DIFFERENTIATING ANIMAL PRODUCTS BASED ON PRODUCTION TECHNOLOGIES AND PREVENTING FRAUD

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ABSTRACT

Consumer demands for meat products are evolving and now involve the omission of traditional agricultural inputs during the raising of food animals. Well-to-do consumers concerned about side effects are willing to pay more for meat products without hormone or beta agonist residues. Others do not want meat products from animals treated with antibiotics.

These demands are creating a new challenge for marketing firms. Their higher prices can lead unscrupulous retailers to mislabel them. To minimize fraudulently-labeled products, the justice system is needed to provide rules and oversight with enforcement actions that penalize marketers selling products that are labeled incorrectly. Since federal verification testing does not meaningfully assure

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consumers that meat products conform to the promises on their labels, additional consumer and state enforcement actions are needed.

I. INTRODUCTION

People in developed countries are accustomed to having a wide variety of choices in deciding what to eat and what groceries to buy. Many consumers are selecting meats from a large variety of products and are willing to pay more for items touting specialized attributes.[1] Yet, comprehending the information on food labels can be challenging, and there is considerable consumer confusion.[2] Some questions likely appear frequently at the front of customers' minds. For instance, what do terms like "No Added Hormones" and "Never Fed Beta Agonists" really mean? Are companies adding hormones and beta agonists to food products? Does the use of these substances in the production of food animals compromise the health of consumers?

Distinguishing between how livestock and poultry are raised is important to consumers because they want to avoid animal products that have a connection to three main production technologies they consider harmful: added hormones, beta agonist feed additives, and nontherapeutic antibiotics.[3] To avoid meat products associated with any of these issues, consumers need truthful information on how the animals supplying the products were raised. Even if consumers do not consider these technologies harmful, they may welcome product differentiation.

In most countries, legislatures have adopted laws governing food safety and labeling and have given authority to governmental agencies to administer regulations.[4] In the United States, Congress established the U.S. Food and Drug Admin-

1. *See, e.g.*, Wendy J. Umberger et al., *Role of Credence and Health Information in Determining US Consumers' Willingness-to-Pay for Grass-Finished Beef*, 53 AUSTL. J. AGRIC. & RESOURCE ECON. 603, 609 (2009) (analyzing labeling of grass-fed beef); Robin R. White & Michael Brady, *Can Consumers' Willingness to Pay Incentivize Adoption of Environmental Impact Reducing Technologies in Meat Animal Production?*, 49 FOOD POL'Y 41, 46 (2014) (developing a model using willingness to pay more for specialized meat products).

2. Xaq Frohlich, *The Informational Turn in Food Politics: The US FDA's Nutrition Label as Information Infrastructure*, 47 SOC. STUD. SCI. 145, 163 (2017) (noting consumer confusion due to distorted information).

3. *See* CONSUMER REPORTS NAT'L RESEARCH CTR., FOOD LABELS SURVEY 3 (Apr. 2016) [hereinafter CONSUMER REPORTS FOOD LABELS SURVEY] (finding strong support for standards for meats from animals raised with drugs).

4. *See generally* Simon Jol et al., *A Country-by-Country Look at Regulations and Best Practices in the Global Cold Chain*, FOOD SAFETY MAG. (Oct.-Nov. 2006), https://perma.cc/BLM6-ZTW3.

istration (FDA) and authorized the agency to take actions necessary to protect consumers against impure, unsafe, and fraudulently-labeled products.[5] For meat products, the Federal Food Safety and Inspection Service, a part of the U.S. Department of Agriculture (USDA), is responsible for ensuring the nation's meat and poultry products are safe and correctly labeled.[6] At the international level, the World Health Organization (WHO) makes pronouncements on the safety of residues in food products to guide governments and consumers.[7]

Keeping food safe and providing information about its attributes costs a significant amount of money.[8] The regulatory oversight of safety and labeling by governments is generally borne by taxpayers. Even in situations where there are fees assessed to food manufacturers, they may not be sufficient to cover all of the administrative costs.[9] In addition, non-governmental certification, verification, and labeling programs also provide a framework for authenticating labeled products; such programs are used when the costs of differentiating products with quality variances are less than the benefits associated with the higher prices for labeled products.[10]

This Article looks at specialized meat products from animals produced without added hormones, beta agonist feed additives, and nontherapeutic antibiotics. Due to higher prices to produce these products,[11] unscrupulous producers and marketers may fraudulently label products that do not actually conform to the promises

5. 21 U.S.C. §§ 301-391 (2012).

6. RENÉE JOHNSON, CONG. RESEARCH SERV., RS22600, THE FEDERAL FOOD SAFETY SYSTEM: A PRIMER 1 (Dec. 2016); U.S. DEP'T OF AGRIC. FOOD SAFETY & INSPECTION SERV., MEAT AND POULTRY LABELING TERMS 1 (2011) [hereinafter MEAT AND POULTRY LABELING TERMS].

7. *See generally Joint FAO/WHO Expert Committee on Food Additives (JECFA) Publications*, WORLD HEALTH ORG., https://perma.cc/8ETP-SJ8C (archived Sept. 29, 2017).

8. U.S. DEP'T OF AGRIC., FY 2016 BUDGET SUMMARY AND ANNUAL PERFORMANCE PLAN 64 (2016). The Food Safety and Inspection Service has a budget of more than $1 trillion per year.

9. *See, e.g.*, 7 C.F.R. § 62.300 (2017). Under the USDA's quality systems verification program, a fee structure has been established to cover the costs of governmental personnel and their expenses, but not the administrative expenses.

10. *See* Angelo M. Zago & Daniel Pick, *Labeling Policies in Food Markets: Private Incentives, Public Intervention, and Welfare Effects*, 29 J. AGRIC. & RESOURCE ECON. 150, 150 (2004) (concluding high administrative costs with low quality differences may have a negative effect on economic welfare).

11. *See infra* notes 23-87 and accompanying text.

on their labels.[12] Meaningful oversight is needed to preclude mislabeling and fraud,[13] and sufficient enforcement mechanisms are required to impose penalties on marketers selling mislabeled products.[14] The federal government does not provide adequate oversight of the mislabeling of meat products, and therefore, additional state and consumer enforcement mechanisms are needed.

II. RESOURCES EMPLOYED IN PRODUCING MEAT PRODUCTS

Many people have little knowledge about food production practices,[15] and consumers selecting products based on a production practice often consider only one aspect of the process.[16] When consumers look for products based on a single attribute, they may not realize how this attribute plays into the overall animal production. For example, a consumer who seeks an "antibiotic-free" animal product will not be informed through the product label whether the animal suffered because antibiotics were withheld or if it was raised in crowded conditions.

Studies of consumer preferences also suggest personal values may become more important than preserving resources. For example, consumers who select products from animals raised without hormones, beta agonists, or antibiotics are making choices that require more resources to be used in the production of food.[17]

12. *See* John Spink et al., *Food Fraud Prevention Shifts the Food Risk Focus to Vulnerability*, 62 TRENDS FOOD SCI. & TECH. 215, 216 (2017) (including misrepresentation or mislabeling as food fraud and acknowledging a shift from mitigation to prevention of food fraud events); Albert I. Ugochukwu et al., *An Economic Analysis of Private Incentives to Adopt DNA Barcoding Technology for Fish Species Authentication in Canada*, 58 GENOME 559, 560 (2015) (observing economic gains occur from misrepresenting products).

13. *See* RENÉE JOHNSON, CONG. RESEARCH SERV., R43358, FOOD FRAUD AND "ECONOMICALLY MOTIVATED ADULTERATION" OF FOOD AND FOOD INGREDIENTS 1 (2014) (observing most food fraud goes undetected because it does not involve a health risk).

