federal and state bailouts support the poultry industry when consumer demand lags or when poultry companies falter and processors go bankrupt.<sup>68</sup>

Others taxpayer-financed subsidies consist of “externalities” that result in ongoing costs to society, among them:

- Federal and state governments use taxpayer dollars to clean up polluted and damaged bodies of water.<sup>69</sup>

- State and local governments provide tax incentives to lure meat-processing plants to their jurisdictions on the promise of job growth,<sup>70</sup> despite data showing that these are largely low-wage,<sup>71</sup> high-turnover<sup>72</sup> jobs.
- Taxpayers and families across the country subsidize increased health care costs treating antibiotic-resistant diseases resulting from the long-term misuse of antibiotics in animal feed.<sup>73</sup>

Finally, the demise of the live chicken market—and the shift to the integrated poultry production model with processors owning the birds but contracting with “independent” farmers to grow them—allows processing companies to maximize profits by passing on the costs of constructing barns, equipment upgrades, and manure management to farmers.<sup>74</sup> As the accompanying sidebar and the next section of this report detail, there can be considerable public costs associated with this kind of contract farming.

# NASH COUNTY, NC, TAKES A BROADER LOOK AT CHICKEN FARMING

In 2010, when Sanderson Farms Inc. proposed a large chicken-processing plant in Nash County, NC,<sup>75</sup> a typical, fairly narrow environmental analysis might have followed, looking specifically at the plant's wastewater management but not looking beyond the plant itself to consider management of poultry manure. In this case, however, a neighboring community, joined by major businesses,<sup>76</sup> the city of Raleigh,<sup>77</sup> and the North Carolina Division of Water Quality,<sup>78</sup> pressed for a broader, more comprehensive review to examine what the state called "secondary and cumulative impacts" of the new processing plant.

The result: Mississippi-based Sanderson Farms eventually withdrew plans for the project, but not before a preliminary analysis revealed the secondary effects of a large processing plant operating within the area. Saying yes to the plant would have meant saying yes to roughly 500 chicken houses and the more than 125,000 tons of waste the chickens would have generated each year.<sup>79</sup>

Wilson, NC, located roughly 50 miles east of Raleigh in the state's verdant Piedmont region, provides water to residents and businesses with multiple reservoirs, and its residents understand firsthand the difficulties that excess nutrients and organic matter can pose. Coping with periodic algae problems and excess nutrients entering the water, the city has been unable to use one reservoir during summer months and must, on occasion, resort to costly chemical additions to meet drinking water standards.<sup>80</sup> Schooled by that experience, city officials insisted on examining not just Sanderson's plans to apply treated processing

plant wastewater to local land, but also the waste management for associated grower facilities.

According to information provided to Nash County by Sanderson Farms, the plant complex would have required 496 broiler grow-out houses, 48 breeder houses, and 24 pullet (breeder starter) houses within a 75-mile radius.<sup>81</sup> An analysis of that complex by an engineering firm with expertise in drinking water protection<sup>82</sup> warned the city to expect a significant amount of excess nutrients to run off the land into waterways, enter the groundwater, or be re-deposited into streams and reservoirs from atmospheric losses. The estimated nitrogen loading from the dry chicken litter might, in fact, exceed the total releases of 22 facilities discharging more than 100 million gallons of wastewater into the Neuse River watershed in 2010.<sup>83</sup>

"Wilson's water supply is already challenged," concluded the analysis, and increased levels of nutrients from the processing plant and the poultry litter would only increase those problems.<sup>84</sup>

The analysis noted that studies by USDA and North Carolina State University had found more manure nutrients being generated in Nash and Wilson counties than local crops could assimilate, adding that "state and federal regulations and management programs are not in place to mitigate these multiple risks." After the City of Wilson continued its pressure for a more comprehensive analysis and committed to spending up to \$1 million, if necessary, to protect the city water supply from pollution,<sup>85</sup> Sanderson instead decided to construct the facility in Texas.<sup>86</sup>

# THE GROWER'S WORLD

## Contract farming

Today, says USDA, nearly all chickens produced in the United States are grown under contract.<sup>87</sup> It is a system developed by processors to benefit processors, originally unique to poultry but now being used as a model for hog production as well.

There was a time when these poultry contracts were generally perceived as a win for all involved. Early on, the “contract,” which may have been secured by a handshake, generally left decisions about chicken rearing to the discretion of the individual farmer.<sup>88</sup> The company kept selling feed or kept the lines at the slaughter plant running without supply disruptions, and the farmer had something of a cushion from price swings in the marketplace. Some growers are still enthusiastic about the contract system, but many others have soured on the 21st century version.

In certain respects, it is difficult to describe today's broiler contracts precisely because confidentiality clauses were, at least for a time, common in modern-era contracts. A representative of the American Farm Bureau noted in 2003 that some contracts prohibited the grower from even acknowledging the fact of a contract with the company,<sup>89</sup> and some growers report not receiving copies of contract documents prior to signing or taking out loans.<sup>90</sup> It was not until 2009 that USDA issued rules that spelled out that growers must receive written contracts and that they have the right to discuss contract terms with financial and legal

advisers, business associates, direct family members, and representatives of a federal or state agency.<sup>91</sup>

Despite the obstacles, USDA, academic researchers, agricultural association representatives, and others have reported on contract terms, some shared by growers or integrators themselves and some discussed in farmer surveys.<sup>92</sup> Those studies confirm that a number of contract terms and arrangements are widespread, if not universal, throughout the industry. They include:

- Integrator ownership of birds.
- Requirements for growers to build growing facilities to integrator specifications.
- Integrator provision of feed.
- Pay scale based on production efficiency measured against a subset of other growers.
- Grower responsibility for waste management and disposal.
- Requirements for growers to follow the management direction of integrator field supervisors.
- Varying or unspecified lengths of contracts.
- Termination provisions allowing the integrator wide discretion to cancel the contract at any time.

