The Future of Food Safety Regulation: Encouraging Both Food Safety and Environmental Sustainability By Protecting Small Farm Production

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The Future of Food Safety Regulation: Encouraging Both Food Safety and Environmental Sustainability By Protecting Small Farm Production

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Class of 2009

May, 2009

This paper is submitted in satisfaction of the course requirement only.
Abstract: In recent years, in the face of potentially debilitating environmental, economic, and nutritional disaster, Americans have begun to embrace the idea of local, sustainable, and minimally processed foods. At the same time, a rash of pathogen outbreaks in our nation’s produce supply has created a mistrust of the nation’s supply of fruits and vegetables and instigated a call for heightened regulation and oversight of our nation’s farms and processing plants. Against the background of these two strains of political discourse, this Article analyzes recent proposed legislation for food safety regulation. Rather than succumb to the knee-jerk reaction of “more regulation is always better,” legislators and regulators should combine both critiques into a nuanced approach to food regulation that will encourage both safety and sustainability by bolstering small family farms’ ability to produce foods locally.

INTRODUCTION.

In his popular book The Omnivore’s Dilemma, author and journalist Michael Pollan complained that the highly processed foods that dominate an American supermarket are extremely removed from the soil and farms from which they originated: “I realized that the straightforward question ‘What should I eat?’ could no longer be answered without first addressing two other even more straightforward questions: ‘What am I eating? And where in the world did it come from?’ Not very long ago an eater didn’t need a journalist to answer these questions.” Pollan’s wistful nostalgia for an era of simpler, more sustainable food echoes throughout the United States. In recent years, consumers have bolstered the market share of food labeled “organic,” both at Wal-mart and Whole Foods. The “Buy Local” movement has gained political traction outside of tiny leftwing communities Berkeley, California. Even the First

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Family has planted a vegetable garden not out of necessity or war-time effort but as a political statement in support of healthy, environmentally conscious eating.  

The nostalgia surrounding simply grown and barely processed food runs parallel to rising fear in the face of a seeming slew of public health disasters. With complicated supply chains connecting seemingly unrelated farm locations and foods, each outbreak or crop contamination affects huge ranges of consumer products available at the supermarket. In the past few years, national outbreaks of *E. coli*, salmonella, and other contaminants have affected the whole nation’s supply of spinach (in fall 2006), lettuce (also fall 2006), peppers and possibly tomatoes (summer 2008), peanuts (winter 2009), and pistachios (spring 2009), killing hundreds and infecting thousands of Americans. Smaller contaminations have also littered the national food landscape. And when a crop sneaks its way into all sorts of products, the effect is even more pervasive. The recent peanut product recall is a particularly good example: as of April 23, 2009, 3913 products had been voluntarily recalled and reported to the Food and Drug Administration (FDA) as a result of a salmonella outbreak in the crop distributed by the Peanut Corporation of America anywhere between January 2007 and February 2009. Even when a

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3 Outbreaks affecting food less dominant in our country’s eating habits have not had as much press, but have been similarly extensive with respect to that crop’s market share. In fall 2003, hepatitis A outbreaks were associated with green onions from Mexico, economically wounding all growers, even those with strong food safety programs. Linda Clavin, Belem Avendano, & Rita Schwentesius, USDA, *The Economics of Food Safety: The Case of Green Onions and Hepatitis A Outbreaks*, VGS-305-01, Dec. 2004, at 2. Imported pet food was contaminated with melamine in early 2007; ground beef patties in the Northeast (and Florida) were infected with E. Coli O157 in fall 2007; oysters harvested from the gulf of Mexico were infected with norovirus in early 2009. See http://www.fda.gov/oc/opacom/hottopics/petfood.html; http://www.cdc.gov/ecoli/2007/october/100207.html; http://www.fda.gov/bbs/topics/NEWS/2009/NEW01978.html.  

whole market is not affected, a contamination can wreak havoc on whole industries by destroying public confidence in any product with that crop, whether a particular supplier was implicated or not. When a consumer has no idea where his food is coming from, is it any wonder that he stops eating all spinach, not just spinach from the affected region?

However, the dominant reaction to these outbreaks -- a call for more stringent oversight of farms and others in the food distribution chain -- threatens not to make much of an impact of food safety and damaging an already small demographic in the process: the small family farm. Rather than frantically increasing food safety regulation across the board to all food producers, legislators and regulators should closely evaluate the potential responses to the food safety crisis to ensure that proposals actually would be effective and worth the cost of implementation. By creating a nuanced, tiered response to food safety issues, Congress can reaffirm its commitment to a national ideal of sustainable family farms while strengthening our country’s ability to respond to food safety crises.

Parts I and II will outline the two movements of our current food supply paradigm introduced above -- a desire for sustainability and desire for increased safety. Part III will examine current proposed responses to the food safety issues in particular. These proposals will be evaluated both for their likely success with respect to food safety, and for their effect on small, sustainable producers. The Part also will suggest an additional proposal that an ideal food

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5 A third major critique -- our food supply’s nutritional value and influence over the rising levels of obesity in the United States -- will not be discussed thoroughly. However, this and other nutritional concerns roughly fall under the “sustainability” heading insofar as more local, more organic foods are generally thought to encourage healthier eating. Other parts of the obesity critique -- from the dominance of fast food to how school cafeterias feed children to the ubiquity of supposedly unhealthy corn products as a result of corn subsidies -- fall outside the narrow field of food supply chains discussed in this paper.
safety reform bill – one that aims to comprehensively bolster food safety through both regulator and consumer enforcement, while also encouraging family farms and other local, sustainable producers – would include. Part IV concludes.

PART I. THE DESIRE FOR SUSTAINABLE FOOD

In the decades leading up to the current food safety crisis, Americans have clearly exhibited their support of the nostalgic ideal of the small family farm. In recent years, the growth of local food movements, organic farming, and community farm shareholding has revealed strong popular support for food production that remains geographically restricted or that has gone through fewer steps of processing than much of our food currently does. Even Congress has staunchly supported the farmer in his proverbial dell, expressly claiming a policy to promote family farming for over thirty years. It is against this background support for small sustainable family farms that any future regulation of farming, even in the name of food safety, must be evaluated. With proper consideration of proposed regulation, fidelity to this ideal can match the fervor for safer food systems.

A. Public Support for Sustainable, Local Food

Over the past several years, authors, journalists and activists have disseminated copious materials decrying conventional agriculture as environmentally unsound and personally unhealthy, advocating sustainable local foods. From Michal Pollan’s best-seller The Omnivore’s Dilemma\(^6\) to newspaper articles about President Obama’s family’s garden\(^7\) to more industry-focused newsletters’ articles about “food miles,” which measure how far food has traveled from

\(^6\) Pollan, supra note 1.

\(^7\) See, e.g., Andrew Martin, Is a Food Revolution Now In Season?, N.Y. TIMES, March 20, 2009, at BU1.
farm to supermarket,⁸ these publications all urge Americans to turn away from their Twinkies and instead embrace more traditional foods.

Such nostalgia for an idyllic agricultural existence, especially in the form of support for local farming, is nothing new.⁹ However, the dedication and impact of the local and organic food movements in recent years have been a surprising shift away from the increasing consolidation of agricultural and food producers in the United States. Consumers have taken notice of those crying out for more virtuous food. Whole Foods, the largest organic food supply store in the country, doubled in size in just four years from 2004 to 2008.¹⁰ Even Wal-Mart has been selling organic food since 2006, emphasizing that it supports sustainable agriculture and buys from local growers in an effort to conserve energy expended by food transportation and to support American farming jobs.¹¹ Overall, sales of food products that in some commit to “natural,” sustainable production is large and growing: sales of all such products “across all retail and direct-to-consumer channels grew to approximately $62 billion in 2007, a 10% increase over the prior year,”¹² while certified organic foods sales alone were almost $17 billion in 2006.¹³

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⁹ For example, when adopting language protective of family farms to the 1977 Agriculture Act, it was “noncontroversial” for the Senator introducing the amendment to state that protecting family farms was “a long standing principle of American domestic policy.” 123 CONG. REC. 16053, 16286 (1977) (statements of Senators Talmadge and Pearson). See Part I.A.b, infra, at text accompanying note 19 - 30.

¹⁰ Whole Foods, Inc., Annual Report (Form 10-K), at intro. (Sept. 27, 2008) (letter to stakeholders describing the increase of gross sales from $3.86 billion in 2004 to $7.95 billion in 2008). Granted, some of that growth is not an increase in market but rather the purchase of smaller grocery stores. See id. at 11 - 12 (describing the purchase of Wild Oats, Inc.).