14. *See Jennifer* L. Pomeranz, *A Comprehensive Strategy to Overhaul FDA Authority for Misleading Food Labels*, 39 AM. J.L. & MED. 617, 619 (2013) (arguing the lack of penalties for labeling infractions means there is little disincentive to use a fraudulent label).

15. *See* Alexandra Zingg & Michael Siegrist, *People's Willingness to Eat Meat from Animals Vaccinated Against Epidemics*, 37 FOOD POL'Y 226, 230 (2012) (noting if people thought about animal production methods, they might be concerned about environmental and humanitarian values).

16. *See generally* Kathleen Brooks & Brenna Ellison, *Which Livestock Production Claims Matter Most to Consumers?*, 34 AGRIC. & HUMAN VALUES 819 (2017) (concluding via research survey that consumers may only care about a few production practices).

17. ANNA DILGER, BETA-AGONISTS: WHAT ARE THEY AND WHY DO WE USE THEM IN LIVESTOCK PRODUCTION? 2 (2015); TESHOME REGASSA ET AL., ANTIBIOTIC USE IN ANIMAL PRODUCTION: ENVIRONMENTAL CONCERNS 6 (2009). Animals fed or administered hormones, beta agonists, or nontherapeutic antibiotics gain weight faster and eat less food, thus reducing the resources required for food.

By not using these inputs, animals will take longer to reach marketable weight so that more farms, pastures, and feedstuffs are needed to reach the desired amounts of meat products.[18] To secure additional feedstuffs, farmers may cultivate new acreage or forests may be cleared with corresponding negative environmental consequences.

Table 1 relates the three technologies to resource use, evaluating whether they are beneficial (positive) or adverse (negative) to limiting the use of resources.[19] The use of hormones, antibiotics, and beta agonists tend to be positive because these technologies reduce the need for certain resources.[20] Many consumers who avoid meat products connected to the usage of these technologies do not realize these methods reduce the amount of land and water resources needed for food production. By enabling our meat demands to be satisfied by fewer animals, such production practices reduce amounts of manure that can adversely affect water[21] and air quality.[22]

TABLE 1.[23] Relating animal production technologies to resource use

Resource	**Hormones**	**Antibiotics**	**Beta agonists**
Reducing space for production	Positive	-	Positive
Reducing air emissions	Positive	Positive	Positive
Reducing manure disposal	Positive	-	Positive
Reducing animal feed needs	Positive	Positive	Positive
Fewer resources needed for production	Positive	Positive	Positive

18. J. L. Capper & D. J. Hayes, *The Environmental and Economic Impact of Removing Growth-Enhancing Technologies from U.S. Beef Production*, 90 J. ANIMAL SCI. 3527, 3531-52 (2012) (concluding 10.6% more feedstuffs would be needed if growth-enhancing technologies were removed from U.S. beef production).

19. DILGER, *supra* note 17, at 2 (highlighting the use of less land when beta agonists are administered to food animals); REGASSA ET AL., *supra* note 17, at 2 (reducing food intakes by using antibiotics); *see also* K. L. Cooprider et al., *Feedlot Efficiency Implications on Greenhouse Gas Emissions and Sustainability*, 89 J. ANIMAL SCI. 2643, 2654 (2014) (observing in a study of livestock that the use of hormones and beta agonists resulted in decreased cost for weight gain, decreased feed use, and reduced methane emissions).

20. *See generally* Ilkka Leinonen & Ilias Kyriazakis, *Quantifying the Environmental Impacts of UK Broiler and Egg Production Systems*, 48 LOHMANN INFO. 45, 49 (2013) (highlighting that inputs are environmentally positive in reducing global warming potential and eutrophication potential).

21. *Id.*

22. Cooprider et al., *supra* note 19, at 2654.

23. *See id.*

A. Added Hormones

The most common consumer concerns regarding added substances to meat products are hormones.[24] What many consumers do not realize is that no hormones are used in the production of pork and poultry products because American law prohibits it.[25] Moreover, hormones cannot be administered to veal calves,[26] yet people continue to justify their purchases of organic chicken on the fact that birds are not administered hormones.

The major category of meat products that may come from animals receiving supplemental hormones are beef products. The low dosages administered to these animals, however, mean the meat products have no harmful effects on humans.[27] Due to financial benefits from administering hormones to cattle, an estimated 92% of feedlot cattle in the United States are implanted with a small pellet that contains a growth stimulant, which is slowly released over a period of time.[28] The release of low amounts of a hormone increases the animal's muscle growth.[29] U.S. producers use several different hormones in the production of cattle (table 2).[30]

24. *See generally* Brooks & Ellison, *supra* note 16.

25. MEAT AND POULTRY LABELING TERMS, *supra* note 6, at 3.

26. U.S. Dep't of Agric. Food Safety & Inspection Serv., *Veal from Farm to Table*, FOOD SAFETY EDUC., http://perma.cc/H6PB-UEUM (last updated Aug. 6, 2013).

27. *See* U.S. Food & Drug Admin., *Steroid Hormone Implants Used for Growth in Food-Producing Animals*, ANIMAL & VETERINARY, http://perma.cc/4GML-FD8C (last updated Oct. 20, 2017).

28. RYAN REUTER ET AL., OKLA. COOP. EXTENSION SERV., IMPLANTS AND THEIR USE IN BEEF CATTLE PRODUCTION 1 (Aug. 2016).

29. N. AM. MEAT INST., GROWTH PROMOTANTS IN MEAT PRODUCTION: THEIR USE AND SAFETY 1 (2016).

30. Jeannine P. Schweihofer & Daniel D. Buskirk, Presentation at the MSUE Fall Extension Conference: Farm to Fork—Part 1—Antibiotics and Hormones: Are Hormones in Meat Safe? (Oct. 26, 2016).

TABLE 2. Hormones administered in U.S. beef production, safety standards, and human production in micrograms per day (μg/day)

Hormone[31]	**Source**[32]	**Safe residues permitted in meats**[33]	**Produced by humans**[34]
Estradiol	Natural	0.12-0.48 parts per billion	< 14-470 μg/day
Progesterone	Natural	5-30 parts per billion	150-750 μg/day
Testosterone	Natural	0.64-2.6 parts per billion	30-6900 μg/day
Melengestrol acetate	Synthetic	0.25 parts per billion	0
Trenbolone acetate	Synthetic	No tolerance level needed	0
Zeranol	Non-natural	No tolerance level needed	0

Some consumers object to the use of hormones due to concern about whether residues may still be present in the products.[35] As evidenced by the safe residue levels established by the FDA,[36] the consumption of meat from animals treated with natural hormones does not markedly increase amounts of hormones in humans.[37]

In the 1980s, the European Union (EU) passed legislation forbidding the use of hormones in food animal production and the importation of meat products from animals that received hormone treatments.[38] This led to a trade dispute in the late 1990s between the United States and the European Communities.[39] The World Trade Organization panel ruled against the European restrictions; this was later reversed by the Appellate Body.[40] The United States then implemented tariffs on

31. *Id*.

32. *Id*.

33. 21 C.F.R. § 556.1 (2017).

34. Sang-Hee Jeong et al., *Risk Assessment of Growth Hormones and Antimicrobial Residues in Meat*, 26 TOXICOLOGY RES. 301, 304, 310 (2010) ("[S]teroid hormones have presented negligible health impacts when they are used under good veterinary practices.").

35. *See generally* CORNELL UNIV., CONSUMER CONCERNS ABOUT HORMONES IN FOOD (June 2000).