Most contracts also stipulate that the grower is an independent contractor, not an employee. Some integrators note that contract production helps to insulate farmers—who don't actually buy and sell the birds—from the financial ups and downs of the market.<sup>93</sup> Others, including Joseph Miller, a former

American Farm Bureau Federation representative, note the downsides of the arrangement. Contracting, writes Miller, “relieves the company of paying employment taxes, social security, insurance and other benefits.”<sup>94</sup> The contracting approach can put the grower in the position of trading short-term market certainty for the long-term risk of contract termination.<sup>95</sup>

Many contracts are characterized by what they lack. Few specify the number, size, or specific type of flocks that will be delivered to the grower. Nor do they specify how frequently flocks will be delivered or how long a grower’s facilities may remain empty between flock placements. This lack of commitment by the processor is of particular concern when growers are locked into large mortgages for barns built to an integrator’s specifications.

Over the years—and continuing today—contracts and contract implementation have been a source of friction between growers and integrators and a source of public debate in Congress and the statehouses of poultry-growing locales. At the heart of this debate are concerns regarding the economic leverage that integrators hold over independent farmers. As elements of poultry contracting began to be mimicked in arrangements for other agricultural products, the attorneys general of 16 states<sup>96</sup> in 2000 developed a model for legislation aimed at equalizing bargaining power between producers and contractors.

At the time the effort was announced, Iowa Attorney General Tom Miller noted, “Contracting poses serious risks for producers and ultimately for consumers. Contracting has its place and its benefits, and it certainly is growing quickly, but we want to be sure farmers get a fair shake in a time when there is a strong trend toward consolidation and concentration in agriculture.”<sup>97</sup>

Among other things, the model provided for plain language contracts, instituted a three-day right of review for growers, and clarified that producers have the

right to join producer organizations and act as whistle-blowers.<sup>98</sup> It prohibited confidentiality clauses and offered contract termination protections for farmers who had made sizable capital investments. Importantly for poultry growers, the model prohibited compensation based on the performance of other farmers.<sup>99</sup>

While a number of states have adopted certain model elements, including restrictions on confidentiality clauses and readability requirements, none adopted the full model, and none has outlawed the so-called tournament, or ranked compensation approach, a complex payment arrangement in which the productivity of a single grower is measured against that of neighboring growers to determine the final price the integrators will pay the individual.<sup>100</sup> (See the discussion of “sliding-scale wages” in “The perils of poultry finance,” page 26.)

As referenced in the section “The business of broilers,” this debate on competition and fairness continues at the federal level as well. In 2010, USDA responded to competition provisions of the 2008 farm bill<sup>101</sup> and proposed new rules intended to better protect independent livestock and poultry farmers.<sup>102</sup> At its core, the proposal offered ranchers and growers some of the same basic protections that are commonly provided to other small businesses. The proposed rule included common-sense approaches to accountability and transparency that should have generated little controversy.

One part of the proposal, for example, required basic disclosure of contract provisions and company record keeping, which allows for informed decisions, fair competition, and fair enforcement of existing law. For growers operating under contract, the proposal also put limits on the extent to which companies could demand unnecessary and uncompensated capital investments and on the use of payment systems based on ranking. Following strong opposition by meatpacking and

processing companies, only a few of these reforms were adopted by the Obama administration.<sup>103</sup>

In the much more limited rule that was finally adopted,<sup>104</sup> USDA did include a requirement for processors to offer written notice of intent to suspend delivery of live birds to a poultry grower, disclosure requirements for contracts that call for arbitration to settle disputes, and modest limitations on the extent to which processors can demand unnecessary and uncompensated capital improvements to on-farm facilities. The final rule also required contractors to give growers a reasonable amount of time to resolve any potential breach-of-contract problems.<sup>105</sup>

## Who owns what?

For consumers and policymakers, one of the most surprising aspects of broiler production may be ownership: Under terms commonly found in production contracts, the grower does not own the animals. The integrator selects and owns the chicks placed on a farm, and a flock remains with the grower until a “catching crew” dispatched by the integrator collects the birds and delivers them for processing.

Generally, the integrator provides the chicks, feed, and supplements, such as antibiotics, veterinary advice, and grow-out supervision by a field representative who makes regular visits to the operation. The grower in turn provides:

- The housing for the birds, built to the specification of the integrator.
- The storage for feed, also built to the specifications of the integrator.
- Water and utilities.
- Bedding for animals, as directed by the integrator.
- Labor.
- Waste cleanup.

Often, the integrator is responsible for transport of feed and birds, and the grower must maintain access to accommodate the trucks that the integrator uses. Sometimes, the integrator offers a fuel allowance, and some integrators offer assistance with natural disaster compensation.

Under most contracts, in addition to the land, buildings, and equipment, the grower owns the birds that die before they are harvested and the waste produced by the flock. Some growers can use or sell the mixture of used bedding and manure—called litter—as fertilizer for a variety of crops, though the ability of growers to do so is increasingly limited by the industrial scale of modern chicken farming (detailed in the next section). At that point, the waste becomes a serious liability for growers, particularly in polluted areas with a heavy concentration of livestock.

Inside a modern poultry house, thousands of broilers live on floors covered with wood shavings, rice hulls, or other absorbent yet readily dried materials. Over the life of a flock, the bedding or litter becomes mixed with spilled water and feed, feathers, and manure. Periodically cleaned out after a flock is removed, sometimes with a whole house cleanout and sometimes simply with removal of the top or “caked” layer, the litter waste is produced in large volumes. Each broiler produces an average of 11 pounds of manure in the seven weeks that it is fed, according to USDA.<sup>106</sup>

Within the litter are nutrients, such as nitrogen and phosphorus; disease-causing organisms, including bacteria or viruses; and residues of feed additives, such as arsenic, copper, or antibiotics. The characteristics of litter can vary depending upon the feed and supplements used, the type and health status of the birds, the moisture and ventilation within the poultry house, the age of the manure, and other factors, many of which are under the control of the integrator.

Integrators, in fact, control bird numbers and flock timing, target size, and feeding strategies—all factors that influence the volume and composition of the manure and the practical disposal options, but they do not, as a general rule, share in the costs for waste management.

