Agric Hum Values (2017) 34:713–728
DOI 10.1007/s10460-017-9772-1

# Contradictions, consequences and the human toll of food safety culture

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Accepted: 10 January 2017 / Published online: 6 February 2017


**Abstract** In an intensifying climate of scrutiny over food safety, the food industry is turning to "food safety culture" as a one-size-fits-all solution to protect both consumers and companies. This strategy focuses on changing employee behavior from farm to fork to fit a universal model of bureaucratic control; the goal is system-wide cultural transformation in the name of combatting foodborne illness. Through grounded fieldwork centered on the case of a regional wholesale produce market in California, we examine the consequences of this bureaucratization of food safety power on the everyday routines and lived experiences of people working to grow, pack, and deliver fresh produce. We find that despite rhetoric promising a rational and universal answer to food safety, fear and frustration over pervasive uncertainty and legal threats can produce cynicism, distrust, and fragmentation among agrifood actors. Furthermore, under the cover of its public health mission to prevent foodborne illness, food safety culture exerts a new moral economy that sorts companies and employees into categories of 'good' and 'bad' according to an abstracted calculation of 'riskiness' along a scale from safe to dangerous. We raise the concern that 'safety' is usurping other deeply held values and excluding cultural forms and experiential knowledges associated with long-standing food-ways. The long-term danger, we conclude, is that this uniform and myopic response to real risks of foodborne illness will not lead to a holistically healthy or sustainable agrifood system, but rather perpetuate a spiraling cycle of crisis and reform that carries a very real human toll.

**Keywords** Food safety · California · Culture · Moral economy · Labor

**Abbreviations**

| | |
|---|---|
| CDC | US Centers for Disease Control |
| FDA | US Food and Drug Administration |
| FR | Federal Register |
| FSMA | Food Safety Modernization Act |
| GAPs | Good Agricultural Practices |
| GMPs | Good manufacturing practices |
| HACCP | Hazard Analysis and Critical Control Points |
| HARPC | Hazard Analysis and Risk-based Preventive Controls |
| LGMA | The California Leafy Greens Marketing Agreement |
| USDA | US Department of Agriculture |

## Introduction

In September of 2013, US Marshals arrested Eric and Ryan Jensen in connection with a 2011 outbreak of *Listeria monocytogenes* linked to cantaloupes aggregated and distributed by Jensen Farms, which they owned and operated. Over 2 months, the outbreak spread across 28 states, sickening 147 people and killing 33, making it one of the deadliest outbreaks of foodborne illness in US history (CDC 2012). Federal prosecutors charged the brothers with six

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counts of "introducing an adulterated food into interstate commerce", threatening each with 5 years of probation, 6 months of home detention, and $150,000 in fines (Jensen et al. 2013). The US Food and Drug Administration (FDA) stated that pressing the charges "sends the message that absolute care must be taken to ensure that deadly pathogens do not enter our food supply chain" (Elliot 2013). In addition to serving that sentence, which was issued by the court in January 2014 (Ortiz 2014), the brothers also faced lawsuits from 66 of the 147 victims (Food Safety News 2015). Jensen Farms filed for bankruptcy.

The Jensen brothers' case ushered in a new phase of federal food safety oversight that is raising anxiety among food industry operators. At the British Retail Consortium's 2016 annual Food Safety Americas Conference—a forum for some of the biggest multinational agribusinesses to compare notes on food safety—the first plenary speaker warned the audience that "complacency kills." Citing the Jensen Farms case and the deadly 2008–2009 outbreak of *Salmonella* linked to the Peanut Corporation of America, which also culminated in criminal indictments for the owners and executives of the company (Goetz 2013), the speaker went on to describe the "new human illness standard" that FDA has adopted in waging its "war on pathogens." The newly coined standard "suggests that whenever a food product becomes associated with an outbreak of foodborne illnesses, it will trigger a federal criminal investigation of the company" (Flynn 2016). Even operators with no foreknowledge that their products are contaminated with pathogens and no evidence of intentional negligence, as demonstrated by the Jensen brothers' case, can be found criminally negligent if a consumer falls ill due to a product sold by that operation. The question facing each and every person in the industry, the speaker told those assembled, is "What's the risk that I could find myself going to jail because of a food safety decision that I made?"