36. *See generally* 21 C.F.R. § 556.1 (2017).

37. *See* Jeong et al., *supra* note 34, at 303-04.

38. MICHAEL K. HOFFMAN, U.S. DEP'T OF AGRIC. FOREIGN AGRIC. SERV., HISTORIC OVERVIEW AND CHRONOLOGY OF EU'S HORMONE BAN 3-4 (Nov. 2003).

39. *Id*. at 3.

40. *See* RENÉE JOHNSON, CONG. RESEARCH SERV., R40449, THE U.S.-EU BEEF HORMONE DISPUTE 6 (Jan. 2015); Sungjoon Cho, *From Control to Communication: Science,*

certain European goods.[41] The United States and EU are still in disagreement if the EU's bans on meat products related to the use of hormones violate international law.[42]

Despite the widespread use of hormones in the United States, there is a market for meat products produced without added hormones.[43] The USDA allows these products to be labeled "No Hormones Added."[44]

B. Beta Agonist Feed Additives

Another production input used by livestock producers is feed additives, which are supplements in foodstuffs fed to animals. Additives are used to enhance animal appetites, prevent nutrient deficiencies, or improve the nutritional value of diets.[45] The use of two beta agonist supplements—ractopamine and zilpaterol hydrochloride—has become controversial.[46] These are used in cattle, hog, and turkey production.[47]

Beta agonists are organic molecules that activate protein synthesis and decrease protein degradation on a cellular level.[48] They enhance animals' muscle growth and limit the amount of fat in meat products.[49] Thus, beta agonists cause

Philosophy, and World Trade Law, 44 CORNELL INT'L L.J. 249, 261 (2011).

41. Cinnamon Carlarne, *From the USA with Love: Sharing Home-Grown Hormones, GMOs, and Clones with a Reluctant Europe*, 37 ENVTL. L. 301, 307 (2007).

42. *See generally* JOHNSON, *supra* note 40.

43. *See* Dawn D. Thilmany et al., *Strategic Market Planning for Value-Added Natural Beef Products: A Cluster Analysis of Colorado Consumers*, 21 RENEWABLE AGRIC. & FOOD SYS. 192, 202-03 (2006) (observing some consumer preference for local beef production with no hormones added).

44. MEAT AND POULTRY LABELING TERMS, *supra* note 6, at 3.

45. R. J. Rathmann et al., *Effects of Duration of Zilpaterol Hydrochloride and Days on the Finishing Diet on Carcass Cutability, Composition, Tenderness, and Skeletal Muscle Gene Expression in Feedlot Steers*, 87 J. ANIMAL SCI. 3686, 3686-87 (2009) (citing scientific studies); S. M. Scramlin et al., *Comparative Effects of Ractopamine Hydrochloride and Zilpaterol Hydrochloride on Growth Performance, Carcass Traits, and Longissimus Tenderness of Finishing Steers*, 88 J. ANIMAL SCI. 1823, 1828 (2010) (reporting animal performance findings).

46. Ching-Fu Lin, *Scientification of Politics or Politicization of Science: Reassessing the Limits of International Food Safety Lawmaking*, 15 COLUM. SCI. & TECH. L. REV. 1, 23-24 (2013).

47. AM. VETERINARY MED. ASS'N, LITERATURE REVIEW ON THE WELFARE IMPLICATIONS OF THE USE OF β-ADRENORECEPTOR AGONISTS 1 (MAY 2014).

48. Lin, *supra* note 46, at 22.

49. S. T. Howard et al., *Effects of Ractopamine Hydrochloride and Zilpaterol Hydrochloride Supplementation on Carcass Cutability of Calf-Fed Holstein Steers*, 92 J. ANIMAL SCI. 369, 375 (2014) (observing lower fat content in steer carcasses and increased subprimal meat yields following supplementation with β-agonists).

protein accretion that increases animals' carcass weight with corresponding economic benefits for producers.[50] They also improve feed efficiency.[51] By increasing productivity and stimulating muscle growth, producers using beta agonists have lower costs per hundredweight of salable animal products.[52] This competitive advantage has been important in facilitating the sale of beef and swine meat products in some foreign countries.[53]

Because residues of beta agonists may sometimes remain in meat products, the use of this resource in the United States must be approved by the FDA to ensure the products are safe for human consumption.[54] The FDA's approval process considers the amounts of total residues that a human can safely consume per day over a lifetime.[55] This involves the calculation of an acceptable daily intake and the calculation of tolerance levels for each edible meat tissue, so that a person's consumption of residues from beta agonists stays below acceptable limits.[56]

Internationally, the Codex Alimentarius Commission adopted recommendations on ractopamine and zilpaterol residue limits for cattle and pig tissues made by the Joint FAO/WHO Expert Committee.[57] These acceptable daily intake levels are lower than those adopted by the FDA (table 3). With the approval of maximum residue levels for ractopamine, Codex recognizes the safety of minimal beta agonist residues in foods consumed by humans.[58]

50. *See* B. M. Boyd et al., *Effects of Shade and Feeding Zilpaterol Hydrochloride to Finishing Steers on Performance, Carcass Quality, Heat Stress, Mobility, and Body Temperature,* 93 J. ANIMAL SCI. 5801, 5806 (2015) (observing steers fed zilpaterol hydrochloride had increased carcass weights).

51. AM. VETERINARY MED. ASS'N, *supra* note 47, at 1.

52. T. J. Centner et al., *Beta Agonists in Livestock Feed: Status, Health Concerns, and International Trade*, 92 J. ANIMAL SCI. 4234, 4237 (2014).

53. *See* Thad Lively, *Technical Trade Barriers Facing U.S. Meat Exports*, 28 CHOICES, 2013, at 3.

54. *See* 21 C.F.R. §§ 556.570, 556.765 (2017) (delineating acceptable daily intakes for humans of meats containing ractopamine or zilpaterol residues).

55. *Id*.

56. *See generally* World Health Org. [WHO], *Evaluation of Certain Veterinary Drug Residues in Food*, WHO Technical Report Series 925 (2004).

57. Food & Agric. Org. of the U.N. [FAO], *Information Sheet: Discussion on Ractopamine in Codex and in the Joint FAO/WHO Expert Committee on Food Additives (JECFA)*, at 1-2 (Apr. 26, 2012), http://www.fao.org/fileadmin/user_upload/agns/pdf/Ractopamine_info_sheet_Codex-JECFA_rev_26April2012__2_.pdf; Food & Agric. Org. of the U.N. [FAO] & World Health Org. [WHO], *Joint FAO/WHO Food Standards Programme Codex Alimentarius Commission*, at 1, CX/CAC 12/35/2 (July 2-7, 2012), https://www.fsis.usda.gov/wps/wcm/connect/880c3866-3ab9-4bcb-aa83-7a9b6d969ab7/cac35_02e.pdf?MOD=AJPERES (voting to adopt ractopamine maximum residue limits); Food & Agric. Org. of the U.N. [FAO] & World Health Org. [WHO], *Joint FAO/WHO Expert Committee on Food Additives*, at 1, 3, JEFCA/66/SC (Feb. 22-28, 2006), http://www.fao.org/3/a-at875e.pdf.

58. *Joint FAO/WHO Standards Programme Codex Alimentarius Commission*, *supra* note 57, at 20.

