

GREEN V. ALPHARMA, INC.:
THE CAUSAL CONNECTION BETWEEN THE USE OF GROWTH
HORMONES IN CHICKEN FEED AND CANCER AND ITS IMPACT
ON THE AGRICULTURAL INDUSTRY

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I. INTRODUCTION

Many people mistakenly believe that the equine sector provides the largest stream of agricultural revenue into Kentucky. Surprisingly, the state's true cash cow lies deep in the heart of the Bluegrass: industrial chicken farms. While the putrid smell emitted from these chicken houses is disquieting, even more alarming is poultry producers' willingness to feed their chickens dangerous growth hormones that may cause cancer in nearby residents. Farmers use growth hormones to make their chickens grow larger than they would naturally; however, these growth hormones contain arsenic, a compound that is not dangerous to chickens but can be fatal when ingested by humans.¹ Arsenic can be ingested by humans as a result of farmers using contaminated chicken litter to fertilize their crops.² This contaminated fertilizer seeps into the ground drinking water and pollutes the air, thereby increasing humans exposure to arsenic.³ Human digestion of arsenic can cause a host of different illnesses.⁴ While many of these illnesses are serious, perhaps the most deadly is cancer. In *Green v. Alphaarma, Inc.* the court held there was a genuine issue of material fact as to whether poultry producers were liable for cancer occurring in persons living near poultry farms.⁵

Section II of this Comment provides the historical and legal background concerning the use of organic arsenic in chicken feed and the use of contaminated chicken litter as fertilizer. Section III details the background and procedural history of *Green v. Alphaarma, Inc.* Section IV discusses the Arkansas Supreme Court's analysis of the Plaintiff's prima facie case which shows a causal connection between the use of arsenic in

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¹ Crystal Whitney, Note, *The Harmful Effects of Arsenic-Based Feed Additives in Poultry Production*, 13 DRAKE J. AGRIC. L. 583, 585-86 (2008).

² *Id.* at 595.

³ *Id.*

⁴ *Id.* at 586.

⁵ *Green v. Alphaarma, Inc.*, 284 S.W.3d 29, 43 (Ark. 2008).

chicken feed and cancer. Section V delineates the implications of this decision on poultry producing states, like Kentucky.

II. HISTORICAL AND LEGAL BACKGROUND

This section first examines the dangers in feeding arsenic growth additives to chickens, the understanding of which is essential to the court's analysis of the causal connection between the use of growth hormones in chicken feed and cancer. Next, the significance of the poultry sector in Kentucky is described. Finally, to adequately address the implications of *Green v. Alpharma, Inc.*, this section points out the lack of federal and state regulation on the use of contaminated chicken litter.

A. The danger in feeding arsenic-containing growth additives to chickens

When fed to chickens, arsenic-containing growth additives can be harmful to humans.⁶ Arsenic comes in two forms: organic and inorganic.⁷ Both types are effective at promoting growth, killing parasites, and increasing pigmentation when fed to chickens as a feed additive.⁸ As testimony to arsenic's ability to promote growth in chickens, "it now takes producers half the time that it took in 1957 to raise the chickens to market weight."⁹ However, because of its harmful effects on humans, inorganic arsenic is banned from being fed to chickens; consequently, poultry producers feed their chickens organic arsenic to make them grow bigger than they would naturally.¹⁰

While organic arsenic in its original form poses no threat to humans or chickens and is allowed for use in feed, problems arise when chickens convert organic arsenic into inorganic arsenic through the digestive process.¹¹ Thus, "[d]espite the ban on the use of inorganic arsenic in poultry production," humans are still exposed to the dangers of inorganic arsenic when the chicken litter is used as fertilizer.¹² This disposal method increases human exposure to arsenic not only through air emissions, but also through contact with contaminated soil, drinking water, and food crops.¹³

⁶ Whitney, *supra* note 1, at 586.

⁷ *Id.* at 585.

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.* at 588.

¹² Whitney, *supra* note 1, at 588.

¹³ *Id.* at 595.