This unprecedented willingness to launch criminal investigations and prosecute company officials following outbreaks of foodborne illness is the latest development in an intensifying climate of scrutiny over food safety. It can be interpreted as a lengthening of the State's "shadow of hierarchy" (Héritiera and Lehmkuhl 2008) over the decentralized, generally voluntary food safety initiatives that have been spear-headed by private industry, especially multi-national retailers (Havinga 2006; Bain et al. 2013; Ransom et al. 2013), largely in response to acute "food scares" that have kindled consumer anxiety from the US to Europe to Japan (Caswell 2006; DeLind and Howard 2008; Loeber et al. 2011; Yamaguchi 2014). The voluntary system of non-state-based preventive governance comprises a nested system of standards, accreditation, certification and audits that Loconto and Busch (2010) have termed the "tripartite standards regime". This regime empowers a rapidly growing professionalized class of food safety experts who are pioneering their own industry independent of state authority. Coupled with the rise of this professional food safety industry is a call to embrace formal "food safety culture" (Powell et al. 2011; Yiannas 2009), envisioned as system-wide behavioral alignment to a 'safety first' mentality at all organizational levels from farm to fork.

Taken together, industry and government initiatives on food safety complement one another in a perpetual motion cycle of crisis and reform. If outbreaks of foodborne illness are symptoms of a "food-*system*-borne illness" (McMahon 2013) produced by a "boomerang effect" from attempts to control nature by industrializing and homogenizing the global food system (Stuart and Worosz 2012), then top-down government intervention represents the reform swing to re-embed the dangerous excesses of industrial agribusiness within a socially acceptable range of 'safety'.[1]

However, these interventions reveal a critical contradiction of regulation. As Elizabeth Dunn has evocatively argued, modern states derive power and authority to rule from their capacity to purify society (emulating a "sewer") by removing "contaminants", whether microbiological, chemical, or social. However, "the state as sewer is constantly overflowing" because this mode of power needs to constantly seek out new dangers and new risks to justify its continued existence (Dunn 2007). Federal officials and industry reformers, in this context, may well be attempting to address the symptoms felt by wealthy American consumers without regard to the underlying causes of food-system-borne illness. Such a "sewer state", especially when operating under the blank check of a moral imperative to protect public health, may systemically ignore and obscure the burdens that a continuously escalating cycle of crisis-and-reform places on small-scale producers and agrifood workers. The pressing question must be, as Martha McMahon poignantly asked, "What food is to be kept safe, and for whom?" (2013).

In this paper, we first characterize the technocratic bureaucracy—embodied in the US "sewer state" agencies and their civil society counterparts among the emerging professionalized food safety industry—that has arisen to govern this perpetual cycle of food scare and reform. We

[1] The underlying irony is that reform efforts refuse to acknowledge the possibility that treating the agrifood system as a massive factory line has produced the perfect environment for breeding deadly and virulent pathogens in the first place, hence the appropriateness of the "boomerang" metaphor invoked by Stuart and Worosz. However, this irony is well hidden, for as Terry Marsden observes, "What is so striking about the contemporary governance of agri-food are the ways in which it has built up resilience in dealing with its own unsustainable and metabolic vulnerabilities at the same time as protecting it [sic] abilities to create surplus values and profit" which distract attention from the externalized costs and harms (Marsden 2010, 7).

argue that the ascendance of neoliberal managerial reform frames the "old" ways as inferior, emblematic of unscientific, disorganized, negligent, and just plain dangerous agrifood cultures that must be supplanted. Furthermore, the emerging professional class of food safety experts turn profits at the expense of some of the most vulnerable actors in the food system: small family farmers, and in particular immigrant, socially disadvantaged farmers.[2] The danger, we conclude, is that agrifood cultures, values, and associated experiential knowledges that do not fit the new ideal—with all its paperwork, advanced degrees, laboratory-based techniques, elaborate technology, and constant surveillance—may have no place in a modernized food system designed under the totalizing aegis of safety.

Our argument proceeds by examining the consequences of this bureaucratization of food safety power on the everyday routines and lived experiences of people working to grow, pack, and deliver fresh produce. We ground this examination in a case study of a wholesale produce market (the Market) and the panoply of farmers, shippers, and handlers who supply the market vendors.[3] This grounding allows us to analyze how the macro-trends in governance, accountability and expectations are playing out at a local scale, among food system actors who are often overlooked by policymakers and media.

We complement the Market case with insights from semi-structured interviews conducted with 17 vegetable growers—spanning large agribusinesses to small farmers and among both vertically integrated supply chains and independent operators selling on open markets—and more than 20 site visits to farms in the California central coast, central valley, and Imperial valley. Grower informants were selected and recruited using snowball sampling from an initial cadre of growers identified through stakeholder contacts at the University of California Cooperative Extension, The Nature Conservancy, The Community Alliance with Family Farmers, and the California Farm Bureau Federation. We complement these grower interviews and farm visits with evidence from 33 semi-structured interviews conducted with produce buyers, including five from the wholesale produce market, various private sector and government stakeholders including food safety experts, trade association leaders, farm consultants, research scientists, and auditors. These stakeholders were selected to represent a range of private sector and government auditing organizations and a range of local, regional, and national buyers, and include food safety leaders on the technical committees and advisory boards of the Center for Produce Safety and the California Leafy Greens Marketing Agreement.[4] In addition to interviews, we conducted participant observation at four food safety trainings geared toward processors, organic growers, small farmers, and leafy greens growers, respectively.