Rarely do integrators specify standards for how the litter is to be handled beyond requiring the growers to comply with any laws or state regulations, and rarely do integrators compensate or assist a grower in ensuring that waste is managed in ways that fully protect the environment. In a few sensitive regions, such as the Chesapeake Bay watershed and the Illinois River watershed of Arkansas and Oklahoma, some integrators are increasingly involved in assuring that growers develop nutrient management plans for their waste—all the while making it clear they accept no legal responsibility for the manure produced by their birds.<sup>107</sup>

As with other aspects of the grower-integrator relationship, this bird waste ownership balance favors the integrator over the grower and the environment. “I know of no other industry that pawns its waste off on another party,” says Carole Morison, who with her husband formerly grew birds for a major integrator on their Maryland farm. “It’s their chickens, it’s their feed. Why isn’t it their manure? Or even just joint ownership of the manure?”<sup>108</sup>

## Waste or wealth?

With few exceptions, 21st-century poultry growers deal with manure in the same manner that farmers have for ages: They apply litter to pastures and cropland.<sup>109</sup> When cropping patterns and livestock inventories are in balance, this can be a cost-effective and often environmentally sensible solution. The nutrients in the litter are taken up by crops—in essence, recycled on the farm. In some cases, poultry litter can stand in as

a valuable substitute for costly synthetic fertilizers, and a grower’s balance sheet can include litter in the asset column, with a value mirroring that of avoided fertilizer cost. Indeed, if the fertilizer demand for litter were still universal, the ownership of houses full of waste would actually be advantageous to every poultry grower.

Today, however, when nutrient-rich feed crops are transported into the growing region, rather than grown in volume on diversified farms with livestock,<sup>110</sup> the result is a one-way transfer of nutrients from grain-producing regions to chicken-producing regions in the Broiler Belt running across the rural South. The amount of litter generated in some areas can far exceed the amount needed by crops on an individual broiler operation or even within an entire community.

The excess litter that a grower cannot use or cannot sell to neighbors as fertilizer transforms quickly from an asset to a liability. Growers may need to build larger and more weather-tight manure storage facilities, curtail manure application in vulnerable areas or areas with dense broiler production, invest in equipment to inject manure directly into the soil and out of the path of stormwater, or even pay to have the once-valuable litter trucked away.

Though nutrient-rich litter can be less expensive dollar for dollar than commercial fertilizers, proper use demands a high degree of care and attention.<sup>111</sup> In areas with too much litter, land application can readily degrade water quality.<sup>112</sup> Poultry manure can hold more nutrients than found in the manure of other types of livestock,<sup>113</sup> and the ratio of key nutrients in litter—nitrogen to phosphorus—is often out of sync with crop needs.<sup>114</sup>

High levels of bacteria in manure can render waterways unfit for recreation or shellfish harvesting.<sup>115</sup> Nitrogen in the manure not used by crops can also reach local drinking water wells, creating a nitrate contamination

hazard for infants.<sup>116</sup> In addition, excess nutrients in rivers and streams can foster growth of algae, sometimes in toxic forms.<sup>117</sup> Certain forms of algae can be toxic to domesticated animals, wildlife, or humans. The algae, in turn, can lead to declining oxygen levels, depleted stocks of fish, or even dramatic fish kills and seasonal dead zones. Excess nutrients can also cause serious problems with taste and odor in drinking water supplies, interfere with treatment processes, and contribute to premature “aging” of drinking water reservoirs.<sup>118</sup>

Important practices, such as establishing a buffer area between where manure is spread and streams and wellheads, careful calibration of equipment to control the amount of manure released, seasonal limits on manure application, and use of nutrient management plans, can help to limit the amount of manure and manure-related pollutants that enter waterways or wells. In areas with heavy concentrations of large poultry operations, however, the sheer volume of waste can overwhelm the collective efforts of individual farmers.

According to USDA researchers, the poultry sector, though it accounted for only 15 percent of confined animal operations in 1997, produced more nutrients than any other livestock sector. “In 1997, poultry were estimated to generate 60 percent of all excess nitrogen on confined animal farms, and 61 percent of excess phosphorus,” USDA said in 2003,<sup>119</sup> with “excess” defined as the amount greater than the operation’s crop needs. In fact, in 2009, 40 percent of U.S. broiler production occurred on farms with no crop acreage.<sup>120</sup>

Because poultry litter is dry and can be easier to transport than liquid manure from other livestock, growers in some areas have no difficulty in selling the manure, trading in exchange for poultry house cleanout services, or giving away manure to be used on cropland elsewhere. In these cases, litter can add revenue to the grower’s bottom line. Where there is an excess, however, litter remains a disposal problem. In a number

of poultry-producing states, including Delaware,<sup>121</sup> Virginia, Arkansas, and Oklahoma,<sup>122</sup> the excess has become large enough to prompt government subsidies for waste transport out of the region. A few states have created incentives for converting manure into energy, and new technologies to commercialize this process may also result in a new outlet for excess manure.