TABLE 3. FDA tolerance levels in parts per million (ppm) and FDA and FAO/WHO acceptable daily intakes in micrograms per kilogram of body weight per day (μg/kg bw/day)

Beta agonist	**Species**	**Tolerance level**[59]	**FDA acceptable daily intake**[60]	**FAO/WHO acceptable daily intake**[61]
Ractopamine	Cattle	0.09 ppm for liver	1.25 μg/kg bw/day	Less than 1.00 μg/kg bw/day
Ractopamine	Cattle	0.03 ppm for muscle	1.25 μg/kg bw/day	Less than 1.00 μg/kg bw/day
Ractopamine	Swine	0.15 ppm for liver	1.25 μg/kg bw/day	Less than 1.00 μg/kg bw/day
Ractopamine	Swine	0.05 ppm for muscle	1.25 μg/kg bw/day	Less than 1.00 μg/kg bw/day
Zilpaterol	Cattle	0.012 ppm for liver	0.083 μg/kg bw/day	Up to 0.04 μg/kg bw/day

Most countries, however, do not allow the sale of meat products containing any residues of ractopamine or zilpaterol[62] out of concern for the potential human health problems associated with beta agonist residues in meat products.[63] Concern also exists about the welfare of animals.[64] Ractopamine is used in less than thirty countries,[65] while zilpaterol is being used by livestock producers in only five countries.[66]

59. 21 C.F.R. §§ 556.1, 556.570, 556.765 (2017).

60. 21 C.F.R. §§ 556.570, 556.765 (2017).

61. *Evaluation of Certain Veterinary Drug Residues in Food*, *supra* note 56, at 48-49; *Joint FAO/WHO Expert Committee on Food Additives (JEFCA)*, *supra* note 57, at 3-4.

62. H. F. De Brabander et al., *Past, Present and Future of Mass Spectometry in the Analysis of Residues of Banned Substances in Meat-Producing Animals*, 42 J. MASS SPECTROMETRY 983, 992 (2007); Lin, *supra* note 46, at 23 (reporting on ractopamine).

63. Georges Bories et al., *Scientific Opinion of the Panel on Additives and Products or Substances Used in Animal Feed*, 1041 EUR. FOOD SAFETY AUTHORITY J. 1, 26 (2009) (evaluating the safety of beta agonist residues in meat products for human consumption).

64. AM. VETERINARY MED. ASS'N, *supra* note 47, at 2-4 (expressing concerns about an increased incidence of non-ambulatory, non-injured cattle having difficulty walking); Guy H. Loneragan et al., *Increased Mortality in Groups of Cattle Administered the β-adrenergic Agonists Ractopamine Hydrochloride and Zilpaterol Hydrochloride*, 9 PLOS ONE 1, 2 (2014) (expressing concern about usage of beta agonists being associated with elevated heart rates, body temperature, lameness or foot lesions, and aggression).

65. Lin, *supra* note 46, at 23.

66. Centner et al., *supra* note 52, at 4234.

Like hormones, meat products can be labeled to note that no feed additives were administered to animals, in order to enable conscious consumers the opportunity to select these products. In the United States, the USDA has a "Never Fed Beta Agonists Program" to inform consumers that animals providing the products were not fed beta agonists.[67] However, a recent study suggests consumers would prefer meat products to be labeled if beta agonists *were* administered.[68] The "Never Fed Beta Agonists" claim is substantiated through one of the USDA's verification programs.[69]

C. Antibiotics

Throughout the world, antibiotics are used to treat illnesses in people and animals, or to prevent the spread of bacteria that could infect others. The treating of known and suspected infections is known as "therapeutic use."[70] However, antibiotics are also administered to food animals to increase the rate of weight gain and improve feed efficiency.[71] These uses are known as "nontherapeutic uses."[72] The FDA refers to such usage as "production use."[73]

An estimated 60%-80% of antibiotics used in the United States are administered to food animals for production uses.[74] This means a majority of antibiotic

67. U.S. DEP'T OF AGRIC., QUALITY SYSTEMS VERIFICATION PROGRAM (QSVP) NEVER FED BETA AGONISTS PROGRAM 1 (Mar. 2014) [hereinafter QUALITY SYSTEMS VERIFICATION PROGRAM].

68. *See generally* CONSUMER REPORTS FOOD LABELS SURVEY, *supra* note 3.

69. *See generally* QUALITY SYSTEMS VERIFICATION PROGRAM, *supra* note 67.

70. JEROME A. PAULSON & THEOKLIS E. ZAOUTIS, COUNCIL ON ENVTL. HEALTH, NONTHERAPEUTIC USE OF ANTIMICROBIAL AGENTS IN ANIMAL AGRICULTURE: IMPLICATIONS FOR PEDIATRICS e1671 (Dec. 2015).

71. Emmanouil Angelakis, *Weight Gain by Gut Microbiota Manipulation in Productive Animals*, 106 MICROBIAL PATHOGENESIS 162, 168 (2017) (illustrating that antibiotics have been used for over 60 years to help animals gain weight); J. J. Dibner & J. D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 84 POULTRY SCI. 634, 634 (2005); *see also* Nat. Res. Def. Council, Inc. v. U.S. Food & Drug Admin., 760 F.3d 151, 153 (2d Cir. 2014).

72. PAULSON & ZAOUTIS, *supra* note 70, at e1671.

73. FOOD & DRUG ADMIN. CTR. FOR VETERINARY MED., GUIDANCE FOR INDUSTRY: NEW ANIMAL DRUGS AND NEW ANIMAL DRUG COMBINATION PRODUCTS ADMINISTERED IN OR ON MEDICATED FEED OR DRINKING WATER OF FOOD-PRODUCING ANIMALS: RECOMMENDATIONS FOR DRUG SPONSORS FOR VOLUNTARILY ALIGNING PRODUCT USE CONDITIONS WITH GFI #209, at 4 (Dec. 2013) [hereinafter RECOMMENDATIONS FOR DRUG SPONSORS FOR VOLUNTARILY ALIGNING PRODUCT USE CONDITIONS WITH GFI #209]; FOOD & DRUG ADMIN. CTR. FOR VETERINARY MED, GUIDANCE FOR INDUSTRY: THE JUDICIOUS USE OF MEDICALLY IMPORTANT ANTIMICROBIAL DRUGS IN FOOD-PRODUCING ANIMALS 4 (Apr. 2012) [hereinafter THE JUDICIOUS USE OF MEDICALLY IMPORTANT ANTIMICROBIAL DRUGS IN FOOD-PRODUCING ANIMALS].

74. CTR. FOR FOOD SAFETY, AMERICA'S SECRET ANIMAL DRUG PROBLEM: HOW LACK OF TRANSPARENCY IS ENDANGERING HUMAN HEALTH AND ANIMAL WELFARE 8 (Sept. 2015). In

usage in the United States is not to treat or prevent disease. Some of the nontherapeutic antibiotics administered to food animals are the same or very similar to the antibiotics used in humans (table 4).[75]

TABLE 4.[76] Critically and highly important antibiotics

Antibiotic	**Animal use**	**Concerns about the continued use for humans**
Tetracyclines	Cattle, swine, poultry	*Brucella, Chlamydia* spp. and *Rickettsia* spp. infections
Macrolides	Cattle, swine, poultry	Limited therapy for *Legionella, Campylobacter* and multi-drug resistant *Salmonella* and *Shigella* infections
Aminoglycosides	Swine, poultry	Transmission of *Enterococcus* spp., *Enterobacteriaceae* (including *Escherichia coli*) and *Mycobacterium* spp.
Sulfonamides	Cattle, swine, poultry	One of the limited therapies for acute bacterial meningitis, systemic non-typhoidal salmonella infections, and other infections
Lincosamides	Swine, poultry	Human infection may result from transmission of *Enterococcus* spp. and *Staphylococcus* aureus

The widespread nontherapeutic use of antibiotics in animal production raises the concern that bacteria would develop resistance to antibiotics administered to food animals, and subsequently, would lead to resistant bacteria that infect humans (table 5).[77] Since antibiotic resistance is a problem and resistance is related to usage of antibiotics, experts seek to diminish the production uses of nontherapeutic antibiotics in the United States and other countries.[78]

2015, more than nine million kilograms of domestic sales for medically important antimicrobial products were made available for administration to food-producing animals. *See* FOOD & DRUG ADMIN., 2015 SUMMARY REPORT ON ANTIMICROBIALS SOLD OR DISTRIBUTED FOR USE IN FOOD-PRODUCING ANIMALS 17 (Dec. 2016). In total, more than fifteen million kilograms of antimicrobial drugs were used in animals.