Behind the retailers are the food producers “[h]ailing from small vegetable farms, cattle ranches and grain farms” who provide the food described in those bestseller books and newspaper articles.\textsuperscript{14} Consumers have begun to realize that their desire for less conventional food -- whether they are concerned with food being organic, local, “slow,” or sustainable -- requires supporting these smaller farming endeavors. So, in addition to buying local or national food in the supermarket, support for local farms sometimes translates into direct involvement with local food production. For example, in the last twenty years, programs specifically encouraging local and community farming have erupted across the country. Community supported agriculture (CSA) programs, in which community members become shareholders in a farm and then receive shares of the crops or livestock raised, grew since their introduction in a single community to the United States in 1984 to 761 CSA farms cataloged by USDA in 2001.\textsuperscript{15} By July 2005, USDA’s database consisted of 1,144 CSA farms.\textsuperscript{16}

Of course, there has been some push back on local food movements, arguing that they are too faddish to last. In a compelling article for the Mercatus Center at George Mason University, Professor Pierre Desrochers and writer Hiroko Shimizu recently debunked several claims about the environmental and economic benefit of buying food locally.\textsuperscript{17} Media coverage has begun to

\textsuperscript{14} The New American Farmer: Profiles of Agricultural Innovation, USDA: Sustainable Agriculture Research and Education (2d ed. 2006).
\textsuperscript{15} KATHERINE L. ADAM, ATTRA -- NATIONAL SUSTAINABLE AGRICULTURE INFORMATION SERVICE, IP289, COMMUNITY SUPPORTED AGRICULTURE 3 (2006).
\textsuperscript{16} Id. at 4.
\textsuperscript{17} Pierre Desrochers & Hiroko Shimizu, Yes, We Have No Bananas: A Critique of the “Food Miles” Perspective, MERCATUS POLICY SERIES, POLICY PRIMER NO. 8 (October 2008). Professor Desrochers and Shimizu are in good historical company. Adam Smith argued against protectionism and local farming movements in 1776:

By means of glasses, hotbeds and hotwalls, very good grapes can be raised in Scotland, and very good wine too can be made of them at about 30 times the expense for which at least equally good can be brought from foreign countries. Would it be a reasonable law
equivocate about buying locally, at least exclusively. While many of these critiques have some merit, most do not deny that an increase in availability of local foods from small producers can be meritorious if not taken to illogical or vastly uneconomical extremes. And these critiques cannot undercut the mere fact that there exists growing popular opinion and popular demand for foods that are perceived to be healthier, more environmentally conscious, and perhaps even economically patriotic than succumbing to the vast world of mega food producers and imported foods.

B. Governmental Support of Family Farms

In conjunction with rising popular support for small farms is Congress’s longstanding support for the family farm, with a frequent emphasis on the smaller producer that is reminiscent of the prototypical “salt of the earth” farmer. Since 1977, Congress has affirmed its policy to foster the ideal of the idyllic family farm, stating that it “reaffirms the historical policy of the United State to foster and encourage the family farm system . . . . Congress believes that the maintenance of the family farm system of agriculture is essential to the social well-being of the Nation . . . .” While the language of the statute does not expressly claim allegiance to local, sustainable, or small-scale farming, legislators certainly were concerned with protecting that ideal. In their discussions of the Agriculture Act of 1977, supporting smaller operations was certainly on the minds of the legislators debating the statutes provisions.


18 See, e.g., Bittman, supra note 13; C. Claiborne Ray, Q & A -- Salt of the Earth, N.Y. Times, April 27, 2009, at D2 (“When you think of the pictures [of people with goiters from a lack of iodine] from the Chilean Andes, sticking to eating only local foods seems like not such a good idea.” (quoting a food sciences professor at Cornell)).

When he introduced the language quoted above as an amendment to the Agriculture Act of 1977, Kansas Senator James B. Pearson stated that the affirmation of the family farm “breaks no new ground, declares no new principle . . . . From the Revolutionary period to the present there has been a national judgment to the effect that the family farm system was much preferable to other forms of agriculture production units.” The purposive statement was adopted by the Senate with no debate and a voice vote, indicating the noncontroversial nature of the claim that not only is the family farm system “essential to the social well-being of the Nation,” but that “any significant expansion of nonfamily owned large-scale corporate farming enterprises will be detrimental to the national welfare.”

Indeed, throughout the debates in both the House and Senate of the 1977 Agriculture Act, one could see the influence of the ideal of the small family farm. In the Senate, when first introducing the bill on May 23, 1977, Senator Herman Talmadge listed “permit[ting] and encourag[ing] the family farm to grow and prosper” as one of six main principles of an appropriate program for agriculture. The bill adopted a small farm research and extension program, intent on encouraging farms with yearly gross sales of less than $20,000. Similarly, though a stronger amendment barring corporations from receiving subsidies was not passed, the act as passed left open the possibility that the Secretary of Agriculture would deny paying subsidies to corporate farms. Even in rhetoric, the debates referenced their support of the family farm: then-Senator Hubert Humphrey referenced the ideal more obliquely in his statement of support for the bill and how it dealt with the changing realities of modern agriculture by

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22 123 CONG. REC. 16038 (1977) (statement of Senator Talmadge).
comparing a contemporary farmer’s operation with his father’s.\textsuperscript{25} Senator Bob Dole voiced his support for an amendment involving the regulation of rice primarily by stating that it would “open up the possibility for smaller companies and smaller exporters.”\textsuperscript{26}

As might be predicted, the rhetoric of the House debates was even more fervent in giving homage to that great American trope: the small family farmer. One Representative read a letter from a farmer constituent describing his difficulty of keeping both a car and a pickup truck, his tractor’s need for new tires, and that his family could not go on vacation that year.\textsuperscript{27} In discussing whether corporate farms would receive subsidies, arguments against the ban on corporate subsidies still championed the small, family-owned farm, pointing out that the proposed language wouldn’t protect smaller farms from larger family farms, or that partnerships of “two families of brothers” each with a small farm would all of a sudden be barred from receiving subsidies.\textsuperscript{28} One Representative even noted that the small family farmer needed to be protected because he held himself to higher environmental standards than the rest of the world’s farmers do.\textsuperscript{29} Over the several days of debate on the farm bill, not a single congressperson favored corporate farming from the floor of debate or suggested that Congress focus more on keeping food supplies stable rather than worry about diminishing numbers of family farmers.

\textsuperscript{25} 123 \textsc{Cong} \textsc{rec.} 16065 (1977) (statement of Senator Humphrey).
\textsuperscript{26} \textit{Id.} at 16053 (statement of Senator Dole).
\textsuperscript{27} \textit{Id.} at 24063 (statement of Representative Sebelius).
\textsuperscript{28} \textit{Id.} at 24101, 24103. \textit{See also id.} at 24390 (“I share the gentleman’s concern . . . about keeping large corporate entities out [of agriculture] since such entities really have no concern for the future of agriculture.”) (statement of Representative Krebs regarding loan restrictions for corporate farms.)
\textsuperscript{29} \textit{Id.} at 24560 - 61 (discussing the environmental standards that U.S. sugar farmers obey but foreign farmers might not, and the need to protect the 15,000 family farmers of sugar crops) (statement of Representative Thone).
Instead, discussions of other provisions regarding specific provisions about beets, sugar, and grain reserves, all remained protective and laudatory of “our teetering small farmers.”

C. Reality of American Farming

What has happened to that teetering small farmer in the course of the last century? Certainly there are fewer farmers today than our heritage as the world’s bread basket suggests. In 1935, the United States boasted almost 7 million farms. By the end of the century, that number had shrunk to just 1.9 million. Smaller family farms are particularly vulnerable to market pressures. By 2007, family farms with less than $250,000 in yearly sales accounted for 90% of U.S. farms, but less than 25% of production. Family farms with less than $100,000 comprised 84% of farms, and less than 14% of production. The dominance of large farms in the supply of food is exacerbated by the fact that about two-fifths of small farms specialize in

30 Id. at 24578 (statement of Representative Leggett). See also, e.g., id. at 24071 (affirming our nation’s “very industrious and capable farms and the families” and the “life which the family farmer has earned for himself”); id. at 24077 (“We have a long way to go before we will establish a national food policy which will . . . be based on the family farm agricultural system which as served the Nation and the world for so long.”); id. at 24082 (“On the July 4 break and since, I have been spending most of my time at county fairs -- visiting with farmers, small businessmen, and farm implement dealers.”); id. at 24091 (“Small farmers and young famers just getting started will be hardest hit”); id. at 24098 (in an argument that the small farm definition of gross sales of $20,000 was too small, saying “If we accept the $20,000 figure, it sounds as though we are supporting small family farmers, but that is not what we are doing. . . . [W]e are considering the average farmer today, the farmer who is neither a corporate farmer nor a big farmer.”); id. at 24099 (opposing an amendment to provisions about rice, saying “we would be hitting the small rice farmer . . . We would not be hurting the big farmers.”); id. at 24378 (supporting an amendment to provisions affecting sugar producers because it would “benefit the small producer of sugar”); id. at 24578 (supporting the federal grain reserve because current prices were “seriously threatening the economic survival of many of our small farmers”); id. at 24584 - 85 (mentioning what one learns “[w]hen one goes around the countryside and listens to the farmers”).


32 Id.


34 Id.
beef cattle alone,\textsuperscript{35} while very large family farms (gross annual sales over $500,000) and corporate farms produce 78\% of the nation’s fruits, vegetables, tree nuts and other high value crops.\textsuperscript{36}

On top of economic pressures, family farms face regulations that present a large burden on their small market shares. For example, USDA regulation of meat slaughter and processing makes on-farm processing almost impossible for a small producer.\textsuperscript{37} For those wanting to capitalize on the rising demand for organic food, certification in order to be allowed to label food “organic” requires yearly paying for the travel and per diem expenses of the inspector.\textsuperscript{38} Joel Salatin, author and owner of a local-market beef, poultry, pork, and rabbit farm in Virginia, put it this way: “But what about dressing a couple of animals a year in the backyard? How can that be compared ton a ConAgra or Tyson facility? In the eyes of the government, the two are one and the same. . . . If society really wants government certification, my little market share will continue to deteriorate into oblivion.”\textsuperscript{39}

\textbf{PART II. THE DESIRE FOR SAFER FOOD}

On March 14, 2009, President Obama announced in his weekly address that he was creating a Food Safety Working Group to respond to the “troubling trend that’s seen the average

\textsuperscript{35} \textit{Agriculture Fact Book}, \textit{supra} note 31, at 31 fig. 3-8.

\textsuperscript{36} \textit{Id.} at 10 - 11 & tbl. 2.