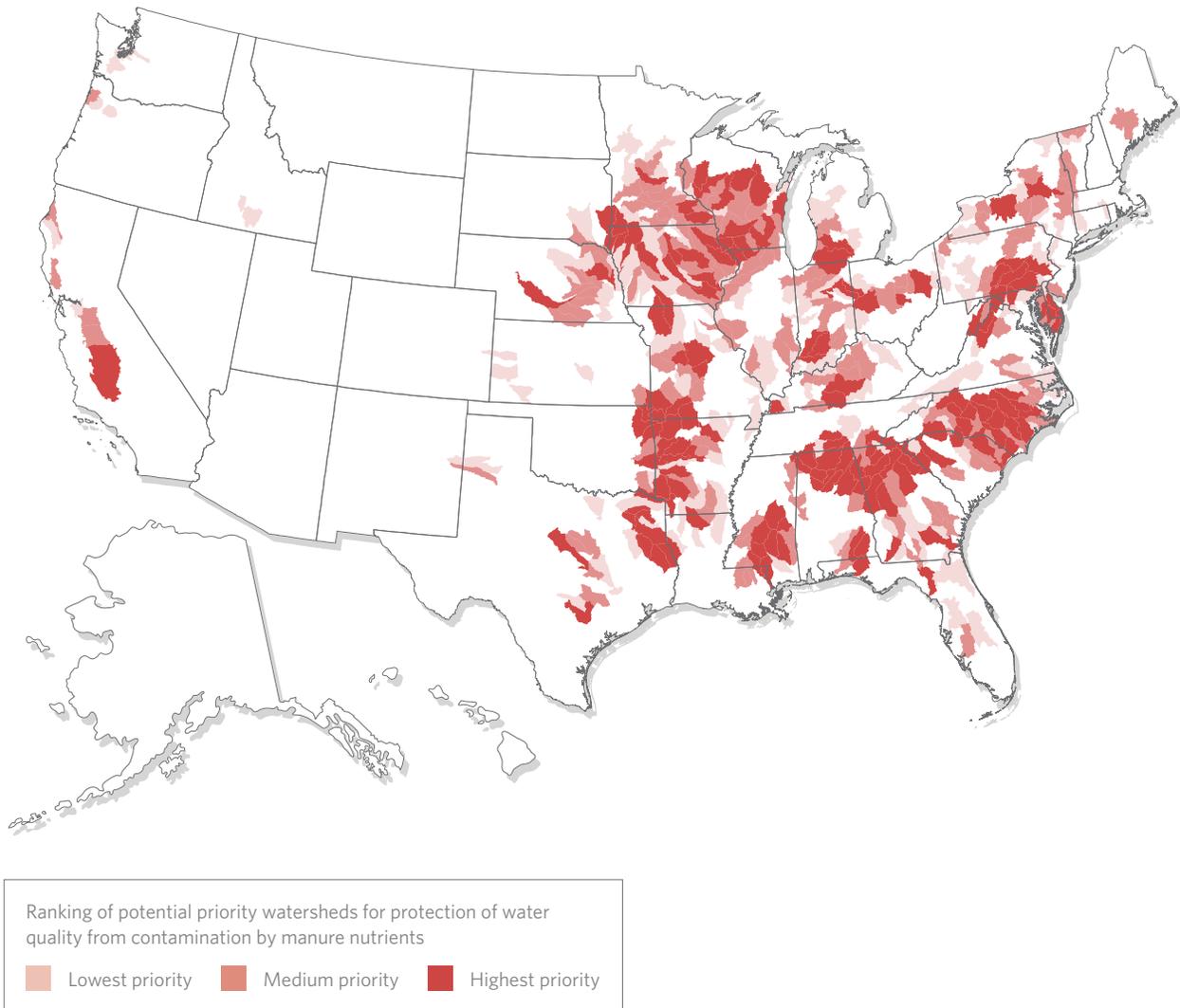
In 2000, USDA reported the results of an effort to prioritize those watersheds most at risk from excess manure.<sup>123</sup> This study looked beyond the amount of manure generated by each operation. It accounted for the phosphorus and nitrogen in manure that can be used to fertilize crops, incorporated several environmental characteristics that can indicate the potential for pollutant releases, and aggregated the data to a watershed scale. The results provide a national ranking by watershed for risk of manure-associated water quality problems. As Figure 7 illustrates, the top priority areas, though not exclusively associated with broiler production, include much of the Broiler Belt.

## Big bucks for big barns

Commercial-scale chicken production moved from the barnyard into the poultry house many years ago, and housing costs initially were large but perhaps not unmanageable for an individual grower, at least when viewed as a long-term investment. Over time, however, poultry houses have become larger, more technologically complex, and more expensive. At the same time, the ability of poultry growers to rely on long-term production contracts has declined.

Today’s seemingly simple poultry structures are considerably bigger than those of decades past, generally longer than a football field and often most noticeable for the enormous fans that expel ammonia emissions, feathers, and dust into the air. Inside, there may be automated equipment to feed and water the

Figure 7: Priority Watersheds in Need of Protection<sup>124</sup>



Source: USDA  
 © 2013 The Pew Charitable Trusts

birds, computerized ventilation and climate controls, alarm systems, special lighting, and backup generators. Most modern operations have multiple houses, and these structures with associated equipment translate into a significant investment for individual growers.

According to USDA, a single small grow-out house built in 1960 might have cost \$10,000.<sup>125</sup> A single new house built in 2002 could cost more than 10 times that amount.<sup>126</sup> By 2010, the price tag for a single house with equipment had topped \$200,000.<sup>127</sup> Today in Arkansas,

a typical house is reported to cost between \$230,000 and \$275,000, with the average operation including between three and five houses.<sup>128</sup> In Georgia, a major poultry-growing state, a typical producer may have \$800,000 or more invested just in housing and growing equipment.<sup>129</sup> Between 2004 and 2006, according to USDA, broiler farms spent a total of \$650 million on capital improvements.<sup>130</sup>

Various researchers cite a 50-50 split of grower-integrator capital in this industry, with the growers' housing costs in aggregate running roughly equal to the integrator's plant costs. Dan L. Cunningham, a professor of poultry science at the University of Georgia, details the "hard assets" of a poultry complex to include \$80 million to \$90 million in processing plant investments, along with \$8 million to \$10 million in a feed mill, \$8 million to \$10 million in a hatchery, and another \$80 million to \$90 million worth of investment in production houses—with the latter contributed by the growers.<sup>131</sup> The recent proposal for a new processing plant in North Carolina, in fact, showed that investment by growers would actually exceed that of the integrator. In this case, Sanderson Farms Inc. proposed a company investment

of just under \$92 million, while local growers were anticipated to invest roughly \$130 million in new and upgraded grow-out facilities.<sup>132</sup> (See "Nash County, NC, takes a broader look at chicken farming," page 15.)