75. *See generally* World Health Org. [WHO], *Critically Important Antimicrobials for Human Medicine* (2011) (classifying critically important drugs for human infections).

76. *Id.*

77. Terence J. Centner, *Recent Government Regulations in the United States Seek to Ensure the Effectiveness of Antibiotics by Limiting Their Agricultural Use*, 94 ENV'T INT'L 1, 2 (2016).

78. *See* REVIEW ON ANTIMICROBIAL RESISTANCE, ANTIMICROBIAL RESISTANCE: TACKLING A CRISIS FOR THE HEALTH AND WEALTH OF NATIONS 15 (Dec. 2014). *See generally*

TABLE 5.[79] Documenting the transmission of antibiotic resistant bacteria

Concern	**Health hazard**
Unnecessary nontherapeutic usage	Increases gene pool and amplifies the presence of resistant microorganism strains
Transfer to other bacteria	Resistance genes can be transferred between bacterial species
Transfer from animals to humans	Resistant bacteria may be acquired through contact with infected animals, their feces, or contaminated environments
Transfer from animals to humans	Transferable resistance genes through food products
Transfer to farm personnel and dogs	Resistant bacteria transmitted on the farm and to humans

The unnecessary administration of antibiotics to food animals has led the medical community and public health officials to recommend regulatory actions to curb nontherapeutic usage.[80] In the United States, the FDA has issued guidance on the administration of nontherapeutic antibiotics.[81] For instance, the Veterinary Feed Directive, adopted in 2015,[82] is a controversial set of regulations that provide a framework for certain nontherapeutic drugs used in animal production in the United States.[83]

The Veterinary Feed Directive maintains the use of medically important antimicrobial drugs in food-producing animals should be limited to those uses that

CTRS. FOR DISEASE CONTROL AND PREVENTION, ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES (2013) [hereinafter ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES].

79. Centner, *supra* note 77, at 2.

80. *See generally* ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES, *supra* note 78.

81. *See generally* RECOMMENDATIONS FOR DRUG SPONSORS FOR VOLUNTARILY ALIGNING PRODUCT USE CONDITIONS WITH GFI #209, *supra* note 73; THE JUDICIOUS USE OF MEDICALLY IMPORTANT ANTIMICROBIAL DRUGS IN FOOD-PRODUCING ANIMALS, *supra* note 73.

82. 21 C.F.R. § 558.6 (2017); Veterinary Feed Directive, 80 Fed. Reg. 31,708 (June 3, 2015) (to be codified at 21 C.F.R. pt. 558).

83. Emilie Aguirre, *Contagion without Relief: Democratic Experimentalism and Regulating the Use of Antibiotics in Food-Producing Animals*, 64 UCLA L. REV. 550, 574-76 (2017) (describing loopholes in the directive that limit its effectiveness in reducing antibiotic usage); Centner, *supra* note 77, at 5 (identifying the obligation of the FDA to ensure antibiotics are effective); Cari Rincker, *National Agricultural Law Update*, 11 TENN. J.L. & POL'Y 12, 19-22 (2016) (discussing the meaning of the provisions for producers); Harry Snelson, *Veterinary Feed Directive—The Veterinarian's Role*, J. SWINE HEALTH & PRODUCTION 283, 285 (2015) (highlighting the important provisions of the directive).

are considered necessary for assuring animal health (table 6).[84] The Directive addresses the use of nontherapeutic antibiotics by advising they should not be administered for growth promotion.[85] It also provides the use of medically important antimicrobial drugs in food-producing animals should be limited to those uses that include veterinary oversight or consultation.[86] While producers dispute the feasibility of these stricter rules, economic studies suggest the nonuse of nontherapeutic antibiotics should only lead to small increases in production costs.[87]

TABLE 6.[88] Summary of producer activities to reduce development of antibiotic resistant bacteria

Application	**Activity or safeguard**
Administering to animals	Only when necessary to treat infectious diseases
Usage oversight	Require a licensed veterinarian with a connection to the production facility
Production facilities	Adopt hygienic practices and biosecurity practices that are related to healthier animals
Vaccination	Vaccinate when possible to avoid future antibiotic usage
Animal care	Use sustainable systems and good handling practices

Consumers are also driving demand for products made from animals raised without antibiotics.[89] One survey suggests more than 80% of consumers would prefer a guarantee that their products are from animals that were not administered antibiotics before purchasing.[90] This can be achieved with a labeling program so long as there is some mechanism for oversight. Currently in the United States,

84. Centner, *supra* note 77, at 3.

85. Veterinary Feed Directive, 80 Fed. Reg. 31,708, 31,719 (June 3, 2015) (to be codified at 21 C.F.R. pt. 558).

86. *Id*.

87. STACY SNEERINGER ET AL., U.S. DEP'T OF AGRIC., ECONOMICS OF ANTIBIOTIC USE IN U.S. LIVESTOCK PRODUCTION 49 (Nov. 2015) (explaining supply and demand and how it would lead to price increases).

88. *See generally id*. (explaining supply and demand and how it would lead to price increases).

89. Thilmany et al., *supra* note 43, at 202-03.

90. CONSUMER REPORTS, MEAT ON DRUGS: THE OVERUSE OF ANTIBIOTICS IN FOOD ANIMALS AND WHAT SUPERMARKETS AND CONSUMERS CAN DO TO STOP IT 3 (June 2012).

labels on meat products may make the claim "no antibiotics were ever administered" to the animal.[91]

III. MISLABELING

Labeling serves as the interface between consumers' purchase decisions and the functioning of the market for differentiated food products.[92] In the absence of face-to-face encounters when products are sold, labeling provides the communication between producers and consumers.[93] Consumers depend on truthful and accurate labels to provide the information required to make choices in selecting products they desire.[94] Information on labels allows product diversity and influences purchase decisions.[95]

Food fraud is more prevalent than the public or governmental regulators will admit.[96] In 2013, a scandal over the sale of horse meat in Europe highlighted the ability of dishonest firms to sell mislabeled products.[97] Tests in the United Kingdom revealed one-third of food products may be mislabeled.[98] A DNA-based study of Italian meat products concluded 57% were mislabeled.[99] A recent study in the United States of forty-eight meat samples using DNA testing disclosed 18% were mislabeled.[100] In 2010, it was estimated economic adulteration and counterfeiting

91. United States Standards for Livestock and Meat Marketing Claims, 67 Fed. Reg. 79,552, 79,554 (proposed Dec. 30, 2002).

92. Emma Tonkin et al., *Trust in and Through Labelling—A Systematic Review and Critique*, 117 BRIT. FOOD J. 318, 318 (2015) (observing that the importance of labeling has led to packages with crowded labels).

93. *Id*. at 319.

94. *Id*.