\textsuperscript{37} Joel Salatin, \textit{Everything I want to Do Is Illegal}, 33 \textit{Acres: A Voice for Eco-Agriculture} (Sept. 2003).


\textsuperscript{39} Salatin, \textit{supra} note 37, at 1, 3.
number of outbreaks from contaminated produce and other foods grow to nearly 350 a year – up from 100 a year in the early 1990s.\textsuperscript{40} Indeed, the President’s recognition of this trend reflects a concern of a wide array of Washington, D.C., officials and increasing concern among the public. In December 2004, when he announced his resignation as Secretary of the Department of Health and Human Services, Tommy Thompson warned: “I, for the life of me, cannot understand why the terrorists have not . . . attacked our food supply because it is so easy to do.”\textsuperscript{41} In January 2007, the U.S. Governmental Accountability Office (GAO) listed federal food safety programs as having a high risk of failure.\textsuperscript{42} In response to such concerns and the myriad infections described in the Introduction to this paper, during 2008 and early 2009, the U.S. House of Representatives held almost two dozen food safety hearings,\textsuperscript{43} and introduced many bills to address food safety problems.\textsuperscript{44} The concern over food safety has reached popular culture, too, from newspaper columns begging for safer foods and changes in factory farm protocol\textsuperscript{45} to a


\textsuperscript{43} Gardiner Harris, Bipartisan Call for Food Safety Fixes, N.Y. TIMES, March 12, 2009, at A20.

\textsuperscript{44} See Part III, infra.

A documentary called Food, Inc., that’s already made its way through film festivals and will be receiving popular distribution starting in June, 2009.46

It should be noted that our food supply is actually safer than it was during the 1930s when farming in the United States was at its peak and remained quite local. In fact, our food is safer than it was even ten years ago, even with all the outbreaks in the news. Since the Centers for Disease Control and Prevention (CDC) starting collecting data on foodborne diseases in the 1996, incidence rates for most pathogens, including salmonella, E.coli, and listeria, appear to have actually decreased.47 The increased media reports of food-related outbreaks stems not from increases in outbreaks, but in an increased ability to track outbreaks to a common source. In the past 20 years, increased sophistication of epidemiological models and greater access to national databases have significantly improved state and local authorities as well as the CDC and FDA to pinpoint the source of a group of food-borne illnesses.48

These positive trends do not negate the argument that large vulnerabilities exist in our current food safety system. For one thing, the decreases in foodborne disease rates appears to


47 CDC, Preliminary FoodNet Data on the Incidence of Infection with Pathogens Transmitted Commonly Through Food --- 10 States, 2008, 58 MORBIDITY & MORTALITY WkLY. REP. 333, 335 fig. 2 (2009). However, some diseases have increased, such as campylobacter, a disease contracted most often by raw milk or undercooked poultry that causes diarrhea and in rare cases an autoimmune nerve disease called Guillain-Barré syndrome. Id.; CDC, Campylobacter General Information, http://www.cdc.gov/nczved/dbmd/disease_listing/campylobacter_gi.html.

48 See, e.g., Sonja J. Olsen et al., CDC, Surveillance for Food-Borne Disease Outbreaks -- United States, 1993 - 1997, 49 MORBIDITY AND MORTALITY WkLY. REP., CDC Surveillance Study SS-1, 6 - 7 (2000) (stating that “[c]urrent methods to detect [foodborne disease outbreaks] are improving” and describing new algorithms and national networks of laboratories that were responsible for such improvements).
have plateaued since 2004 or 2005. Additionally, the improvement from the past does not undermine the opinions of so many experts and legislators that our current systems may be flirting with disaster.

The vulnerabilities of the U.S. food supply generally are classified under two headings: diffused and overlapping authority creating inefficiencies, and lack of funding and comprehensive authority. The history of food safety regulation encourages viewing the weaknesses in these terms, but the history of food production encourages a slightly different focus: diffused and overlapping food supply chains creating inefficiencies and untraceability, and a lack of diverse sources of food supply methods. This Part will outline both the traditional criticisms of food safety regulation, as well as the more market-driven critiques of food safety.

A. Overlapping and Arbitrary Authority

By far the most repeated criticism of the current federal food safety programs is their sprawl across several agencies and safety systems. In its report adding food safety to a list of high risk areas of federal regulation, the GAO noted that “the patchwork nature of the federal oversight of food safety calls into question whether the government can plan more strategically to inspect food production processes, identify and react more quickly to any outbreaks of contaminated food, and focus on achieving results to promote the safety and the integrity of the nation’s food supply.” Specifically, it claimed that this patchwork approach has resulted in

50 GAO, High Risk Series 2007, supra note 42, at 69. The GAO has in fact been criticizing the patchwork of food safety programs for years, warning that “[t]he natural inclination to react to each event with a patch here and a band-aid there has not proven to be an effective long-term solution.” U.S. Governmental Accountability Office, T-RCED-98-24, Food Safety: Fundamental Changes Needed to Improve the Nation’s Food Safety System 1 (Oct. 8, 1997) (testimony before the Committee on Agriculture, Nutrition, and Forestry, U.S. Senate). See also U.S. Governmental Accountability Office, T-RCED-99-256, Food Safety: U.S. Needs a Single Agency to Administer a Unified, Risk-Based Inspection System (Aug. 4, 1999) [hereinafter GAO, Food
thirty years of “inconsistent oversight, ineffective coordination, and inefficient use of resources.”

Many food safety experts agree with the GAO. In a recent hearing on current food safety systems before the U.S. House of Representatives Committee on Agriculture, both of the former Undersecretaries for Food Safety at the U.S. Department of Agriculture (USDA) who testified urged the House to consider a consolidated food safety agency, either by creating a new agency or by consolidating all food safety programs under the USDA, which currently runs the highly successful Food Safety and Inspection Service (FSIS) with respect to meat processing and delivery. A representative from the Food Policy Institute at the Consumer Federation of America, a non-profit association of over 300 organizations representing a combined membership of over 50 million Americans, also expressed that organization’s support of “a single independent food safety agency that would combine all federal food safety functions.”

The current system of food safety is indeed a patchwork, a haphazard result of piecemeal legislation and regulation over the past century. The Pure Food and Drugs Act of 1906 and the Federal Meat Inspection Act of 1907 set the stage for a divided system of food safety by

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51 GAO, High Risk Series 2007, supra note 42, at 69.


53 Id. (testimony of Carol L. Tucker-Foreman at 14).

54 Fragmentation of federal programs is exacerbated by the fact that “literally thousands of state and local health and agriculture departments and laboratories play critical frontline roles in the nation’s food safety system” through their initial responses to illness outbreaks and their regulation of restaurant food safety practices. Current Food Safety Systems: Hearing before the H. Comm. on Agriculture, 111th Cong. (April 2, 2009) (Testimony of Michael R. Taylor at 1).


assigning most food safety regulation to the Department of Chemistry (the antecedent to the FDA), but removing meat inspection to the Bureau of Animal Industry. Both organizations originally were housed within the USDA, but in response to fears that the Department of Agriculture was more concerned with the protection of farmers and other food producers than with food safety, the FDA was transferred first in 1940 to the Federal Security Agency and then in 1953 to the Department of Health, Education and Welfare, the antecedent to the Department of Health and Human Services, where the FDA remains today.

With this auspicious start, federal food safety programs were divided from their inception. Over the next decades the system became even more fragmented. All told, fifteen federal agencies now have regulatory responsibilities over some part of food safety: eight USDA agencies (including FSIS), FDA, the CDC, the Environmental Protection Agency, the National Marine Fisheries Service at the National Oceanic and Atmospheric Administration (NOAA), the Alcohol and Tobacco Tax and Trade Bureau at the Department of Treasury, the Federal Trade Commission, and the Department of Homeland Security.

Lack of consolidation and coordination in food safety measures is an easy scapegoat – the arbitrary nature of which agency has oversight combined with the very different types of responses from each agency is a natural target for those worried about the vulnerabilities of our nation’s food supply to infection and contamination. For example, FSIS daily inspects manufacturers of pizza with meat topping; FDA inspects manufacturers of pizza without meat

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57 For example, the creation of the Environmental Protection Agency in 1970 removed pesticide regulation to that agency.

topping approximately once in five years. Such arbitrary division of authority seems ridiculous at best, and dangerously capricious at worst. It hardly seems likely that Congress had a principled reason for authorizing and funding daily inspection of pepperoni pizza manufacturers but only twice a decade inspection of cheese pizza manufacturers.

B. Lack of Funding and Insufficient Authority

Lurking behind the complaints of arbitrary divisions of power between agencies is a deeper complaint: that of insufficient funding and authority for comprehensive oversight of food safety. Note that the example of the wide disparity between FSIS and FDA inspections above is actually a complaint about how little FDA seems to do in comparison to its cousin agency. Lack of funding is a common complaint in government regulation, but it seems particularly cogent in the context of FDA food inspection: while FDA is responsible for the safety of 80% of the nation’s food supply, its entire food safety budget in 2007 was only $589 million. In the same year, FSIS inspected only meat, poultry, and egg products with a budget of $890 million for just inspections. The result is that FDA employs less than one sixth the number of food safety inspectors that FSIS does.

59 For a representative sample of the strange division of authority between FSIS and FDA, see Note, Reforming the Food Safety System: What if Consolidation Isn’t Enough?, 120 HARV. L. REV. 1345, 1356 tbl. 1 (2007).