In reviewing this evidence, we observe that rather than embracing food safety culture, people working in the produce-provisioning system exhibit a wide range of attitudes and motivations toward food safety compliance, ranging from zealous embodiment to casual dismissal. For many workers, performing food safety for the sake of 'doing their job' wrestles with the imperative to make food safer, leading to increasing cultural tensions and resistance that are only intensified when cast against a backdrop of corporate blame avoidance and escalating legal repercussions. We argue that, under the cover of its public health mission to prevent foodborne illness, food safety in practice exerts a new moral economy (Busch 2000) that sorts producers into 'good' and 'bad' according to an abstracted calculation of 'riskiness' along a scale from safe to dangerous.

Through grounded field observations at the current wave front of food safety governance and culture as it begins to wash over the fresh produce sector, we seek to highlight the unevenness of this moral economy and open up this quietly advancing sea change to further critical inquiry. How do individuals fare under a food safety regime, and how do they respond to the changing conditions in which they perform their daily work? Which values and attributes are celebrated and which suppressed? And what might food safety as *culture* mean for the future vibrancy, diversity, resilience and justice of our food systems?

## An idealized model of control

To understand the character and consequences of food safety culture, we turn first to an examination of the underlying ideal of food safety management that has been

[2] For reference, of the approximately 72,000 US vegetable farms in the 2012 Census of Agriculture, 57% grossed under $25,000 in sales per year, 26% grossed between $25,000 and $249,999, 5% grossed between $250,000 and $499,999, and only 12% grossed $500,000 or more. The Census classifies 20% of the principle operators of vegetable farms as minority farmers (USDA-NASS 2015).

[3] Wholesale produce markets are alternatively known as "terminal markets". To preserve the privacy of our respondents and to respect the confidentiality of the information they shared with us, we do not name the specific wholesale produce market that we profile in this paper, referring to it simply as the Market. Informed consent was obtained from all individual participants included in the study.

[4] Marketing agreements are voluntarily initiated by industry but facilitated by USDA and state departments of agriculture. The California Leafy Greens Marketing Agreement, or LGMA, became a leader in setting food safety standards for produce growers after it was launched in response to a deadly outbreak of *E. coli* O157:H7 in 2006 that was linked to spinach grown in California.

designed and envisioned through written policy as the preferred norm for produce supply chains. This abstract ideal, which we refer to as an ideal-typical model, originated far from farm fields and produce markets, tracing its genesis to the military-industrial complex and the US space program. We briefly review this history in order to demonstrate that the ideal-typical model for food safety is best understood as an external logic that operates by colonizing long-standing food-ways.

The logic of this model traces back to the process-based prevention technique known as hazard analysis and critical control points, or HACCP. Originally developed to meet NASA's exacting standards for astronaut food under the US space program—which itself borrowed from a "modes of failure analysis" method used in military-grade munitions factories—the logic which eventually crystallized as HACCP gradually expanded to encompass nearly all facets of nationally (and globally) circulating food (Bauman 1995; Ross-Nazzal 2007; Demortain 2008; Sperber and Stier 2009). During its decades-long colonization of industry, HACCP and its underlying logic also gained regulatory weight, beginning with FDA rules for low-acid canned foods in 1973 (38 FR 12716). In 1995, the FDA mandated that HACCP principles be applied in seafood processing (60 FR 65096). In 1996, following a deadly 1993 outbreak of *E. coli* linked to undercooked hamburgers, the US Department of Agriculture's (USDA) Food Safety Inspection Service revised its meat and poultry inspection from an organoleptic (based on sensory inspection) approach to a HACCP-based approach (61 FR 38805).

HACCP appealed to both industry and government because its simplicity, comprising just seven basic principles, promised an easily replicable, "thoroughly modern and sensible method for keeping pathogens out of the food supply" (Nestle 2003, pp. 67–68); in short, a "panacea" (Demortain 2011). The model has been promoted as the universal core for creating a regime of "management-based regulation" (Coglianese and Lazer 2003), in which individual operations take on the day-to-day work of monitoring and policing food safety while government agencies such as FDA provide "meta-regulatory" oversight (Gilad 2010), in keeping with the widespread neoliberal trend toward "government at a distance" (Higgins and Hallström 2007). With HACCP, so the story goes, government gets a standard tool for overseeing the otherwise unmanageable heterogeneity of agrifood operations, and industry gets an efficient, state-approved tool for performing food safety. These are the basic promises of the ideal-typical model.