The split of assets likely varies over time and across regions, but the leverage value to the industry is undeniable. As Richard T. Rogers, a professor of resource economics at the University of Massachusetts, Amherst, states, "Integrators do not wish to tie up half of their assets in the grow-out function when better profit opportunities exist elsewhere, yet they want control of this important stage of the vertical system."<sup>133</sup> Echoing that view in a recent issue of *Harper's Magazine*, Barry C. Lynn, a senior fellow at the New America Foundation, offers a blunt assessment of the capital advantage that integrators enjoy: "The men who rule America's chicken-processing plants have ... had decades to master the art of setting individual farmers—who still own the land, equipment, and liabilities—against one another. And the goal of this competition is not merely to extract the most work from each individual, but also the most capital."<sup>134</sup>

# THE PERILS OF POULTRY FINANCE

Whatever the specific ratio of grower-to-integrator capital, a grower's price of admission to the broiler business is high. Most growers borrow the capital for building modern poultry houses. For some, the investment has not paid off. "I bought a poultry farm thinking I would earn extra income while gaining equity in my farm and have a business income at retirement age," an Oklahoma couple involved in chicken growing told the USDA. "After nearly 18 years in the business, we still owed \$100,000 and had no savings or equity in our poultry farm."<sup>135</sup> "I have seen too many people," adds a Mississippi grower, "at 70 years old, still deep in debt and terrified that they are going to lose their farm."<sup>136</sup>

Several factors can contribute to such financial problems, among them:

- Unreasonable revenue expectations.
- Unanticipated operating costs.
- Changes in expected flock placement schedules.
- Requirements for additional investments and upgrades.
- Processing plant closures.

Integrators seeking new contract growers offer information on possible payouts for growing services, and the literature indicates that many growers rely on this information as well as information available from lenders or sometimes other growers.<sup>137</sup> According to H.L. Goodwin Jr., an economist at the University of Arkansas, income forecasting can be extremely difficult, and many integrators provide only oral

information about possible grower profits.<sup>138</sup> Robert Taylor, a professor of agricultural economics at Auburn University, argues that the industry's promotional pitches may be misleading.<sup>139</sup> And the former American Farm Bureau Federation economist Mark Jenner asserts that lenders, which have incentives to make new loans bolstered by government guarantees, can contribute to the problem of growers taking on heavy debt loads.<sup>140</sup> Taylor and other critics note that prospective growers who go to the bank with a poultry production contract or the promise of a contract sometimes believe that loan approval is actually a tacit agreement that the contract is a sound business proposition.<sup>141</sup>

In 2007, a poultry grower from Arkansas testified before the U.S. Senate Committee on Agriculture, Nutrition and Forestry that often growers do not even see written contracts until after they've gone to the bank to get the loan to build the houses on their land. The bank may make the loan simply based on a letter of intent from the poultry company.<sup>142</sup> Another grower, who participated in a 2010 workshop sponsored by the departments of Justice and Agriculture, said, "Not only did the bank lend the money based on the company word, we borrowed the money under the same basis."<sup>143</sup>

With federal guarantees of up to 95 percent<sup>144</sup> available from the Farm Service Agency or the Small Business Administration<sup>145</sup> and in some instances a state loan guarantee,<sup>146</sup> financial institutions are able to make the loan with confidence that the risk to them is minimal. The financial risk for the grower or for the

federal government, however, may be another matter. According to a 2001 study conducted by the National Contract Poultry Growers Association and the USDA, 71 percent of chicken growers whose sole source of income was chicken farming were living below the poverty line.<sup>147</sup> Poultry farms also had a disproportionate share of insolvent operations in 2007 compared to other types of farms.<sup>148</sup>

In 2009, USDA issued new guidance to those reviewing loan guarantees, warning that new growers without other sources of income may not be a good credit risk. “The recent actions taken by integrators,” says the guidance, “have made it apparent that flock-to-flock operating arrangements may no longer be automatically presumed to be a dependable source of income ... for loan repayment purposes.”<sup>149</sup>

In early 2010, when USDA extended this guidance to cover pork operations, it cautioned that in some cases companies were canceling contracts with old producers only to “begin new contracts with new producers, supported by FSA loans.”<sup>150</sup> In the fall of 2010, the Farm Service Agency noted an expected continuing trend of defaults in loans for poultry and livestock contract grower facilities and began planning for new rules to protect borrowers.<sup>151</sup> That plan appears to have been put on hold, however.<sup>152</sup>

The initial payback period on a poultry house investment can easily run to 15 years, and income projections made by agricultural experts frequently show that net returns to growers will be modest at best until a loan is actually paid off. At that point, income projections may show a good return—if operations continue as initially predicted. Integrators and poultry experts tell prospective growers “to expect high loan payments initially and little cash flow for family expenses, but to take comfort that things will be much better after debt is retired,” says Auburn University’s Taylor.<sup>153</sup>

Reassurances are not bankable, however, and most contracts allow integrators to change schedules for delivering birds,<sup>154</sup> provide smaller flocks than initially suggested, or shift to smaller birds.<sup>155</sup> Few contracts, if any, guarantee bird deliveries for the life of a loan. On the contrary, some do not stipulate a term at all, and many run only for the 40- to 50-day period it takes to grow out a single flock. Even those that run for longer periods can include provisions that allow integrators to change key elements of the agreement.

Once a grower has borrowed the money needed to build one or more poultry houses, he or she has few choices but to sign whatever initial contract or contract renewal the integrator offers. Rejection of the contract terms can mean refusal by the integrator to provide new birds. Integrators frequently demand new investments in facilities and equipment even while a contract is in effect. As Kay Doby, a former grower from North Carolina, explained: “The first contract I signed was for 5 flocks a year for 10 years, the length of the loan.... Little did I know that after one year into my supposed 10-year contract, the company would bring us another contract to sign, this time for 3 years with no guarantee of the number of flocks. The next contract was for 2 years with a mandatory arbitration clause added, saying that I could not take the company to court for any reason. Then a few years ago, I was presented with yet one more version of the contract. That is only flock to flock.... At that time, we still owed \$60,000 on the houses and we were being told that we might get chickens to raise or we might not.”<sup>156</sup>

A generally productive contract grower is theoretically protected from a drop in the price of chicken or an increase in the price of feed—at least over the several month time frame during which he or she raises a flock of birds. The grower, however, still experiences price shocks when the integrator chooses to slow or even stop flock placements. And even when a grower opts

to leave the business, he cannot transfer the poultry house “asset” to another prospective grower without the promise of a new contract from an integrator. A former American Farm Bureau Federation economist notes, “Growers have only limited security that there will be chickens put in their houses 15 years out. The bank payment is still due regardless of whether there are birds in the house.”<sup>157</sup>

## Paying down to pay again

For many growers, capital budgeting does not end after the initial investment, but it continues at unexpected intervals because the integrator presses for changes in the type of housing or equipment. As researchers at the University of Georgia point out, it is “common practice for poultry producers to invest in a substantial upgrade of their facilities at least once (and sometimes more often) during the life of the operation.”<sup>158</sup> While anyone involved in a capital-intensive business might well understand the need for maintaining and upgrading essential equipment, the grower is often unable to forecast and plan for such upgrades because it is the integrator determining when and how changes should occur.