62 In 2003, there were fewer than 1,200 FDA inspectors at the Center for Food Safety and Applied Nutrition; FSIS employed about 7,400 inspectors the same year. PETER HUTT, RICHARD A. MERRILL, & LEWIS A. GROSSMAN, FOOD AND DRUG LAW: CASES AND MATERIALS 1261 (3d ed. 2007).
Even were FDA to receive more authority to inspect food suppliers more stringently, a lack of funding means that little implementation could occur, as past experience shows. The Public Health Security and Bioterrorism Preparedness and Response Act of 2002\textsuperscript{63} gave FDA additional authority for protecting the safety of the nation’s food supply, including detaining food where there is credible evidence that the product present a serious health threat,\textsuperscript{64} requiring food facility registration,\textsuperscript{65} detaining and increasing regulation and documentation of food imports.\textsuperscript{66} However, though the Act appropriated more money to the FDA for drug safety, there was no additional funding for food safety.\textsuperscript{67} Therefore, it may come with little surprise that even with this enhanced regulatory authority, by March 2009 there was still no official at FDA whose full-time job is food safety and who has authority over the various strands of food safety programs at FDA.\textsuperscript{68} In addition, even though a substantial number of the known food safety failures in recent years have been related to produce, FDA barely focused any resources on the enforcement of its food safety authority on fresh produce-related violations. Though listing fresh produce as a food safety priority since 1997, reiterating that concern in 1999, 2004, and 2006, FDA more than halved its fresh produce inspections from 2004 to 2007 and sent only ten fresh produce related warning letters between 2002 and 2007 (and none sent after 2004).\textsuperscript{69}

\textsuperscript{64} Id. at §303, 116 Stat 663 - 64 (codified at 21 U.S.C. §334(h))
\textsuperscript{65} Id. at §305, 116 Stat. at 667 (codified at 21 U.S.C. §350(d)).
\textsuperscript{66} Id. at §307, 116 Stat. at 670.
\textsuperscript{67} Id. at §§ 521 - 523, 116 Stat. 694 - 95.
\textsuperscript{69} GAO, Food Safety: Fresh Produce Improvements Needed, supra note 60, at 11 - 12, 25 - 27 & figs. 5, 7.
With regards to deficiencies in substantive authority, commentators have noted that FDA can only detain food in a noncompliant factory, whereas FSIS can “effectively shut down” a noncompliant food processing establishment under its authority.⁷⁰ Others have complained that neither FSIS nor FDA have mandatory recall capacity.⁷¹ Still other critics point out that agencies fail to use either comprehensive or robust science-based risk analysis.⁷² Finally, some recognize weaknesses stemming from agencies’ inconsistent ability to trace products back through the supply chain because regulations only require companies to keep records one step back in the food chain.⁷³

All of these substantive deficiencies are certainly areas in which increase authority and enforcement would help address food safety issues. However, without a substantial increase in funding to administer more thorough regulation, it is doubtful that more authority would necessarily result in more enforcement. By the time that legislators began seriously investigating food safety after the recent infections of spinach, peppers, and peanuts, congressmen and women expressed outrage that FDA did not spend (or have) more money for food safety and inspection. As one Representative dramatically opined, “As a result of the failure of giving Food and Drug the resources it needs, . . . people are dying.”⁷⁴

C. Overlapping and Confusing Supply Chains

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⁷⁰ Note, Reforming the Food Safety System, supra note 59, at 1355 - 56 (citing GAO reports).


⁷² See, e.g., GAO, Food Safety: Fresh Produce Improvements Needed, supra note 60, at 22.

⁷³ See, e.g., Testimony of Jean Halloran, Director, Food Policy Initiatives Consumers Union, to the H. Subcomm. on Horticulture and Organic Agriculture (July 30, 2008), at 4 - 6, available at http://agriculture.house.gov/testimony/110/h90729b/Halloran.doc.

⁷⁴ Harris, Bipartisan Call for Food Safety Fixes, supra note 43 (quoting Representative John D. Dingell, Democrat of Michigan).
Most attention to the problem of food safety stops at the two analyses above. While focusing on governmental sources of food safety issues may be understandable from the point of view of legislators and the GAO reporting to those legislators, it presents an incomplete picture. And while the historical accident of divided agency authority and huge divergences in funding of those agencies may be sources of some inefficiency, they are not the only problems. Solving those problems is an incomplete solution.

Frozen and prepared foods go through an increasing number of steps from the soil to the table. Highly processed foods sometimes include ingredients not derived from a farm but from mines or labs. As food supply chains become more interconnected and international, the potential points of contamination increase. In addition, as supply chains become evermore muddled, tracking the source of a contamination becomes almost impossible in the timeframe required by a sudden crisis. The 2008 salmonella saintpaul infection of jalapeño peppers (and possibly tomatoes) serves an excellent example.

In June 2008, FDA issued a warning to consumers in New Mexico and Texas not to eat certain types of red tomatoes, followed shortly by a nationwide warning. However, by late June, FDA had reason to believe jalapeño peppers, not tomatoes were the culprit. Then, on July 7, multivariate analysis of the outbreak suggested that at least some illnesses were

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75 See generally STEVE ETTINGER, TWINKIE, DECONSTRUCTED (2007) (mapping all the chemical ingredients of the Twinkie, such as polysorbate 60, which is derived from a series of chemical reactions of corn syrup, palm oil and petroleum).


associated with guacamole that did not have jalapeño peppers in it. Ten days later, FDA lifted the tomato warning, and shifting its focus to jalapeño and serrano peppers. By the end of August, after over 1,400 people had gotten sick from salmonella saintpaul, the CDC issued in its Morbidity and Mortality Weekly Report that there was no evidence that tomatoes had ever been involved in the outbreak, though jalapeño peppers from certain Mexican farms (some of which also grew Roma tomatoes) were identified as infected.

On July 30, 2008, toward the end of the outbreak, the FDA published a partial schematic of the traceback in which it engaged to find which farms and crops it should test for salmonella saintpaul infection. As the schematic revealed, finding a single source from a web of mixing and remixing of crops and products from farm to packagers to repackagers to restaurants to consumers proved a task of Gordian knot proportions. For example, in tracing back a tomato, the original suspected source of contamination, FDA officials would have likely gone through a consumer to a restaurant or grocery store, to a processing plant, to a repackaging and distribution operation, to a packing house, back to the field. At every step of the way, tomatoes from different sources would be intermingled, along with any other crops packaged or processed at the same time. As noted by the Director of Food Policy Initiatives at the Consumers Union, the

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78 Id. at 932.
80 CDC, Outbreak of Salmonella Serotype Saintpaul Infections Associated with Multiple Raw Produce Items -- United States, 2008, supra note 77, at 933.
82 See UNITED FRESH PRODUCE ASSOCIATION, COMMODITY SPECIFIC FOOD SAFETY GUIDELINES FOR THE FRESH TOMATO SUPPLY CHAIN 2 fig. 1 (2d ed, 2008).
83 Testimony of Jean Halloran, supra note 73, at 3.
publisher of *Consumer Reports*, with respect to tomatoes and peppers and similar produce, “we have very limited traceability for food.” The lack of sound epidemiological evidence, as well as a confused supply chain to the Mexican restaurants that were the known sources of infection, prevented FDA and CDC from identifying which crops or products were actually the cause of the outbreak until the outbreak may have already crested.

When tracking contamination becomes too difficult to accomplish quickly, the resulting broad recalls and widespread but vague media speculation can do tremendous damage not just to the producers and suppliers whose food was contaminated. The events of the 2008 salmonella infection exhibit the sort of unfounded accusation that can result from the pressure to find a culprit quickly. Similarly, during the 2006 salmonella contamination of spinach, products were indiscriminately destroyed or taken off store shelves, creating an impression that the entire nation’s spinach crop was potentially dangerous. A whole season’s crop was destroyed, even though later examination showed that “the only contaminated product came from one 50-acre farm, packaged in one processing plant and only on one production shift.”

Three years later, spinach sales continue to suffer, even though the threat has been eliminated.

**D. Lack of Market Diversity**

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84 *Id.* at 4.

85 See CDC, *Outbreak of Salmonella Serotype Saintpaul Infections Associated with Multiple Raw Produce Items -- United States, 2008*, supra note 77, at 931 fig. 2 (showing that the FDA tomato warning was not issued until just during or after the peak of infections (though if tomatoes were involved, then the warning may have actually caused the subsequent decline in infection rates), and that the July 9, 2008 pepper warning -- the only warning now known to implicate the proper crops -- was issued well after the natural peak of the outbreak).

86 Harris, *Bipartisan Call for Food Safety Fixes*, supra note 43 (quoting Thomas E. Stenzel, chief executive of the United Fresh Produce Association).

87 *Id.*
Counterbalancing the interconnected and increasingly global supply chain described above is a lack of market diversity that often occurs at some point in the food supply chain. This final food safety weakness affects the scope of an outbreak, rather than the absolute danger of an outbreak or the ability to identify its source. While the economies of scale present in large food producing and processing operations can deliver a boon to consumers in the form of lower prices and more predictable quality, a single source of contamination can result in nationwide or even global impact.

Farm production in the United States has been consolidating. In the beef industry, for example, the top four beef packers control 80% of the market, compared to less than 25% in the 1970s. And while in the 1970s, thousands of slaughterhouses processed the majority of beef, today only thirteen control over half the market. The rest of the world follows this pattern as well. In 1950, two thirds of the world’s economically active population were farmers or otherwise involved in agriculture. By 1997, that ratio was under half. While that may seem like a large portion of the world’s population, many of those farmers still engage in subsistence farming in sub-Saharan Africa, south Asia, and other areas with almost no influence on a global market. Those farmers who do produce more than their own necessity, therefore, often produce large slices of the production pie.