Inorganic arsenic can affect human health in numerous ways. For instance,

[i]norganic arsenic can irritate a person's stomach and intestines, decrease blood cell production, cause fatigue and abnormal heart rhythm, damage blood-vessels, impair nerve function, and cause skin problems such as darkening, corns, and warts. Inorganic arsenic has been identified as a human carcinogen by the Department of Health and Human Services and increases the risk of numerous types of cancer.¹⁴

Furthermore, children are at a higher risk of arsenic exposure and effects from exposure than adults "due to diet, behavior, and a lower efficiency at converting inorganic arsenic to organic."¹⁵ "Evidence indicates that long term exposure to arsenic" lowers a child's IQ scores.¹⁶

B. The use of growth hormones in chicken feed in Kentucky

While *Green v. Alpharma, Inc.* is an Arkansas Supreme Court decision, poultry production greatly affects Kentucky and dozens of other states. The USDA 2007 Census of Agriculture found that the poultry industry is the largest agricultural sector in Kentucky and is ranked the number one food commodity in cash receipts.¹⁷ In fact, the poultry sector provides the largest stream of agricultural revenues into Kentucky, bringing \$978 million into the Commonwealth,¹⁸ while the equine sector amasses only \$952 million in receipts.¹⁹

Kentucky's poultry sector is not only lucrative, but widespread. Approximately 850 chicken farms with 2,800 chicken houses are located in Kentucky, ranking the state seventh in the nation regarding broiler production.²⁰ The concern, however, is that 70% of Kentucky's poultry producers feed their chickens arsenic-based additives.²¹ As explained previously, the danger arises when this organic arsenic becomes inorganic in a chicken's digestive system, and the resulting litter is either used on the poultry producers' farms as fertilizer for their crops or sold to nearby grain

¹⁴ *Id.* at 586.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Kara Keeton, *Something to Crow About*, THE LANE REPORT, Aug. 2009, available at <http://www.kybiz.com/articles/article.cfm?id=928>.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ See Whitney, *supra* note 1, at 585.

farmers at a cheaper price than petroleum-based fertilizers.²² As of now there has been no Kentucky case where a party has alleged that a poultry producer was the cause of his or her cancer. Nevertheless, given Kentucky's large poultry production industry, it is only a matter of time until the implications of *Green v. Alpha*, Inc. reach Kentucky.

C. Neither the FDA nor Kentucky state law regulates the use of contaminated chicken litter in crop fertilization.

While the FDA regulates the amount of *organic* arsenic being fed to chickens,²³ the FDA does not have a system in place to alert it when poultry producers are not following these mandates. The FDA places the burden of ensuring safe concentration levels of organic arsenic on the manufacturers or distributors.²⁴ Furthermore, while the *inorganic* arsenic is banned from being fed to chickens,²⁵ the FDA does not regulate the use of chicken litter,²⁶ which contains *inorganic* arsenic converted through the chickens' digestive process, as fertilizer. Kentucky takes an equally passive approach, claiming it has no authority to take enforcement action against concentrated animal feeding operations.²⁷

III. FACTS AND PROCEDURAL HISTORY OF *GREEN V. ALPHARMA, INC.*

The plaintiff, "Blu" Green, of Prairie Grove, Arkansas, was diagnosed with chronic myelogenous leukemia in 1999.²⁸ He lived and attended school near several poultry farms.²⁹ These farms fed their chickens 3-Nitro 20, a growth additive, manufactured by Alpha, one of the defendants.³⁰ Importantly, 3-Nitro 20, like similar growth additives, contains "roxarsone, an organic arsenical compound,"³¹ which breaks down into the more toxic inorganic version.³² Poultry farmers that live near the

²² Keeton, *supra* note 17.

²³ 21 C.F.R. §558.530 (West, Westlaw through Feb. 19, 2010) (regulating the use of roxarsone in chicken feed). Roxarsone is an organic arsenical compound. *Green*, 284 S.W.3d at 33.

²⁴ Whitney, *supra* note 1, at 589.

²⁵ *Id.* at 588.

²⁶ See Melinda Wenner, *Food for Chickens, Poison for Man*, SCIENCELINE.COM, Sept. 20, 2006, <http://www.scienceline.org/2006/09/20/env-wenner-arsenic/>.

²⁷ Kristine de Leon, *The Dark Side of Kentucky: Kristine de Leon Reports on Tyson Chicken Houses*, ROLLING STONE, Mar. 9, 2007, available at http://www.rollingstone.com/politics/story/13751913/the_dark_side_of_kentucky_kristine_de_leon_reports_on_tyson_chicken_houses/2.

²⁸ *Green*, 284 S.W.3d at 33.