95. *See* Azucena Gracia & Tiziana de-Magistris, *Consumer Preferences for Food Labeling: What Ranks First?*, 61 FOOD CONTROL 39, 45 (2015) (finding consumers highly value labeling schemes regulated by law); Wim Verbeke & Ronald W. Ward, *Consumer Interest in Information Cues Denoting Quality, Traceability and Origin: An Application of Ordered Probit Models to Beef Labels*, 17 FOOD QUALITY & PREFERENCE 453, 454 (2006) (citing purchaser quality and quality expectations are important).

96. *See generally* James Andrews, *Food Fraud a Bigger Problem Than Many Realize, Experts Say*, FOOD SAFETY NEWS (Aug. 20, 2015), https://perma.cc/M934-U7C4.

97. *See generally* Stephen Castle & Douglas Dalby, *Horse Lasagna? For Britons, It's No Trivial Matter*, INT'L HERALD TRIB. (Feb. 9, 2013) (on file with author).

98. Felicity Lawrence, *Fake-Food Scandal Revealed as Tests Show Third of Products Mislabelled*, GUARDIAN (Feb. 8, 2014), https://perma.cc/BC45-JKLG.

99. Angela Di Pinto et al., *Occurrence of Mislabeling in Meat Products Using DNA-Based Assay*, 52 J. FOOD SCI. & TECH. 2479, 2481 (2014) (analyzing for chicken, bovine, pork, and horse meat; none of the samples tested positive for horse meat).

100. Dawn E. Kane & Rosalee S. Hellberg, *Identification of Species in Ground Meat Products Sold on the U.S. Commercial Market Using DNA-Based Methods*, 59 FOOD CONTROL 1, 2 (2016) (observing that specialty meat distributors had the highest rate of mislabeling).

of global food and consumer products cost the industry more than $10 billion per year.[101]

For any labeling effort to be successful, there must be some type of mechanism to prevent fraud. Because meats produced with various technologies cannot be visually distinguished and the testing of products is costly, falsely labeled products are difficult to detect. In the United States, federal law requires antimicrobial drug sponsors to annually report to the FDA the amounts of drugs they sell or distribute for use in food-producing animals.[102] Opportunities for misbranding can be reduced by requiring open production and veterinary records, as well as certification programs to market meat products.

The ability to access information about attributes of animal food products starts with self-reporting by producers, which, at this point, generally lacks audits or inspection.[103] However, governmental and third-party certification programs are available and often require audits of facilities.[104] For meat products, several verification efforts by third parties are used to assure the veracity of labels (table 7).[105]

TABLE 7. Ascertaining the truthfulness of food labels

Guarantor	**Degree of independence**	**Example**
Federal programs	Excellent	Quality System Assessment[106]
State programs	Very good	rBST in milk[107]
Federally certified	Excellent	National Organic Program[108]

101. GROCERY MFRS. ASS'N ET AL., CONSUMER PRODUCT FRAUD: DETERRENCE AND DETECTION 1 (2010).

102. *See generally* FOOD & DRUG ADMIN., 2015 SUMMARY REPORT ON ANTIMICROBIALS SOLD OR DISTRIBUTED IN 2015 FOR USE IN FOOD-PRODUCING ANIMALS (Dec. 2016).

103. *See* Hillary Sackett et al., *Differentiating "Sustainable" from "Organic" and "Local" Food Choices: Does Information About Certification Criteria Help Consumers?*, 4 INT'L J. FOOD & AGRIC. ECON. 17, 17-18 (2016) (noting there is no unifying standard for certification of food attributes by the USDA).

104. *See generally* U.S. DEP'T OF AGRIC., USDA PROCESS VERIFIED PROGRAM (Oct. 2015).

105. *See, e.g.*, U.S. DEP'T OF AGRIC., NATIONAL ORGANIC PROGRAM HANDBOOK (2016) [hereinafter NATIONAL ORGANIC PROGRAM HANDBOOK]; U.S. DEP'T OF AGRIC., USDA QUALITY SYSTEM ASSESSMENT (QSA) PROGRAM (Mar. 2004) [hereinafter USDA QUALITY SYSTEM ASSESSMENT PROGRAM]; *Becoming American Humane Certified*, AM. HUMANE CERTIFIED, https://perma.cc/RKL6-3UFR (archived Sept. 21, 2017); *Our Standards*, AM. GRASSFED ASS'N, https://perma.cc/6RTR-DBR3 (archived Sept. 21, 2017).

106. *See generally* USDA QUALITY SYSTEM ASSESSMENT PROGRAM, *supra* note 105.

107. *See* WIS. ADMIN. CODE ATCP § 83.02 (2017).

108. *See generally* USDA QUALITY SYSTEM ASSESSMENT PROGRAM, *supra* note 105.

organizations		
Non-governmental organizations	Very good	American Humane Certified™ [109]
Industry-sponsored organizations	Good	American Grassfed Association [110]
Producers	Poor	Small organic farms [111]

Substantiation by governments and third parties about how animals were raised enhances the likelihood of truthful information. Federal programs, federally certified organizations, and non-governmental organizations that independently provide accurate confirmation of production and marketing practices offer consumers assurance the products conform to their labels.[112] For livestock and meat products, difficulties in ascertaining whether the products come from animals raised as indicated on the label could be solved with additional oversight.

Confusing and fraudulent labels regarding the nonuse of antibiotics are especially a problem for meat products. Selected labeling terms have ambiguous meanings or may be subject to misinterpretation by consumers, and this has led the USDA to restrict the use of many terms.[113] For example, "antibiotic free" and "no antibiotic residues" are superfluous, as it is illegal under federal law to sell meat products with antibiotic residues.[114] Additionally, terms like "natural," "antibiotic-free," and "no antibiotic residues" do not guarantee that animals did not receive antibiotics.[115]

IV. CASE OF TASTE-TESTING MISLABELING

Consumers who prefer specialized meat products may not recognize that all products are safe to eat if marketers comply with federal regulations. Food-borne illnesses have no direct relationship with the use of antibiotics, hormones, or beta agonists in food-producing animals.[116] Although low amounts of hormones and beta agonists may be present in products from treated animals, a huge safety factor was

109. *See generally* AM. HUMANE CERTIFIED, *supra* note 105.

110. *See generally* AM. GRASSFED ASS'N, *supra* note 105.

111. *See generally* PAMELA COLEMAN, NAT'L CTR. FOR APPROPRIATE TECH., GUIDE FOR ORGANIC CROP PRODUCERS (Nov. 2012); NATIONAL ORGANIC PROGRAM HANDBOOK, *supra* note 105.

112. *See* Sackett et al., *supra* note 103, at 28 ("[S]ignificant estimates on certification confirm higher preference for private third party and USDA certification relative to none (or farm-level claims).").

113. CONSUMER REPORTS, *supra* note 90, at 3, 21.

114. United States Standard for Livestock and Meat Marketing Claims, 67 Fed. Reg. 79,552, 79,554 (proposed Dec. 30, 2002).

115. CONSUMER REPORTS, *supra* note 90, at 3 (observing the terms are undefined).

116. U.S. Food & Drug Admin., *supra* note 27.

used to determine acceptable daily intake levels.[117] Despite this information and assurances, some consumers remain biased against meat products from animals receiving these treatments.

Consumer aversion to hormones in meat production was found by two food scientists conducting a research project. This project involved consumer sensory tests of samples of four chicken products with different labels.[118] Participants were given one sample labeled "No Hormones Added,"[119] but unknown to them, all samples were the same because federal law prohibits the use of antibiotics in poultry at any rate. After tasting the samples, participants expressed differences in their overall liking and perceived intensities of tenderness, juiciness, and flavor of all four samples.[120] The participants thought the sample labeled with the "No Hormones Added" claim was significantly higher in overall quality compared to the baseline.[121] This not only suggests consumers object to the use of hormones, but also that accurate information about which animal species are receiving added hormones is needed.