Other consolidations of production and distribution can turn intermingle smaller producers’ crops, cross-contaminating food and distributing disease far beyond the reach of a

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89 Id.
91 Id.
92 Id. at 51.
single farm. The recent peanut product recall reveal what can happen when a single processing plant contaminates is product. The Peanut Corporation of America, based in Blakely, Georgia, processed about 2.5% of the country’s peanuts. That single processor therefore infected a statistically substantial portion of a ubiquitous food, and wreaked havoc. As mentioned in the introduction, almost 4,000 types of products were affected and recalled by downstream food producers. And just three weeks after the initial recall by the Peanut Corporation of America, sales of all peanut butter -- including unaffected brands -- were down 25%.

Both the consolidation of producers and the increasing complexity of food supply and distribution chains have created a perfect storm of vulnerability. As the Vice President of Food Safety of one of the largest grocery chains in the United States noted in his testimony before the House Committee on Agriculture in April 2009: “[A] few lots of a raw agricultural commodity when used as an ingredient in other products can contaminate hundreds of products representing millions of pounds of food.”

PART III. PROPOSED FOOD SAFETY LEGISLATION AND THE PROBLEM OF THE SUSTAINABLE FAMILY FARM

With this background understanding both of the desirability of small farms with a capacity to sell locally and of the present criticisms of national food safety, we now turn to what federal legislators in particular are proposing for the future of food safety programs. Since the

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2008 elections, several bills have been introduced in Congress to address food safety, and the President himself has established a Food Safety Working Group. The concern over food safety is certainly not new -- for example, at least nineteen distinct bills specifically concerned with improving food safety were introduced in Congress during the George W. Bush Administration. However, in the present political climate, several bills are getting significant

96 See, e.g., FDA Food Safety Modernization Act, S. 510, 111th Cong. (2009); H.R. 759, 111th Cong. (2009) (giving additional mandates and increased authority to the FDA regarding increased food safety inspection especially with regards to imported foods and raw agricultural foods that have been implicated in recent disease outbreaks); H.R. 814, 111th Cong. (2009) (to establish a tracing system of foods for FDA and FSIS); H.R. 815, 111th Cong. (2009) (to increase enforceability of FDA and FSIS authority); S. 425, 11th Cong. (2009) (doing basically the same as H.R. 814 & H.R. 815).

97 See supra note 40 and accompanying text.

attention, such as the Food Safety Modernization Act of 2009,\textsuperscript{99} which has a considerable amount of support\textsuperscript{100} as well as media attention.\textsuperscript{101} This attention added to the support of the President to develop new food safety solutions, some real change in food safety legislation may be on the horizon, making an examination of the different types of suggested reform especially pertinent. This Part will briefly outline the components of the proposed bills and critique the potential effect of such legislation to both food safety and the long-standing policy in support of family farms.

A. Food Safety Modernization Act of 2009 and Other Bills

Because FSMA has gotten the most media attention, we will start there. The Act proposes several major reforms. First, it would establish a Food Safety Administration (FSA), removing the FDA’s and NOAA’s (but not USDA’s) food regulation authority to this new agency. The FDA would be renamed the Federal Drug and Device Administration.\textsuperscript{102} Second, the FSA would be responsible for establishing “performance standards that define, with respect

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\textsuperscript{100} I am measuring support mostly by number of cosponsors of the bill; the Food Safety Modernization Act has 41 co-sponsors, more than a third more than the next most supported bill, the Safe Food Enforcement, Assessment, Standards, and Targeting (Safe FEAST) Act of 2009, H.R. 1332, 111th Cong. (2009).


\textsuperscript{102} H.R. 875, 111th Cong. § 101 - 102 (2009).
to specific foods and contaminants in food, the level of food safety performance that a person responsible for producing, processing, or selling food shall meet."

Third, there would be heightened scrutiny of food-producing and processing facilities. Any factory, warehouse, or facility that processes, stores, or transports food or food ingredients would be required to register annually (rather than just once, as is current practice) and submit to inspections ranging from daily to yearly depending on the type of facility. The FSA would have the authority to inspect farms both in the United States and abroad, and would be required to establish “science-based minimum standards for the safe production of food” by farms. Foreign facilities and farms would be required to be certified as well as comply with the above regulations.

Fourth, the FDA would establish a “national traceability system that enables the Administrator to retrieve the history, use and location of an article of food through all states of its production, processing, and distribution.” The Act also calls for increased use and improvement of epidemiological analysis, and provides for increased research on how to improve sanitation and food safety.

Finally, the Act would give the FSA the full authority to detain and seize any food that the FSA has reason to believe “fails to meet the requirements of the food safety law,” as well as full mandatory recall authority.

103 Id. at §204.
105 H.R.875, 111th Cong. §3 (definitions); §§202, 205 (2009).
106 Id. at §206.
107 Id. at §208.
108 Id. at §210.
109 Id. at §§301 - 07.
110 Id. at §§402 - 03.
Other bills propose similar solutions, though sometimes in different combinations. A bill introduced the day before the FSMA simply gave the Secretary of HHS the authority of mandatory recall over food regulated by the FDA, as well as calling for a study on the effectiveness of both voluntary and mandatory recalls.\footnote{111} Another addresses primarily issues of smuggled food.\footnote{112} Yet another bill, the Food and Drug Administration Globalization Act of 2009, would require annual registration of processing and packaging facilities and accreditation of foreign facilities similar to FSMA,\footnote{113} but does not discuss increased inspection of farms or give the FDA mandatory recall power. Nor does the bill prescribe inspection frequency based on type of facility as FSMA does. Rather, it requires the FDA to establish a risk-based inspection schedule for each facility based on the history of the individual facility in addition to the type of food and facility.\footnote{114} The bill would also require more documentation for traceback from farms and restaurants rather than increased inspection of farms,\footnote{115} and require country of origin labeling of each ingredient in a food.\footnote{116}

The Safe FEAST Act of 2009, another bill introduced in the House, gives mandatory recall authority and specifically calls for regulations to “minimize the risk of serious adverse health consequences” of fruits and vegetables.\footnote{117} The Act relies on both the FDA and the facilities themselves to conduct hazard analysis, though, and calls for a pilot program in

\begin{footnotes}
\footnote{111}{Protect Consumers Act of 2009, H.R. 841, 111th Cong. (2009).}
\footnote{112}{Ending Agricultural Threats: Safeguarding America’s Food for Everyone (EAT SAFE) Act of 2009, S. 429, 11th Cong. (2009) (the bill also calls for increased publicity on HHS and FDA websites about recalls, but doesn’t give mandatory recall power).}
\footnote{113}{H.R. 759, 111th Cong. §§101, 109 (2009).}
\footnote{114}{Id. at §105.}
\footnote{115}{Id. at §107.}
\footnote{116}{Id. at §133}
\footnote{117}{H.R. 1332, 111th Cong. §§103, 106.}
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increased traceback and recordkeeping,\textsuperscript{118} and in fact requiring that traceback requirements be “applicable and appropriate for small businesses.”\textsuperscript{119} As with the Food and Drug Administration Globalization Act, the Safe FEAST Act gives increased authority for fee collection and gives FDA authority to require accreditation of producers of imported food.

Overall, these bills’ proposals can be grouped in five categories:

1) creating a new agency or consolidating agency authority;
2) establishing standards of food safety procedures;
3) increasing registration requirements and/or inspections for facilities, farms, or both;
4) increased traceback and recordkeeping capabilities;
5) and increased enforcement capabilities of the regulatory agency.

The first category is, by itself, unnecessary at best and debilitatingly harmful to other reforms at worst. The middle three are potentially useful reforms, but current proposals vary in their practicality, and some proposals are so broad as to be potentially unmanageable from a food safety standpoint and harmful to small family farms as well. The last category, like the first, probably cannot do much by itself, though in combination with the middle three it could either help or harm each concern: public health and food producers.

**B. Consolidated Power Does Little to Solve the Problem**

As noted above in Part II.A, lack of consolidation has generally served as the largest target of food safety critiques. Yet this easy target is not the most important target. While streamlining food safety systems into one authority may help with some issues of inefficiency or overlapping authority resulting in a lack of accountability, attacks on divided jurisdiction often fail to realize that the problem isn’t the divided efforts, but how different those efforts are. If

\textsuperscript{118} Id. at §§104, 204.

\textsuperscript{119} Id. at §204.
FDA and FSIS monitored different farms, but monitored them with the same frequencies and same standards, the problem of relatively arbitrary jurisdiction wouldn’t really matter. As one commenter on the food safety system astutely noted, “interagency inconsistencies are harmful only if one or more of the inconsistent approaches or enforcement procedures at issue are themselves insufficient.”120 Indeed, in its criticism of food safety in 2007, the GAO argued that the source of the system’s problems was “inconsistent oversight” and “ineffective coordination” between agencies, but then pointed to only one problem actually created by divided authority: weaknesses in the flow of information between agencies. The rest of the GAO’s list focused on the substance of agencies’ authority, from recall power to a lack of federal mandate dictating the frequency of FDA inspections.121

Consolidating power is a superficial fix, which may make the regulatory landscape neater, but not necessarily more effective. While experts have called for such a reform,122 it does not address the real underlying problems based in the substance of agency authority and action. Consolidation cannot fix a large portion of the “ineffective coordination” problem noted by the GAO: a new Food Safety Administration could eliminated coordination between FSIS and FDA, but unless trackback capabilities were given completely to the FSA, there would still be coordination with CDC and state and local authorities. And if trackback capabilities did rest solely in FSA, there would be new coordination problems of who gets authority of what reports

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120 Note, Reforming the Food Safety System: What if Consolidation Isn’t Enough?, supra note 59, at 1359.
121 GAO, High Risk Series 2007, supra note 42, at 69. See also GAO, Food Safety: U.S. Needs a Single Agency, supra note 50 (arguing that fragmentation leads to poor oversight, but pointing mostly to differences in agencies’ methods, rather than a deficiency in the fragmentation itself).
of illnesses when, which seems a much more difficult real-time evaluation to make than whether a facility belongs under FDA or USDA’s authority, or how FDA should interact with other agencies as they work through trackback procedures.