## The ideal-typical model and post-farm gate facilities

Based on FDA's 2015 rule for Preventive Controls for Human Foods (80 FR 55907), the most recent guidance for US companies that handle food post-farm-gate frames this abstract ideal as a "universally accepted" and "proactive and systematic approach to food safety", which "helps to focus attention on the most important areas to prevent food safety issues rather than reacting to problems as they arise" (FSPCA 2016). This model system—which FDA now refers to as hazard analysis and risk-based preventive controls (HARPC)—is predicated upon the same two core principles as HACCP: analyze hazards and control the risk that those hazards might cause harm.

Today, this ideal-typical food safety model comprises multiple component programs conceived as an integrated food safety management system, which seeks to systematically control hazards through coordinating a core set of risk-based preventive controls (Fig. 1). Preventive controls take many forms, focusing on specific production processes, sanitation procedures, or supply-chain management, for example. They are built on a foundation of pre-existing programs. The most generic prerequisite programs comprise daily activities to monitor, clean, maintain, and operate the facility safely. Examples include employee health and hygiene, employee training, sanitation, environmental monitoring, equipment maintenance, pest control, product traceability and recall, and supplier approval/control programs. Some prerequisite programs are formulated in company policy as sanitation standard operating procedures, and some are regulated by government agencies, such as Good Manufacturing Practices (GMPs), which are set by the FDA (21 CFR 110). Any one of these programs may sufficiently control some hazards in a given operation, but other hazards may require the company to establish and monitor more specific preventive controls, such as critical control points, which have long been considered the gold standard within industry.

Companies are required to document which preventive controls are used for which hazards in their food safety plan, and provide regular verification that the written policies are followed in practice (e.g. through training or self-inspection logs). Preventive controls must be scientifically validated (proven effective) and monitored; in the case that a preventive control lapses or fails, the company must take appropriately documented and recorded corrective actions to restore control and mitigate any resulting risk. The capstone of the ideal-typical model comprises the food safety plan and its associated management team, which integrates all sub-programs into the overarching HARPC framework.

## The ideal-typical model and the farm field

The ideal-typical food safety model inherited HACCP's focus on supply-chain control—the requirement to monitor all suppliers providing raw materials. A distributor or retailer must verify that all produce comes from farms