V. PREVENTING FRAUDULENT LABELING

Governments have recognized they have a role in preventing fraud in the labeling of food products. For meat labeling, Congress has authorized the Secretary of the USDA to oversee labels that may be false or misleading in two different Acts.[122] The Federal Meat Inspection Act and the Poultry Products Inspection Act prohibit false and misleading labels as well as misbranding.[123] The USDA Food Safety Inspection Service performs more than six million verification procedures and finds more than 100,000 documented instances of noncompliance per year.[124] However, the verification programs do not respond to some of the labeling fraud involving hormones and antibiotics. Moreover, federal law precludes state and consumer actions against fraudulently labeled meat products.

117. *See* Lin, *supra* note 46, at 23 (noting the broad safety margin used for acceptable daily intakes and maximum residue limits).

118. *See generally* Shilpa S. Samant & Han-Seok Seo, *Quality Perception and Acceptability of Chicken Breast Meat Labeled with Sustainability Claims Vary as a Function of Consumers' Label-Understanding Level*, 49 FOOD QUALITY & PREFERENCE 151 (2016).

119. *Id*. at 154.

120. *Id*.

121. *Id*. at 155.

122. Terence J. Centner, *Efforts to Slacken Antibiotic Resistance: Labeling Meat Products from Animals Raised Without Antibiotics in the United States*, 563 SCI. TOTAL ENV'T 1088, 1090 (2016) (citing 21 U.S.C. §§ 458, 678 (2012)).

123. 21 U.S.C. §§ 458, 678 (2012).

124. *See* U.S. DEP'T OF AGRIC. FOOD SAFETY & INSPECTION SERV., QUARTERLY ENFORCEMENT REPORT 1 (2016).

A. USDA Verification Procedures

While federal laws and attendant regulations directed at preventing fraudulent and misleading labels on meat products are important in providing wholesome food, the USDA's testing procedures do not meaningfully address the accuracy of labels denoting the nonuse of hormones or antibiotics (table 8).[125] Rather, the agency's verification actions are performed to ascertain that meat products are safe for consumption. Mislabeled products that do not pose a health issue generally go undetected.[126] Moreover, most fraud cases associated with food products involve substituting high-value products with lower quality alternatives.[127] Such fraud does not involve a safety issue.

For hormones, the USDA testing procedures are based on relative public health concerns, and not every sample tested is evaluated.[128] For samples tested, meat products are examined for excessive levels of six hormones: estradiol, progesterone, testosterone, trenbolone, zeranol, and melengestrol acetate.[129] Since the testing does not determine whether animals providing meat products were administered natural hormones, it cannot effectively establish the label "No Added Hormones" is truly accurate.

TABLE 8.[130] USDA's testing and verification actions and whether they would identify fraudulent labels concerning three production technologies

Technology	**Usage**	**Safety violation**	**Guarantee of label truthfulness**
Hormones	No	Yes	No
Beta agonists	Yes	Yes	Yes
Antibiotics	No	Yes	No

Additionally, beta agonist residues often remain in the meat products that come from animals administered these drugs. Of the 1638 samples collected by the USDA in a three-month period in 2015, only two contained ractopamine residues.[131] The USDA's testing procedures should correctly identify whether beta agonists

125. *See generally* U.S DEP'T OF AGRIC. FOOD SAFETY & INSPECTION SERV., UNITED STATES NATIONAL RESIDUE PROGRAM QUARTERLY REPORT (Oct.-Dec. 2015) [hereinafter NATIONAL RESIDUE PROGRAM QUARTERLY REPORT].

126. JOHNSON, *supra* note 13, at 1.

127. *Id*. at 2.

128. U.S. DEP'T OF AGRIC. FOOD SAFETY & INSPECTION SERV., UNITED STATES NATIONAL RESIDUE PROGRAM FOR MEAT, POULTRY, AND EGG PRODUCTS: 2015 RESIDUE SAMPLE RESULTS 8 (May 2017) (noting random samples were taken).

129. 21 C.F.R. §§ 556.240, 556.380, 556.540, 556.710, 556.739, 556.760 (2017).

130. *See generally* NATIONAL RESIDUE PROGRAM QUARTERLY REPORT, *supra* note 125.

131. *Id*. at 29.

were used, so the agency can provide to consumers an accurate accounting of these products.[132]

Finally, the USDA's testing for antibiotics is not dispositive on whether animals providing meat products received them.[133] While the USDA has found some products exceeding governmental threshold limits,[134] most antibiotics are eliminated from animals' systems within short periods of time.[135] This means the absence of antibiotics does not offer a guarantee they were never administered to the animals.

The USDA's verification procedures are important in overseeing the marketing of safe meat products, but the tests currently employed do not accurately reflect whether hormones or antibiotics were indeed used in the production of meat products. If consumers want assurances against mislabeled meat products with respect to these technologies, an alternative type of guarantee is needed.

B. Alternative Actions to Prevent Labeling Fraud

While the U.S. government adequately monitors food products for health and safety concerns, there is generally no meaningful oversight of labeling because Congress declines to allocate significant resources to oversee labeling information on products not involving a health or safety issue.[136] For these products, the absence of sufficient federal oversight means consumer and state enforcement actions are needed to combat the proliferation of mislabeled products.[137] The prevalence of consumer litigation in California is a testament to the sheer number of mislabeled food products and the inability of the federal government to monitor and enforce federal labeling laws.[138]

132. This assertion assumes the use of a testing method with proven accuracy.

133. This is because many antibiotics are eliminated from the animal within a short period of time. *See* Weilin L. Shelver et al., *Depletion of Penicillin G Residues in Heavy Sows After Intramuscular Injection, Part II: Application of Kidney Inhibition Swab Tests*, 62 J. AGRIC. & FOOD CHEMISTRY 7586, 7586 (2014) (noting preslaughter withdrawal periods and established zero tolerance levels).

134. *See generally* NATIONAL RESIDUE PROGRAM QUARTERLY REPORT, *supra* note 125.

135. *See* Shelver et al., *supra* note 133, at 7592 (noting preslaughter withdrawal periods may be insufficient).

136. Pomeranz, *supra* note 14, at 619, 633-34, 636-37.

137. *Id.* at 619, 635-36.

138. *See* Brett M. Paben, *Lack of Interest in Consumer Interests: FDA's Narrow Perspective on Food Labeling and Label Statements Undermines a Century of Agency Leadership*, 13 RUTGERS J.L. & PUB. POL'Y 174, 189 (2015) (analyzing eco-labels); *see also* Sarah Valenzuela, Note, *Tracing the Evolution of Food Fraud Litigation: Adopting an Ascertainability Standard That Is "Natural,"* 34 REV. LITIG. 609, 611 (2015) (observing the FDA has moved to a "paper-bound generator of rules and regulations").

For meat products, federal law precludes consumers from suing firms that mislabel.[139] This occurs via the Federal Meat Inspection Act's and the Poultry Products Inspection Act's provisions that decline to authorize consumers the right to initiate legal proceedings for false and misleading labels, so if consumers think meat products are mislabeled, they must convince the USDA to bring a civil enforcement action.[140] While the FDA also has concurrent jurisdiction with the USDA over misbranding of meat products post inspection,[141] the FDA normally will not initiate an enforcement action.[142] Thus, other than for food safety issues, federal actions for mislabeled meat products are rare.[143] Both the Federal Meat Inspection Act and the Poultry Products Inspection Act contain provisions preempting additional requirements by state governments.[144] Because of these provisions, state governments cannot enact requirements attempting to provide consumers with more information concerning meat products.[145]

C. Proposal for New Provisions to Address Fraud

With federal law placing authority over the labeling of meat products with the USDA, consumers and state legislatures are marginalized. States cannot respond to citizen requests for additional oversight, and individuals who think a product was falsely labeled cannot seek redress. Given the USDA's focus on the production and sales of agricultural products, consumers may think their interests are subordinate to production interests. Without the possibility of consumer lawsuits, it is likely labels on meat products are not subject to the same scrutiny as other food products. It is unclear how many mislabeled meat products are being sold due to the lack of meaningful governmental enforcement actions.