As for how a new agency would affect local farming and the small business concerns of American agriculture, consolidation or creation of a new agency seems like it would have minimal effect. While consolidation might mean some farmers would need to interact with fewer agencies, most farmers do not have a wide variety of products. Instead, over half of small and medium sized family farms raise just one commodity, and over 90% raise three or fewer commodities. And it is possible that even diversified farms still raise commodities currently under a single agency’s authority. The USDA’s classification of “commodity” separates products among twenty-six commodity groups, twenty of which are now under FDA’s food safety authority. Therefore, consolidation by itself probably wouldn’t make much of a difference, other than costs of transition from the current system and agency to a new one.

The only current bill calling for a new agency, FSMA, doesn’t even do a good job of this type of reform. Unlike proposals in the past to create a Food Safety Administration, the FSMA doesn’t include the food safety regimes of the USDA in the new agency, and so simply

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123 55% of farms with less than $100,000 in annual gross sales raise just one commodity (or raise none due to adverse conditions or with cropland in the Conservation Reserve Program). 94% of such farms raise three or fewer commodities. When farms of less than $250,000 in gross sales are included, 52% still raise just one commodity, and 91% raise three or fewer. These numbers are derived from data on the numbers of different sized farms and how many commodities each type of farm raises. See Appendix, infra, at tbl. 1.

On the other hand, “[m]edium-sales and large-scale farms are more likely to produce multiple commodities: three-fifths of farms in these groups produce three or more commodities.” Id. at 11. This means that larger family farms could potentially benefit from a single agency responsible for inspection and food safety.

124 Id. at 10 tbl. 2.

creates yet another agency without any benefits of consolidating authority and expertise. The purpose behind making the FSA in the FSMA seems merely to be a slap on the wrist (or in the face) of FDA, taking away power because FDA has not appeared to do its job appropriately, even though most deficiencies can be seen as caused by a lack of resources or Congressional mandate. This type of proposal would not do much actual good, and serves merely to distract from the substantive issues of who to regulate, when, how and how much.

C. Science Does Not Yet Exist For Comprehensive Science-Based Risk Assessments

The second category of reform – “science-based” standards – is a good idea, but proposed legislative dictates are more aspirational than prescriptive. Congress can pass laws demanding “science-based” standards all they want, but until the science exists, food safety regulation will continue to have holes in the context of appropriate risk analysis and safety standards.

Before describing current proposals, FDA’s current practices regarding food safety deserve some defense in the face of accusations that their current practices are not already the result of scientific and economic calculation. FDA already uses available methods and research to inform regulatory decisions and in making decisions about where to place its limited resources.126 That the FDA has so few food inspectors is not necessarily a failure on the part of the agency, but a calculated decision of what sort of products need extensive oversight. Meats, poultry, and eggs have historically carried far more diseases than other types of food, so it makes sense that those foods have received far more oversight. By contrast, produce is still overwhelmingly safe. Over a billion servings of fresh produce are eaten every day, but even the widest outbreaks of produce-carried diseases are on the scale of just hundreds of sickness over

126 GAO, Food Safety: Fresh Produce Improvements Needed, supra note 60, at 22.
several months. The rates of non-meat foodborne illnesses are quite low, on the order of at most one sickness in 100,000 servings of produce and one death in 300,000,000. The current lack of inspection seems not a rejection of science and standards by the FDA, but an embrace of them in the face of limited resources and needing to make decisions of what more a result of limited resources combined with a very calculated understanding of what risks are inherent in non-meat foods.

An important caveat to any legislation that requires scientific risk analysis and food safety standards is that science does not necessarily reveal an obvious answer to what level of regulation is appropriate. In the case of the safety of fresh produce, new legislation may not be the missing ingredient in making FDA’s efforts more effective. Instead, “[g]aps in scientific knowledge have impeded FDA’s efforts to integrate science and risk analysis into its oversight of fresh produce safety.” FDA already uses science when available, but those gaps prevent the agency from making standards where there would be no principled scientific way of making decisions on how to regulate fresh produce. “For example, cattle are known carriers of E. coli O157:H7, but scientists do not know exactly how E. coli is passed from animals to produce, and thus cannot say how far cattle should be kept from a leafy greens field.”

It is to increased science, not to increased congressional mandates, that we should look for answers.

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127 See Current Food Safety Systems: Hearing before the H. Comm. on Agriculture, 111th Cong. (April 2, 2009) (testimony of David Dever at 7) (listing the amount of produce eaten in this country each day); Note, Reforming the Food Safety System: What if Consolidation Isn’t Enough?, supra note 59, at 1345 (noting that 2006 E. coli contamination of spinach ‘result[ed] in three deaths and more than 200 illnesses’).

128 See Appendix, infra, at tbl. 2.

129 GAO, Food Safety: Fresh Produce Improvements Needed, supra note 60, at 22.

130 Id.
Recently developed hazard analysis procedures in the meat industry seem to have been
tremendously successful promoting scientific research as part of the process of developing
standards.\textsuperscript{131} In 1996, FSIS introduced a new rule for food safety regulation of meat and poultry
slaughterhouses and processing plants called the Pathogen Reduction and Hazard Analysis and
Critical Control Point rule (HACCP).\textsuperscript{132} The major components of the HACCP program “require
that each establishment develop and implement written sanitation standard operating procedures”
and “implement a system of preventive controls” in addition to establishing general performance
standards for salmonella for all slaughterhouses and facilities producing raw ground meat and
requiring regular microbial testing by slaughterhouses.\textsuperscript{133}

This hybrid system of both agency imposed standards and facility developed standards
has served FSIS well because it interacts with market-based issues and incentives of food safety,
not just the oft-cited regulatory concerns of myriad but insufficient authority and insufficient
funding.\textsuperscript{134} HACCP capitalizes on market incentives to spur quick innovation in techniques such
as beef carcass steam pasteurization and new sampling and testing protocols for microbial
pathogen control in hamburger patties.\textsuperscript{135} Regulatory standards establish Good Manufacturing
Practices (GMPs) and the government conducts and supports research, but the HACCP system

\textsuperscript{131} See Elise H. Golan et al., USDA, \textit{Tracing the Costs and Benefits of Improvements in Food
Safety: The Case of the Hazard Analysis and Critical Control Point Program for Meat and
Poultry}, AER-791 (Oct. 2000) (conservatively estimating a present value of $9.33 billion (in
1993 dollars) of benefits from 20 years of HACCP programs).

\textsuperscript{132} Hazard Analysis and Critical Control Point (HACCP) Systems, 9 C.F.R. Part 417 (2009) (as
amended).

\textsuperscript{133} Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems, 61 Fed.
Reg. 38,806 (July 25, 1996) (codified at 9 C.F.R. Parts 304, 308, 310, 320, 327, 381, 416, &
417).

\textsuperscript{134} See Part II.A-B, \textit{supra}.

\textsuperscript{135} Elise Golan et al., USDA, \textit{Food Safety Innovation in the United States: Evidence from the
can also harness the power of the market to encourage improvements by strengthening accountability and increasing the costs of failure and the benefits of success through increased labeling to consumers, recall power, inspection schedules linked to past performance, and preference in government procurement programs for producers of exceptionally safe products.\textsuperscript{136}

With respect to the family farm, more thorough and rigorous food safety standards will certainly impose costs. Legislators imposing changes in food safety procedures should give regulators the ability to rigorously analyze costs and benefits before imposing such costs on small farms that have little room for overhead costs. The average small family farm makes less than $10,000 net income per year; medium sales farms (between $100,000 and $250,000 in gross sales) average $39,084 net income. The average small or medium farm also operates with a profit margin of about –30 to –40\%.\textsuperscript{137} This means family farms can ill afford significant additional costs to their operations. The government should respect the situation of such farmers by not imposing standards without significant data indicating that such standards would actually be cost effective. One of the main advantages of the HACCP system from the perspective of the family farm is that the HACCP system encourages the most research and development from the largest firms, which have the most to gain from appropriating some slight market advantage.\textsuperscript{138} Smaller firms benefit from diffusion of such innovation, but do not bear the burden of significant costs in a food safety measure before it is tested and its cost minimized by the larger firm innovators. If the same principles applied to crop and produce production, large farms would work with FDA to develop comprehensive safety programs for themselves, especially if their products were properly traceable in downstream markets to make their safety efforts worthwhile.

\textsuperscript{136} Id. at 40–43.
\textsuperscript{137} See Hoppe et al., supra note 33, at 18 tbl. 5.
\textsuperscript{138} See Golan et al., supra note 135, at 39–40.
Smaller farms would also participate, but to a smaller degree befitting their smaller market share and weaker ability to spend money on research and development of safety protocols.