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

Greens use the dried chicken litter to fertilize their fields.³³ Blu complained that the arsenic-laden chicken litter “polluted the air surrounding Prairie Grove and infiltrated homes, schools, and places of business, thereby causing” his leukemia.³⁴ Blu contended that he was exposed to the chicken litter through air, soil, and water.³⁵ Blu’s complaint against Alpharma and the poultry producers alleged: “(1) negligence, (2) negligence per se, (3) intentional failure to warn, concealment, and/or misconduct, and (4) strict liability/product liability.”³⁶

In response to the complaint, the defendants filed separate motions for summary judgment, arguing that there were no genuine issues of material fact because the scientific community had not recognized a causal connection between Blu’s medical condition and the poultry litter.³⁷ Blu disagreed, claiming that there were remaining issues of fact relevant to the defendants’ liability.³⁸ In support, he offered substantial deposition testimony from local growers and spreaders.³⁹

The circuit court granted the motion for summary judgment for the poultry producers but denied Alpharma’s motion.⁴⁰ In granting summary judgment in favor of the poultry producers, the circuit court rationalized that Blu was unable to prove his exposure to “particular” defendant’s litter.⁴¹ In contrast, the circuit court denied summary judgment with respect to Alpharma on the grounds that Alpharma was the supplier of roxarsone for many years.⁴² The Arkansas Supreme Court reviewed whether the circuit court erred in granting summary judgment in favor of the poultry producers.⁴³

IV. THE ARKANSAS SUPREME COURT’S ANALYSIS OF *GREEN V. ALPHARMA, INC.*

Blu’s principal argument was that the circuit court erred in finding that he did not satisfy the “frequency, regularity, and proximity” test gleaned from *Chavers v. General Motors Corp.*, commonly referred to as the *Chavers* test.⁴⁴ Contrary to the circuit court’s finding, Blu contended

³³ *Id.*

³⁴ *Green*, 284 S.W.3d at 33.

³⁵ *Id.* at 33–34.

³⁶ *Id.* at 34.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Green*, 284 S.W.3d at 34.

⁴¹ *Id.* at 35.

⁴² *Id.* The case went to trial and the jury found in favor of Alpharma. *Id.*

⁴³ *Id.* at 35.

⁴⁴ *Id.* at 36 (quoting *Chavers v. General Motors Corp.*, 79 S.W.3d 361 (Ark. 2002)).

that *Chavers v. General Motors Corp.* supported a showing that Blu was exposed to each particular poultry producer's litter.⁴⁵

In response to Blu's assertions, the Arkansas Supreme Court analyzed the prongs of the *Chavers* test. Under this test, a plaintiff must show that he was exposed (1) to a product made by the defendant, "(2) with sufficient frequency and regularity, (3) in proximity to where he actually worked," and (4) in such a way that it was probable that the exposure to the defendant's products caused the plaintiff's injuries.⁴⁶

The Arkansas Supreme Court held that Blu met each prong of the *Chavers* test.⁴⁷ Blu proved the first prong, that he was exposed to the arsenic-laced litter, through a substantial number of affidavits and deposition testimony demonstrating a high concentration of arsenic in his home that originated from poultry operations.⁴⁸ He was also able to prove the second prong, that he was exposed to chicken litter with sufficient frequency and regularity, by submitting "evidence supporting the proposition that the poultry producers had used the arsenic compound in the chicken feed for a period of years."⁴⁹ Further, Blu provided testimony from landowners and spreaders who admitted that they used chicken litter at a school located one block from his home, satisfying the third prong of proximate exposure.⁵⁰ Lastly, because Blu was able to establish the first three prongs, the causation requirement was also satisfied because it was probable that the contaminated litter was the cause of his cancer.⁵¹

Because Blu met the burden of the *Chavers* test, the Arkansas Supreme Court held that "[w]hile the circuit court correctly [identified] the factors of the *Chavers* test, [it] failed to [properly] apply" those factors to the instant case.⁵² Therefore, the Arkansas Supreme Court "reverse[d] the circuit court's grant of summary judgment in favor of the poultry producers and remand[ed] the case" to the circuit court for a decision on the merits.⁵³

V. IMPLICATIONS

The decision in *Green v. Alpha* has caused a significant shift in judicial ideology.

⁴⁵ *Id.*

⁴⁶ *Green*, 284 S.W.3d at 38 (emphasis omitted).

⁴⁷ *Id.* at 42.

⁴⁸ *Id.* at 38-39.

⁴⁹ *Id.* at 40.

⁵⁰ *Id.* at 41.

⁵¹ *Id.* at 42.

⁵² *Green*, 284 S.W.3d at 42.

⁵³ *Id.* at 43.