If consumers want greater assurances that they are not paying extra for mislabeled meat products, they need to request a legislative change. Consumers need to convince Congress additional labeling oversight is needed to facilitate the en-

139. NICOLE E. NEGOWETTI, FOOD LABELING LITIGATION: EXPOSING GAPS IN THE FDA'S RESOURCES AND REGULATORY AUTHORITY 10 (JUNE 2014); Pomeranz, *supra* note 14, at 619.

140. 21 U.S.C. §§ 467e, 678 (2012); *see also* Sanderson Farms, Inc. v. Tyson Foods, Inc., 549 F. Supp. 2d 708, 708 (D. Md. 2008).

141. *CPG Sec. 565.100 FDA Jurisdiction Over Meat and Poultry Products*, FDA, https://perma.cc/FB9D-KUSX (last updated Mar. 20, 2015).

142. *See id.*

143. Pomeranz, *supra* note 14, at 619.

144. 21 U.S.C. §§ 467e, 678 (2012); *see also* Del Real, L.L.C. v. Harris, 636 F. App'x 956, 957 (9th Cir. 2016) (affirming a lower court that found California provisions were preempted by the Federal Meat Inspection Act and the Poultry Products Inspection Act). *But see* 15 U.S.C. § 1125 (2012); Jennifer Thurswell Radis, Note, *The Lanham Act's Wonderful Complement to the FDCA:* POM Wonderful v. Coca-Cola *Enhances Protection Against Misleading Labeling Through Integrated Regulation*, 47 LOY. U. CHI. L.J. 369, 404-05 (2015) (analyzing actions for mislabeled food products).

145. 21 U.S.C. §§ 467e, 678 (2012).

forcement of accurate labels for animal production technologies. Because consumers want correctly labeled products, the historic provisions of the Federal Meat Inspection and Poultry Products Inspection Acts are insufficient and outdated.

There are two benefits to eliminating fraudulently labeled products by inserting new provisions in both Acts. First, a provision could recognize the right of consumers to bring actions for fraudulently labeled products. The added provision could be modeled after text from the Lanham Act:[146]

> (1) Any person who, on or in connection with any goods or services, or any container for goods, uses in commerce any word, term, name, symbol, or device, or any combination thereof, or any false designation of origin, false or misleading description of fact, or false or misleading representation of fact, which –
>
> > (A) is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person, or
> >
> > (B) in commercial advertising or promotion, misrepresents the nature, characteristics, qualities, or geographic origin of his or her or another person's goods, services, or commercial activities,
> >
> > > shall be liable in a civil action by any person who believes that he or she is or is likely to be damaged by such act.

Inserting this proposed text in both the Federal Meat Inspection Act and the Poultry Products Inspection Act would allow consumers to take actions against marketers of falsely labeled meat products.

Second, an additional provision could enable state governments to enact their own legislation addressing fraudulently labeled meat products:

> A state may enact statutes and promulgate regulations on false and misleading labeling consistent with the misbranding provisions of the Federal Meat Inspection Act and the labeling standards of the Poultry Products Inspection Act.

This second provision would augment the enforcement capacity of the federal government in preventing mislabeling. States desiring to address consumer concerns about mislabeling could adopt state remedies to eliminate fraudulent activities.

146. 15 U.S.C. § 1125 (2012).

VI. CONCLUSION

Consumers in many countries are seeking products that are produced without objectionable production inputs. For meat products, consumers want assurances that the animals were raised without added hormones, beta agonist feed additives, and nontherapeutic antibiotics. While producers are willing to supply these products whenever prices are high enough to offset increased production costs, fraudulent claims are a problem.[147] The higher prices for products from animals that were not raised with these three production inputs offer incentives for deceitful marketers to falsely label nonconforming products. Some type of oversight is needed to monitor the accuracy of label claims.

Since federal law in the United States does not authorize consumer lawsuits for falsely labeled products, alternative actions are needed to reduce fraud.[148] A few U.S. states have acknowledged the problem of fraudulently labeled food products by adopting legislation allowing consumers to sue firms allegedly selling mislabeled products. However, these state provisions do not apply to meat products due to provisions of the Federal Meat Inspection and Poultry Products Inspection Acts.[149] In the absence of legislative and enforcement remedies, there are insufficient incentives to comply with labeling requirements.[150]

Given consumer interest in specialty products and problems of mislabeling products, the federal provisions on meat and poultry adopted during the last century are insufficient in protecting consumers from false and misleading labels. Federal law provides verification testing for food safety, but testing procedures do not guarantee the veracity of labels on the products.[151] In the absence of DNA sequencing, meat products may be mislabeled as to the species of animal providing the product.[152] Furthermore, the USDA's verification procedures do not address production technologies listed on product labels. This illustrates there is no direct governmental oversight of the veracity of labels claiming the nonuse of hormones and antibiotics.

Consumers are not the only losers when marketers are able to falsely label meat products. Enterprising producers who are willing to forgo using hormones

147. JOHNSON, *supra* note 13, at 3. One estimate suggests that approximately 10% of commercially-sold food products fail to comply with labeling requirements.

148. *See* Radis, *supra* note 144, at 387 (acknowledging if governments cannot enforce labeling provisions then litigation might be employed).

149. 21 U.S.C. §§ 467e, 678 (2012).

150. Pomeranz, *supra* note 14, at 619 (observing warning letters from FDA are insufficient in encouraging compliance with labeling requirements).

151. *See supra* notes 123-146 and accompanying text.

152. *See generally* Kane & Hellberg, *supra* note 100 (using DNA analysis for species identification).

and antibiotics may receive lower prices for their items when falsely labeled products within the marketplace are sold.[153] To encourage the production of specialized meat products, greater oversight on labeling claims regarding production technologies is needed. This will continue to foster the use of certification and verification programs.

Governmental agencies or private firms can oversee the certification or verification of practices employed in the production of food animal products. However, this oversight costs money, and decisions need to be made on how to cover the expenses. In the United States, labeling claims of meat products are monitored by the USDA, and a combination of governmental and private efforts exist to ensure the accuracy of label claims. Some of the costs of the certification and verification programs are borne by producers and marketers, resulting in higher-priced products. These programs show consumers can be provided specialized products while also allowing lower-priced, regular products in the marketplace.

These programs, however, do not prevent mislabeled products; rather, they merely reduce the likelihood products will be mislabeled. Until the limitations of the Federal Meat Inspection Act and the Poultry Products Inspection Act are amended to allow other enforcement options, few marketers of falsely labeled products will face sanctions. This situation calls for additional provisions to prevent untruthful labels. The aforementioned proposals to expand enforcement would allow consumers and state governments to bring actions against marketers for falsely labeled meat products. Until greater enforcement options are available, deceitful marketers seeking greater profits will make false claims regarding the nonuse of hormones, beta agonists, and antibiotics in the animals supplying their meat products. In the absence of effective enforcement mechanisms, American consumers will continue to be defrauded by meat products that are mislabeled.

153. Ugochukwu et al., *supra* note 12, at 560.