Comparing this type of program to the current legislative proposals, most statutory language could encompass a similar approach to produce and other crops. FMSA is one of the weaker texts in this respect because focuses on the creation of general standards rather than in creating a system to encourage market development.\(^\text{139}\) Three bills – the Senate’s FDA Food Safety Modernization Act,\(^\text{140}\) the Food and Drug Administration Globalization Act of 2009,\(^\text{141}\) and the Safe FEAST Act of 2009\(^\text{142}\) – are much closer to the HACCP system and specifically call for facility driven hazard analysis in addition to broad safety standards promulgated by the FDA.\(^\text{143}\) The FDA Globalization Act also specifically provides for government research, which could also benefit smaller farms that cannot conduct their own research in addition to supplying another potential source of breakthroughs in developing safer food protocols.\(^\text{144}\)

**D. Increased Oversight Could Help or Hurt Agricultural Industry and Public Health**

Increased registration, certification, and inspection generally address the concern that food safety vulnerability stems from a lack of authority and funding of federal agencies, as discussed in Part II.B above. Current proposals vary tremendously on how much additional oversight is desirable. FSMA is on the more prescriptive side of scale, suggesting exactly how often processing and packaging facilities should be inspected,\(^\text{145}\) and outlining how the FSA

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\(^{139}\) H.R. 875, 111th Cong. §204 (2009).
\(^{140}\) S. 510, 111th Cong. (2009).
\(^{143}\) S. 510 at §§103, 104; H.R. 759 §113; H.R. 1332 §104.
\(^{144}\) H.R. 759, 111th Cong. §113 (2009).
\(^{145}\) H.R. 875, 111th Cong. §205 (2009).
would establish what amount to Good Agricultural Practices (GAPs, similar to GMPs), frequent inspections, and information collection from farms.\textsuperscript{146} Other bills focus more than FSMA does on facility registration and certification.\textsuperscript{147} Several call for more inspection, and with the exception of FSMA, they generally specify that the history of the facility will determine the inspection frequency.\textsuperscript{148}

Most of the increased inspections and costs are focused on processors, packagers, and handlers, rather than farms, so many of these reforms would not directly affect family farms. However, if such increases in regulation did branch out to farms, a one-size-fits-all approach to inspection like that of FSMA would not bode well for smaller farms as they would have increased costs of registration and inspection that could be disproportionate to both their track record and to their impact on the market.

The main issue of such programs is the cost of such programs. Some bills establish user fees,\textsuperscript{149} which might hurt smaller farms. As noted by Joel Salatin, the Viginian farmed quoted in Part I.C, small farms often are already wavering between of profitability and an inability to remain operating.\textsuperscript{150} But even such fees would not cover the whole governmental cost of

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\textsuperscript{146} \textit{Id.} at §206.

\textsuperscript{147} \textit{See, e.g.,} H.R. 759 §§101, 109 (facility registration and certification, respectively); H.R. 1332 §101–102, 301(dealing with facility registration and foreign supplier verification). \textit{See also} Keeping America’s Food Safe Act of 2009, H.R. 999, 111th Cong. §2,3 (2009) (dealing with certification for importers and food safety laboratories for imported food).

\textsuperscript{148} \textit{Compare} H.R. 1332 §107 (targeting inspection resources based on the risk profile of the food as well as the “facility’s history of food recalls, outbreaks, and violations of food safety standards) and S. 510 §210 (same) and H.R. 759 §105 (same) with H.R. 875 §205 (distinguishing only between the type of food processed at a facility rather than between the individual facilities).

\textsuperscript{149} E.g., H.R. 759 §101 (establishing facility registration fees); S. 510 §107 (same).

\textsuperscript{150} Salatin, \textit{supra} note 37. However, given the high proportion of beef cattle farms among small farms, \textit{see} AGRICULTURE FACT BOOK, \textit{supra} note 31, at 31 fig. 3-8, it does seem that at least some commodities can defray the cost of inspection for small farms.
comprehensive programs. The cost of increasing the level of inspection to something similar to the FSIS regime would mean multiplying the budget currently used for food inspection five or six fold.\textsuperscript{151} With the strains of increased costs on both the facilities and government, overly broad mandates to increased registration and inspection could be an inefficient use of resources that actually harms public safety by diverting both facility and government resources that could be productive in other more cost effective measures (such as the tracking systems discussed below). In the current economy, the desirability of wise spending becomes even more potent. By focusing on registration and inspection, such proposals overlook the market problems of the food safety system and risk and therefore fail to use the market to the advantage of food safety, as in HACCP programs and traceability proposals.

E. Increased Tracking Can Encourage Food Safety Enforcement from both Regulators and Consumers

Increased tracking is one of the best proposals included in the current crop of food safety bills, if technology will permit efficient tracking systems. It addresses both vulnerabilities of insufficient agency oversight and confusing supply chains by allowing both government and consumer to hold producers accountable for the safety of their products. As a result, as with HACCP programs, both market forces and government regulation will be working cooperatively towards enhanced food safety.

Currently, the average U.S. consumer often does not know how the food they buy in the supermarket relates to the farms and other facilities that produced them. An example from the First Family serves to illustrate this point. When he announced his Food Safety Working Group,

\textsuperscript{151} Remember the disparities of budgets and food inspectors for FDA and FSIS, supra note 62 and accompanying text.
President Obama emphasized his concern for food safety by referencing the peanut product recall then in effect, stating,

In the end, food safety is something I take seriously, not just as your President, but as a parent. When I heard peanut products were being contaminated earlier this year, I immediately thought of my 7-year old daughter, Sasha, who has peanut butter sandwiches for lunch probably three times a week. No parent should have to worry that their child is going to get sick from their lunch.\textsuperscript{152}

This personal commentary reveals how much lack of attention given by consumers to which products are actually affected by a broad recall: none of the major brands of jarred peanut butter were recalled.\textsuperscript{153} Granted, the President spoke of his initial uninformed reaction, but reinforcing inaccurate first impressions in his Weekly Address only serves to confuse the public about the difference between a recall of a specific producer’s crop and a recall of a whole nation’s supply of that food.

Traceability could also help the family farmer immensely. One of the major economic impacts of a major outbreak, especially of a fresh product that goes relatively unchanged from “farm to fork,” is a crippling longterm depression of the whole industry, even from producers who had nothing to do with the contamination.\textsuperscript{154} Such a spreading of economic impact depresses the incentive for a single producer to participate in best practices: “as long as some

\textsuperscript{152} Barack Obama, March 14, 2009, Address, \textit{supra} note 40.

\textsuperscript{153} FDA, \textit{Peanut Product Recalls: Salmonella Typhimurium, supra} note 4.

\textsuperscript{154} See, for example, the months-long impact of a 2003 Hepatitits A outbreak connected to green onions grown in Mexico, or the years-long impact of the 2006 spinach E. coli outbreak on the whole industry, even years later. Linda Calvin, Belem Avendano, & Rita Schwentesius, USDA, \textit{The Economics of Food Safety: the Case of Green Onions and Hepatitis A Outbreaks}, VGS-305-01 1 (Dec. 2004); Harris, \textit{Bipartisan Call for Food Safety Fixes, supra} note 43 (quoting Thomas E. Stenzel, chief executive of the United Fresh Produce Association, on the continued crippling effect of the spinach outbreak).
growers do not adopt safer practices, all growers face the economic consequences of an outbreak.” ¹⁵⁵

Many of the current bills before Congress suggest increased traceability measures. The main problem is one of technology. FSMA directs FSA to “establish a national traceability system” to trace an article of food through all stages of production and distribution, but quickly caveats by saying that “[n]othing in this section shall be construed as requiring the Administrator to prescribe a specific technology for the maintenance of records or labeling of food to carry out the requirements of this section.” ¹⁵⁶ The Senate FDA Food Safety Modernization Act is even more vague, simply telling the FDA to “establish a pilot project in coordination with the produce industry to explore and evaluate methods for rapidly and effectively tracking and tracing fruits and vegetables.” ¹⁵⁷ Other bills are more specific, calling for switching to electronic recordkeeping and adding farms and restaurants to the current tracking system ¹⁵⁸ or suggesting options including “a recordkeeping and audit system, a secure, online database, or registered identification.” ¹⁵⁹ While the specifics of what constitutes the best traceback system may be unclear, what is relatively certain is that improvements in traceability are attainable in the current system, and at the relatively low cost of maintaining a database. ¹⁶⁰ Any reform of food safety in

¹⁵⁵ Calvin et al., supra note 154, at 2.
¹⁵⁷ S. 510, 111th Cong. §204 (2009).
¹⁶⁰ Cf. Current Food Safety Systems: Hearing before the H. Comm. on Agriculture, 111th Cong. (April 2, 2009) (testimony of Tony DiMare at 3) (describing the already existing Recall and Traceback Program for “the largest vertically integrated tomato company in the United States,” which appears to be quite effective and fast).
this country should include such a system, which can influence both prospective market forces for safer food and retrospective responses to outbreaks.

F. Increased Agency Enforcement Is an Empty Shell That Is Only Modestly Helpful

While several bills call for increased enforcement authority of the FDA, such authority probably will not make too much of a difference without other more prospective alterations in food safety. As noted by experts in food safety, one of the weaknesses of FDA’s current system is how retrospective it is. Increased ability to enforce continues to address only retrospective issues and will not significantly increase the FDA’s food safety capabilities without other reforms. Mandatory recall power, for example, may not be necessary, especially given how powerful voluntary recall power already is. Very few producers would resist a voluntary recall in the face of bad press of an outbreak, especially in a world of increased traceability. Other enforcement capabilities aren’t particularly helpful if they do not come with increased food safety measure to enforce – the ability to detain a product that fails to meet food safety standards is a weak ability if there are few food safety standards set forth by the responsible agency.

Overall, this category of reform seems relatively low impact but moderately helpful in order to keep bad actors from damaging the market for more worthy producers. It helps the small farmer (and any other producer of any size) by simply keeping the playing field level. It also promotes the public health by giving the FDA a stick with which to keep producers in line while the market for safe food provides a relatively obvious carrot.

G. Tiered Approach to Food Safety Can Encourage Both Safety and Sustainability

Though several of the proposals above have the potential to encourage both food safety and family farms, especially HACCP-like risk analysis and traceability measures, the current

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proposals are all incomplete. Looking back at the original critiques of food safety, we can see where this incompleteness lies. All five categories of proposals really only address the first three problems – confusing lines of agency authority, the lack of authority and oversight, and confusing supply chains. None confronts the fourth problem, the lack of diversity in food supply markets.