Larry Barnett, a former Louisiana grower and retired farm loan officer, offers his perspective in a letter to USDA.<sup>159</sup> A grower enters the business with a loan amortized for 15 years, notes Barnett, but “five years down the road, the company comes in and says that you have to add fans or cool cells to your operation to get a certain number of birds.” The grower then has to take out another loan for the upgrade, with most growers refinancing to make ends meet. In urging USDA to adopt rules against unnecessary and uncompensated upgrade demands, Barnett gives the example of a fellow grower pressured to upgrade who invested more than \$120,000, only to receive just three more flocks before the processing plant ceased operations.

The integrator’s leverage rests on key aspects of the poultry business. First, many integrators control or at least dominate a regional market, which means growers in that region may have no alternative.<sup>160</sup> Second, each integrated poultry company has its own specifications for facilities and equipment. Once a grower has invested in a facility to suit the requirements of one integrator, he or she may find that even if another integrator is doing business in the region, the specifications for his or her facility do not fit the demands of the other companies.

Third, a modern poultry house is essentially a single-purpose building. As Charles R. Knoeber, professor of economics at North Carolina State University, suggests, without chickens, the value of a poultry house asset “simply dissipates.”<sup>161</sup> While a few growers have creatively used their poultry houses for equipment storage or goat-rearing facilities, the real return on investment from an empty poultry house is zero.

The grower who has mortgaged his homestead or family land then may have to complete a processor-required upgrade and take on even more debt simply to secure another flock of birds. “Once you’re in the business, you’re in for life,” says one Texas grower who spoke off the record with a reporter. “You never get out. If I said more, I’d be cutting my own throat.”<sup>162</sup>

## Financing innovation

The extent of technological innovation has become a point of pride for poultry integrators, with nipple drinkers replacing open water troughs, side-curtained houses falling in popularity and tunnel ventilation becoming widespread, and various forms of evaporative cooling systems being adopted to better control house temperatures. Many of these innovations may factor into improved “grow-out efficiencies” (helping chickens to grow faster with less feed). Some of them, such as better controls on automated drinking systems,

also bring environmental benefits. Not all innovations endure, however, and the pace of change overall has proved difficult and costly for some growers.

“The specifications,” says former Arkansas chicken grower Todd Thurkill, “constantly changed.”<sup>163</sup> Following each new whim, new specification, or new requirement of the integrator, he comments, is essential to keeping birds in your house.<sup>164</sup> Thurkill’s story is not unique. Similar arguments are offered by a grower from Arkansas who, like others, got into the business thinking it would be a good retirement investment. Though he grew for nearly 20 years, the undertaking did not turn out as he expected. “We never had contract security, and they would constantly require that you try something else, new water lines and feeders, always to their specifications,” he comments.<sup>165</sup>

In one instance, says the veteran grower, he was required to install new watering devices that actually created problems. The company eventually directed him to stop using the equipment but did not offer reimbursement. When he resisted yet another upgrade, this one involving a \$250,000 retrofit of his four houses, the integrator cut off his supply of chickens. “They told me to do that, or get out,” he says in a letter to the USDA.

Another former grower, this one from Mississippi, tells the story of an integrator’s call to upgrade with a specific brand of drinkers, one that, he argues, would have cost twice the amount of an identical drinker available from another manufacturer.<sup>166</sup> A year prior, he says, the company had specifically told growers not to use this equipment. “Then they reversed themselves and said that we were required to install them.”

The pattern of changing requirements is repeated elsewhere. An Alabama grower, who signed a letter to USDA as “a grower who wishes to remain anonymous due to fear of retaliation,” reports changed requirements for drinkers, curtains, and sidewalls. He describes

himself as an above-average grower in good standing. He concludes, however, that if he were to attempt to sell his farm today, either he or a purchaser might have to invest another \$300,000 in upgrades. “I can continue growing, but I would not be able to sell without incurring this expense,” he says. “Now I either grow chickens, or I lose my farm.”<sup>167</sup>

## Sliding-scale wages for chicken growers

The ownership of the product and the leverage of capital in the chicken industry are unique, and so, too, is the industry’s method of paying growers. Payment depends not only on an individual grower’s success in fattening the birds while conserving feed, but also on the success or failure of neighboring growers.

This perplexing system is known as a “tournament” or (as some have called it) a “gladiator” system,<sup>168</sup> with pay decided only after growers are placed into “settlement groups” with other growers whose flock placement and removal timing is close to their own. Each grower’s per-pound payment rate depends upon where he or she ranks within that group. The integrator determines and holds confidential who will be included in a particular settlement group.

Once the flocks have been collected from all growers in the group, the integrator looks at key factors: bird weights, bird mortalities and condemnations, and the amount of feed consumed. From these variables, a score is created, and the growers in the group are ranked from best to worst. A group average is calculated, and the amount that each grower receives for each pound of chicken produced is, in essence, recalculated. Agricultural experts at the University of Maryland sum up the tournament system this way: “If a grower is unfortunate enough to market birds at the same time as several above-average producers, he or she may receive

no bonus and may in fact be penalized for below middle cost efficiency.<sup>169</sup>

Indeed, a grower might achieve a good feed efficiency for a given flock, but if the others in the group do better, he or she could be assessed a penalty, earning less for each pound of chicken produced. "Consecutive flocks grown by the same grower, and having similar production costs," economists from North Carolina State University observed in 2001, "can receive substantially different payments depending on the performance of other growers in the settlement group."<sup>170</sup>

Even for contracts that include a per-pound payment minimum, this ranking system allows the integrator to promise and deliver a reward to top growers without risking a substantial share of revenue.