A. Recognition of Causal Connection

Significantly, *Green v. Alpharma, Inc.* illustrates that courts are beginning to acknowledge that use of chicken litter containing inorganic arsenic can cause cancer in people living near areas where the fertilizer was applied. Basically, this case has established the legitimacy and plausibility of future claims from those injured by the spread of contaminated fertilizer against manufacturers of arsenic grown additives and poultry producers. As a result, this decision provides a means of recourse to those potentially injured from exposure to arsenic.

Additionally, the decision in *Green v. Alpharma, Inc.* set forth the correct application of the *Chavers* test in a toxic tort litigation case. While the circuit court held that Blu fell short of meeting the burden, the Arkansas Supreme Court made it clear that a prima facie showing can readily be made with sufficient evidence. At a minimum, this allows future plaintiffs to avoid summary judgment in favor of arsenic manufacturers and poultry producers, thus giving plaintiffs a chance of arguing a case on the merits in front of a jury. The plaintiffs' chances of success can be substantially increased by pointing out the compelling scientific evidence discussed in this Comment, especially if the injured party is a child. Moreover, further guidance and support will be provided to future plaintiffs, if this case is decided in favor of Blu on remand.

B. Increase in Toxic Tort Litigation

One can reasonably infer that, the landmark decision of *Green v. Alpharma, Inc.* will open the floodgates to similar litigation across all states, especially in high poultry producing states like Arkansas and Kentucky. While states will certainly want to provide protection and remedies to those affected by the potential negligence of poultry producers, the fact remains that poultry production generates high revenue for many states. Increased litigation surrounding this matter has the potential to bankrupt small commercial farms and impact the state's revenue stream in the aggregate. Even if none of Kentucky's 850 small commercial chicken farms are subject to tort liability, the litigation costs alone may result in bankruptcies.

Thus, there is a simple solution to the avoidance of litigation – regulation. Both federal and state legislatures should regulate the use of chicken fertilizer that contains inorganic arsenic. The fact that chicken litter contaminates both groundwater and the air should provide a sufficient incentive for arsenic's use to be stringently monitored at all governmental levels. Moreover, the lack of governmental oversight on the use of organic

arsenic in chicken feed should serve as a further incentive to effectively regulate in this area. This factor is particularly important considering the scientific evidence of chickens' natural ability to convert organic arsenic into inorganic and the possibility that every person living in the vicinity of poultry producers can contract a myriad of serious illnesses, including cancer.

This regulation could take many forms. For example, the federal and state systems could adopt the European approach and ban the use of organic or inorganic arsenic in growth additives.⁵⁴ This option would target the manufacturers of arsenic-based additives and not the poultry producers. While this European approach would eliminate the possibility of humans contracting cancer from contaminated fertilizer, it is unlikely that the U.S. is ready to institute such a broad sweeping rule. Organic and inorganic growth additives provide a real utility to farmers because they aid in the growth of chickens. Consumers may not be ready to sacrifice these larger chickens when the use of contaminated fertilizer can be regulated in other less intrusive ways. Moreover, on remand, Alpharma was not held liable for causing Blu's cancer presumably because it was not deemed culpable. Thus, it is reasonable to assume that if regulations are enacted, they would directly target poultry producers instead of the manufacturers of arsenic-based additives.

If poultry producers are allowed to continue using arsenic-based growth additives, the regulations must focus on the use of contaminated chicken litter. The only effective regulation may be to ban the use of contaminated litter as fertilizer. Given the FDA's inability to monitor how much organic arsenic chickens digest,⁵⁵ the use of contaminated litter will likewise be difficult to monitor, due to lack of administrative personnel or high monitoring costs. As a solution, the regulation should be supplemented by providing tax incentives to farms that comply with the guidelines. By regulating the use of fertilizer and placing the brunt of the burden on poultry producers, the number of people potentially incurring cancer from contact with inorganic arsenic will be greatly reduced.

VI. CONCLUSION

Poultry production represents a major part of Kentucky's revenue stream. However, poultry producers are potentially causing cancer in those people that reside nearby because they feed their chickens arsenic-based growth additives and subsequently use the contaminated litter as fertilizer. The success of Blu in *Green v. Alpharma, Inc.* suggests a likely increase in

⁵⁴ Whitney, *supra* note 1, at 596.

⁵⁵ *Id.* at 589.

toxic-tort litigation against the poultry producers. The answer to suppressing the potential increase in litigation lies in the cooperation of federal and state authorities in effectively regulating the use of contaminated litter as fertilizer.