Regulation that supports market diversity in food production can increase public health by encouraging competition between suppliers to make healthier, tastier food cheaper and more available to the average consumer. In addition, when food does get contaminated, a more diverse supply chain can mitigate the damage of a single bad source or even bad actor – how much less would have been the damage of the Peanut Corporation of America’s failure to correct its poor manufacturing procedures if its products had not been so pervasive in the market. As noted by the CEO of a large family farm in California in testimony before the U.S. House of Representatives Committee on Agriculture in April, 2009, “there is no such thing as zero risk, [so] government must also be able to assure the public that even if something does go horribly wrong in an isolated case, consumers can continue to have confidence.” More diverse suppliers would mean that any one’s failure would not be as crippling to the whole market, allowing the country to bounce back quickly as soon as regulators and suppliers trace the culprit foods and halt production.

In combination with the better proposals of the bills discussed above, a sliding scale system of regulation could address these problems by creating a regulatory space for smaller producers and processors in which they could compete with the economies of scale of larger establishments through savings on the cost of regulations such as certification, registration, and

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even inspection. In addition, such a system would benefit the small family farm that Congress has heralded for so long.

A sliding scale would fit well into the other methods of regulation discussed above for food safety purposes, and also support the popular food sustainability and local food movements. As traceability improves, the ability to have producers establish themselves as local-only providers would improve as well, and such producers then could be given more leeway in food safety protocols or at least not have to submit to the same level of physical inspection and oversight. Because their products would be traceable, local farmers would have incentive to uphold the highest practical levels of food safety because a single incident could permanently destroy their business. Because their products would be slightly cheaper than they would be otherwise, local farmers could also benefit more from the public’s goodwill towards local products if they can afford them.

One might argue that letting smaller farms incur lower food safety system costs is dangerous to the public health. After all, not all local organic food is as safe as highly processed foods that have gone through many rounds of sanitation, irradiation, pasteurization, or combinations thereof. For example, a recent New York Times article relates the story of a California nurse who contracted a nerve disease that kept her on life support and forced her to communicate solely by blinking for three months after drinking raw milk infected with campylobacter, which would be destroyed easily by pasteurization.\textsuperscript{163} However, with the correct cost-benefit analysis, a sliding scale could account for slight increases in risk in local foods and maintain the right level of oversight to varying sizes and kinds of producers while still

\textsuperscript{163} Andrew Martin & Gardiner Harris, \textit{Outbreaks Put Worry on the Table}, \textit{N.Y. Times}, May 11, 2009, at A1.
encouraging smaller farms in concurrence with a policy to encourage market diversity as well as the broader policy of supporting family farms.\textsuperscript{164}

\textbf{Part IV. Conclusion}

Two powerful movements surround the current climate of food policy in the United States. In one movement, consumers are rediscovering the desirability of local and organic foods, supporting small local farms through CSAs and other programs. This movement reinforces and reanimates the long-standing Congressional policy to protect family farms, especially the idyllic concept of the small family farm. In the other movement, consumers and legislators are demanding increased safety in the face of recent widespread foodborne illness outbreaks from foods normally considered not only safe but virtuous, such as spinach and lettuce. As legislators scramble to respond to this second movement that is worried about the vulnerabilities of our food safety systems, they would do well to remember the first movement, too. At first the connection between family farms and food safety may seem a stretch, but a closer look at the best proposed food safety reforms reveals that those proposals that are the best for food safety – hazard risk analysis, increased traceability, and support for diverse supply chains – can also benefit family farms. A good food safety bill that recognizes both the regulatory and market-driven problems of the current food supply can encompass the best of both worlds. It can keep our food safe for our daughters, as President Obama recently pledged. And as President Reagan declared of another food-related bill over two decades ago, it can also

\begin{footnotesize}
\textsuperscript{164} Similar cost-benefit analysis that has led to some allowance of dangerous impurities for the sake of the public policy of supporting an industry exists in other areas of food regulation already. For example, the FDA allows mercury levels in commercially sold fish that can be dangerous if eaten more than a couple times a week, even though some communities (for example, fishing communities) consistently eat fish much more frequently. See HHS & Environmental Protection Agency, What You Need to Know About Mercury in Fish and Shellfish, EPA-823-R-04-005 (March 2004), available at http://www.cfsan.fda.gov/~dms/admehg3.html.
\end{footnotesize}
honor and support the “hard-working men and women who till the fields and tend the herds . . . and the thousands of small towns and communities in which they live.”165

Appendix

List of Acronyms
CDC – Centers for Disease Control
CSA – Community Supported Agriculture
FDA – Food and Drug Administration
FSA – Food Safety Administration (proposed agency)
FSIS – Food Safety and Inspection Service (part of USDA)
GAO – U.S. Governmental Accountability Office
GAP – Good Agricultural Practice
GMP – Good Manufacturing Practice
HACCP – Hazard Analysis and Critical Control Point program
HHS – Health and Human Services
NOAA – National Oceanic and Atmospheric Administration
USDA – United States Department of Agriculture
## Table 1.
Few Family Farms Would Experience Significant Consolidation in Interactions with Regulators 
By the Merging of Food Safety Agencies

<table>
<thead>
<tr>
<th>Three or Fewer Commodity Farms</th>
<th>Number of farms</th>
<th>% of farms that have 3 or fewer commodities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited Resource</td>
<td>197734</td>
<td>92.5</td>
</tr>
<tr>
<td>Retirement</td>
<td>338671</td>
<td>97.3</td>
</tr>
<tr>
<td>Residential/lifestyle</td>
<td>837542</td>
<td>94.9</td>
</tr>
<tr>
<td>Low sales</td>
<td>395781</td>
<td>87.9</td>
</tr>
<tr>
<td>Total farms (under $100k)</td>
<td>1769728</td>
<td>94% of small farms with three or fewer commodities</td>
</tr>
<tr>
<td>Medium Sales</td>
<td>133299</td>
<td>55.8</td>
</tr>
<tr>
<td>Total farms (under $250k)</td>
<td>1903027</td>
<td>91% of small &amp; medium farms with three or fewer commodities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>One Commodity Farms (includes farms with no commodities)</th>
<th>Number of farms</th>
<th>% of farms that raise none or one commodity</th>
<th>% of small farms with one commodity</th>
<th>% of small &amp; medium farms with one commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited resource</td>
<td>197734</td>
<td>57.2</td>
<td>55% of small farms with one commodity</td>
<td></td>
</tr>
<tr>
<td>Retirement</td>
<td>338671</td>
<td>56.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential/lifestyle</td>
<td>837542</td>
<td>58.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low sales</td>
<td>395781</td>
<td>46.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total farms (under $100k)</td>
<td>1769728</td>
<td>55% of small farms with one commodity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Sales</td>
<td>133299</td>
<td>14.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total farms (under $250k)</td>
<td>1903027</td>
<td>52% of small &amp; medium farms with one commodity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2
Non-Meat Foodborne Illnesses (most prevalent diseases)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Annual Foodborne Cases*</th>
<th>Approximate Food-Based Deaths**</th>
<th>Share from non-meat or poultry foods</th>
<th>Annual Cases from non-meat or poultry foods</th>
<th>Annual Deaths from non-meat and poultry foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmonella</td>
<td>696,000 - 3,840,000</td>
<td>870 – 1920</td>
<td>25-50%</td>
<td>97,000 - 1,800,000</td>
<td>120 – 920</td>
</tr>
<tr>
<td>STEC O157 (E.coli)</td>
<td>8,000 - 16,000</td>
<td>176 – 433</td>
<td>25%</td>
<td>2,000 - 4,000</td>
<td>44 -108</td>
</tr>
<tr>
<td>Campylobacter jejuni or coli</td>
<td>1,100,000 - 7,000,000</td>
<td>110 – 511</td>
<td>25%</td>
<td>275,000 - 1,750,000</td>
<td>28 - 128</td>
</tr>
<tr>
<td>Listeria monocytogenes</td>
<td>950 - 1800</td>
<td>230 – 485</td>
<td>50%</td>
<td>475 - 900</td>
<td>115 - 243</td>
</tr>
</tbody>
</table>

*Data in first three columns all reflect 1996 rates, prior to HACCP program and the documented decrease in three out of four of these pathogen as described, supra text accompanying note 47. These should not affect the estimates for absolute numbers of non-meat foodborne illnesses in the last two columns, assuming there has been no change in incidence rates because there has been no significant change in food safety measures in the FDA since 1996.

**assumes death rates are equivalent in foodborne and non foodborne cases

Estimates from derived from 1996 data on meat and poultry foodborne illnesses supplied in Elise H. Golan et al., USDA, Tracing the Costs and Benefits of Improvements in Food Safety, AER 791 5 tbl. 2 (2000). These pathogens are chosen because they are both prevalent and relatively well-documented. There are, however, over 40 different foodborne pathogens that are known to cause illness in lesser degrees. Id. at 4.

Even assuming all of the illnesses came from fresh produce alone, the incidence rate of illness and death is extremely small. If 1,000,000,000 servings of produce are eaten each day (the lowest possible estimate from the testimony given in April to the House of Representatives), this means that someone contracts one of these main pathogens at a rate of 1 in 100,000 servings of produce, and someone dies at a rate of just 1 in 300,000,000 servings of produce. For comparison, assuming a person eats the full recommended 5 servings of fruits and vegetables every day (which is an overestimate for most Americans), from the age of 2 to 76 (the average life expectancy of an American), she would eat just 135,000 servings of produce her whole life.