The tournament was not a component of the early grower contracts, but its use is now widespread.<sup>171</sup> Although a straight per-pound pay rate would result in more successful growers earning more in total, integrators and some economists argue that a ranking system is necessary to ensure that growers do not "shirk" their obligations. Many others have voiced complaints about the system, and agricultural experts point out the difficulties it can pose for growers.

When prospective growers attempt to predict their revenues, they may assume they can at least manage to consistently place in the middle and thus earn the pay rate of an average performer. In reality, consistent rankings—even in the average position—may be difficult to attain, and analysts and growers alike suggest that a given grower can place high or low in any given settlement group. Writing to USDA in support of new protections, growers from Maryland stated: "We have yet to figure out what we do differently on a flock that places high on the system or low on the system. We can only hope and pray that we come in the middle so that

we can at least get our promised base pay. When we are below the middle we can't even make our mortgage payment."<sup>172</sup>

"The system is based on the reality that I only make money if my fellow farmer does badly," concludes another grower, offering comments to the USDA. "I hate knowing that my neighbor has to do badly for me to do well," he says, signing his letter to USDA "A grower who fears retaliation and needs these proposed rules."<sup>173</sup>

Not only may the individual participants in a settlement group change at the discretion of the integrator, but the basics that each "competitor" starts with may vary as well. While the industry calls its payout provisions a tournament, says Auburn University's Taylor, the variable nature of feed and chick quality means that the system might actually be more akin to a "lottery."<sup>174</sup> Others see it as a sporting event without a referee or standard equipment,<sup>175</sup> since different growers within a settlement group may be competing with different breeds and ages of birds, different feed formulations, and, in some cases, different target weights for their birds. Again, the integrator, not the grower, is in control.

What's more, "the grower cannot verify whether the assignment of chicks and feed is random or whether the quality is uniform," says a group of organizations advocating for reform of poultry contracts.<sup>176</sup> Such information is not shared by the integrator, and some growers suspect that poor inputs and associated low rankings are linked directly to complaints they make to the company or share publicly, disagreements with integrator field supervisors, resistance to upgrade demands, or attempts to organize or participate in grower associations. "We cannot speak out about our experience," notes a grower who signs his letter to USDA as "A Concerned Farmer and Family," "because the minute we start complaining, we are on thin ice with the company and risk losing our contract."<sup>177</sup>

Writing about his experience in a letter to USDA, a Virginia grower says that once he began complaining to the integrator, he “started getting bad chicks pretty consistently.”<sup>178</sup> And yet another grower, who refused to make an upgrade recommended by his integrator and signed his comments as “A grower who wishes to remain anonymous due to fear of retaliation,” writes to USDA: “I told them that I couldn’t afford it, couldn’t borrow the money. Right after, my chickens started doing worse. I don’t know if they’re adjusting my flocks but I certainly feel that way. I didn’t change anything, and I immediately started doing worse.”<sup>179</sup>

Kermit and Marilyn Hancock of Asheboro, NC, like other growers, seemingly paid a price for resisting upgrades and for speaking their minds. The Hancocks began their chicken-rearing efforts with a single house built in the 1970s. Over the years, they added three more houses and, at different times, grew for a succession of different integrators. Their houses were small, however, with a total capacity of only 33,000 birds.

With their houses paid down, they were happy to keep growing at this scale, but their integrator was not interested in retaining a small-volume grower, they contend. After Marilyn spoke with a newspaper reporter

regarding the difficulties of the business, pressures mounted.<sup>180</sup> The Hancocks found themselves falling toward the bottom of the tournament rankings, but they were baffled as to what they might be doing wrong. Later, says Kermit, they learned from a truck driver delivering feed that they were being given a formulation different from that delivered to others. Eventually, the integrator simply cut off chicken deliveries to the Hancocks.<sup>181</sup>

Over the years, a chorus of similar complaints has been heard from small-scale operators and other growers across the Broiler Belt. Likewise, industry response often follows a predictable pattern, with complaining individuals dismissed as poor performers and outliers. Some complaining growers have taken legal action and, after a time, found relief or compensation. Others have made complaints to or about their integrators but conclude they cannot afford lengthy litigation or, as required by some contracts, expensive arbitration. Still others report that they are wary of making official complaints to USDA for fear of retaliation by the integrator. One grower, who signed his letter to USDA as “A Concerned Farmer,” writes, “If I complain or step on their toes in any way, they will retaliate against me. They will send you sick chickens or hold out on a delivery of birds for an indefinite period of time.”<sup>182</sup>

# CONCLUSION AND RECOMMENDATIONS

Poultry companies have been astonishingly successful at producing bigger birds more quickly and in elevating the once-lowly chicken into a place of prominence on the dinner plate. They did so not just with science, business acumen, and marketing savvy, but also with a surprising degree of financial leverage and minimal regulation.

Their success makes chicken a convenient and relatively inexpensive choice for consumers, but it places at risk many communities' water supplies and leaves the burden for waste management on the individual contract growers who raise the chickens for the poultry companies. And when waste management practices fail, costs for cleanup fall on the general public.

Despite their substantial investments, few growers are able to make a living solely from the broiler business. Off-farm income accounts for an average of nearly 80 percent of total household income for small broiler operations and makes up 34 percent of total income for very large farms.<sup>183</sup> In addition, according to a 2001 study by the National Contract Poultry Growers Association and the USDA, 71 percent of chicken growers whose sole source of income was chicken farming were living below the poverty line.<sup>184</sup>

Although not all growers struggle financially, USDA reports that a quarter of broiler operations experience "negative net farm income."<sup>185</sup> Those statistics are validated by an analysis of data from the Alabama Farm Business Association indicating that the annual net return for that state's average broiler chicken operation was negative in 10 of the 15 years from 1995 to 2009.<sup>186</sup>

The indicators are likewise troubling for the environment. The pollutants associated with poultry manure are not unique, of course, and it is often difficult to trace water pollution from excess nutrients or pathogens back to its immediate source. Municipal treatment plants, urban stormwater, other industrial facilities, and even forested land can discharge some level of phosphorus or nitrogen. But whereas many local utilities and businesses that discharge treated wastewater must abide by testing and reporting requirements associated with the Clean Water Act, the same is not true for poultry producers.

Assessments indicate that the broiler business contributes to water quality degradation, particularly in broiler-heavy communities. In areas ranging from northern Georgia, where water utilities confront problems with water that smells and tastes foul,<sup>187</sup> to the Delmarva Peninsula, where private well users are cautioned about high levels of nitrate contamination, poultry production has been identified as a significant pollution source.<sup>188</sup>

One of the challenges to reducing the scope and severity of this problem involves addressing the environmental threats without creating further financial stress for the farmers who grow the nation's chickens. Over the years, environmental debates over large-scale poultry production generally focused on individual growing operations, assessing waste generation and handling practices. When problems arise, individual farmers receive—and sometimes deserve—the scrutiny of regulators and downstream neighbors looking at their waste management practices.

Yet poultry companies are building larger and larger processing plants and recruiting more large-scale growers in limited geographic areas. This industrial expansion can help the companies realize enhanced economies of scale, but it can also worsen problems with excess manure and make each grower's waste management tasks nearly insurmountable—particularly if that individual's income is not sufficient to cover improved waste practices.

Growers adding chicken houses at the behest of the poultry processing companies can find that, instead of a usable amount of poultry litter, they now have too much. In areas of concentrated poultry production, cropland and pastures receiving manure applications can reach the point of saturation, leaving nitrates to leach into local groundwater and phosphorus to run off fields toward lakes or reservoirs. As the nitrogen, phosphorus, pathogens, and other pollutants accumulate, the seemingly small amounts contributed by each individual operation become problematic in aggregate.

This analysis leads to a conclusion that the solutions, like the problems, may be intertwined. The widespread adoption of sound waste management practices, which is so sorely needed, may require important changes to industry practices, including giving individual growers more autonomy and resources and compelling poultry processing companies to take greater responsibility for waste management. Protecting our water from poultry waste may also require us to look not just at a single growing facility but at the entire poultry complex: the processing plant and all of the associated chicken-growing operations.

## Recommendations

Contract production affects farmers and local communities in ways that jeopardize the environment

and public health, and policymakers should review current laws and regulations to address:

- The responsibility of poultry processing companies in waste management.
- The assessment and mitigation of the cumulative environmental effect of concentrated poultry production.
- The oversight of the contract system of poultry production.

Each of these recommendations requires specific actions and presents options for the processing industry as well as state and federal policymakers.

### Poultry processing companies should share responsibility for the waste products that are generated by poultry processing.

**Recommendation.** Where poultry processing companies exercise substantial managerial control over growing operations, the EPA and the states authorized to implement the Clean Water Act should require those companies to share responsibility for waste disposal. Where water discharge permits are required, such permits should be the joint obligation of the poultry processing company and the chicken grower. The USDA should require poultry processing companies to negotiate a reasonable balance of responsibility for waste management in contracts with their growers.

### The cumulative environmental effect of concentrating poultry production within a limited geographic area should be considered when siting or enlarging processing plants.

**Recommendation.** Chicken slaughtering and processing plants are considered point sources of pollution under the Clean Water Act and as such require federal discharge permits. These processing plants are

connected to hundreds of growing operations within a geographically limited area around the plants. But the cumulative environmental impact of those operations is not considered when establishing conditions for the discharge permit or reviewing other federal actions, such as loan assistance. Permits for poultry processing operations and reviews of environmental impacts under the National Environmental Policy Act should address the cumulative effects on water pollution from all facilities, including the chicken-growing operations supplying birds for the processing plant.

### Regulation should improve oversight of the contract system of poultry production to ensure that poultry growers are able to make well-informed decisions that protect the environment and public health.

**Recommendation.** The departments of Justice and Agriculture should renew efforts begun in 2010 to update regulations under the Packers and Stockyards Act to improve transparency in livestock production. The regulatory model developed by the attorneys general of 16 states (referenced earlier in this report) provides a good starting point for new approaches, which ensure that contract growers have a full understanding of their production obligations. In addition, growers should have the opportunity to improve upon their own production methods, including waste management, as long as they meet the integrator's product standards.

**Recommendation.** The USDA should adopt investigative, reporting, and follow-up procedures to assure that growers who file complaints regarding contract practices are not subject to integrator discrimination that jeopardizes their contract status.

**Recommendation.** Poultry processors should compensate growers who choose to help test unproven types of chicken housing, equipment, breeds, or growing technologies and approaches, including waste

management. Field experimentation should occur with the consent and knowledge of individual growers, whose livelihoods can depend upon the results.

### Time to act

Some of these recommendations have generated previous debate. Others, such as the call for cumulative impact review, are new. All are important, however, as the chicken business continues to grow exponentially in many areas and as poorly managed chicken manure exacts a pollution toll on waterways throughout the nation's Broiler Belt. Taken together, these recommendations would leave in place the basic business structure of the chicken processing companies but also would help to ensure that chicken-growing communities and their downstream neighbors have clean water and that the individuals who undertake the hard work of raising chickens can make farming and financial decisions that work for themselves and the environment.

Ideally, these recommendations would be implemented by government agencies at the same time that forward-thinking poultry companies begin developing new approaches to business. These new approaches would include planning for poultry plant expansions or recruiting new contract growers while working with existing growers, local water utilities, other water users, and state and federal regulators to make certain that the volume of waste is properly managed. In some instances, these considerations might influence decisions on the location or scale of operations. In other instances, they could drive investment toward alternative manure management options, such as manure-to-energy production or composting facilities. And it is hoped that those companies will find consumers eager to buy chicken that is more friendly to the environment and the farmer.

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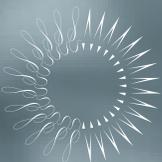
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