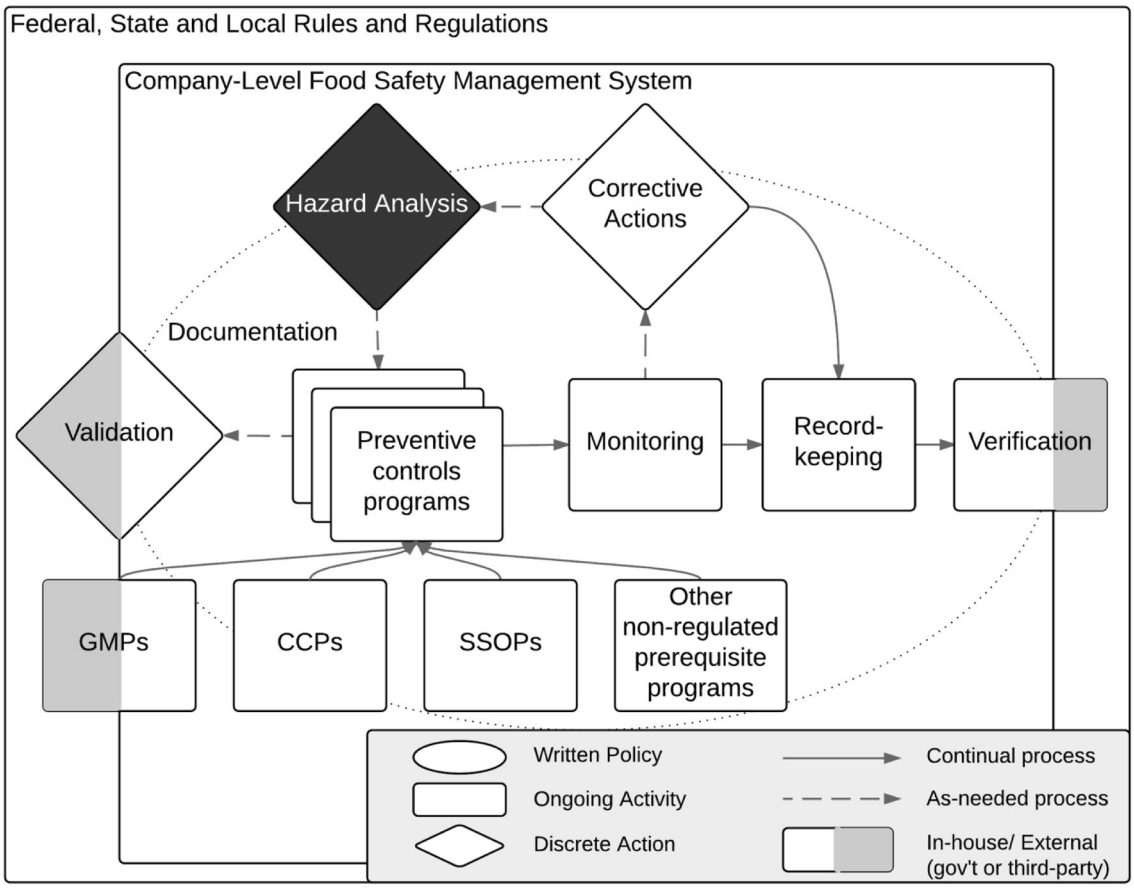


**Fig. 1** The ideal-typical food safety model. The core HARPC principles of hazard analysis and preventive control are worked into a coordinated food safety management system incorporating monitoring programs and corrective actions for when control systems fail to perform within predetermined parameters. All programs must be scientifically validated to effectively control the identified hazards, and records must be kept of all food safety activities to internally verify that the programs and policies are carried out and to demonstrate to external auditors and inspectors that the plan is actively implemented. As the industry saying goes, "If it's not written down, it didn't happen." Adapted from FSPCA (2016)

that are following an appropriate and adequate food safety management system of their own. Thus the logic of hazard analysis and preventive control also shapes food safety programs for growing and harvesting at the field level.

Today, produce farms are regulated under FDA's Produce Safety Rule, which sets "science-based minimum standards for the safe growing, harvesting, packing, and holding of produce, meaning fruits and vegetables grown for human consumption" (80 FR 74353). The rule applies to all but the smallest farms nationwide, fully covering approximately 35,000 farms and 94% of all US acreage used to grow fresh produce for raw consumption (FDA 2015), requiring them to adopt food safety management systems based on good agricultural practices (GAPs).

Authored jointly by FDA and the USDA in response to a presidential mandate to draft the "first-ever specific safety standards for fruits and vegetables" (Clinton 1997), GAPs provided the first national guidance for farmers to reduce the risk of pathogen contamination during growing and harvesting. Like HACCP, GAPs provide a two-step framework: first, identify potential hazards, and second, control them. The original GAPs guidance document addresses five "major areas of concern" for microbial hazards, or pathways by which human pathogens can contaminate produce: soil amendments (e.g. compost or manure), water (e.g. irrigation or flood), animals (e.g. wildlife or livestock), health and hygiene (farm workers, visitors), or cross-contamination via unclean equipment or work surfaces (e.g. knives, packing crates, etc.) (FDA 1998). Each section begins with an identification of the microbial hazard, and then details scientifically validated procedures for controlling that hazard. The final section of the GAPs is devoted to traceback and recall procedures, mirroring the final HACCP principle.

### Food safety and vertical integration

Numerous specific standards and certification schemes have emerged from the regional to global scale to facilitate the vertical integration of food safety management into a continuous system that spans farm-to-fork and defies a simple public/private binary. Building on the international benchmarks set by the Codex Alimentarius and the ISO, business initiatives such as the Global Food Safety Initiative, Global GAP, and the British Retail Consortium have elaborated auditable voluntary standards. In some cases, auditable standards have been specialized for specific commodities, as in the case of the California Leafy Greens Marketing Agreement (LGMA). Such voluntary, business-driven initiatives coexist with government regulatory frameworks such as the US Food Safety Modernization Act (the legal basis for both the Preventive Controls Rule and the Produce Safety Rule), and serve a role in "harmonizing" best practices across government jurisdictions, political boundaries, and agrifood sectors. It is important to note that government standards represent minimum requirements, and private standards generally go above and beyond that minimum as a "value-added" service and as an additional layer of liability protection (Baur et al. 2016). When a regulatory agency lacks the resources to adequately fulfill its oversight responsibilities, as may be the case with FDA under its FSMA mandate,[5] industry increasingly leans instead on private standards to fill the regulatory gap (Bain et al. 2013). In addition to these (relatively) transparent standards, many companies that purchase produce (e.g. large retailers or multinational restaurants) also develop additional private specifications for their suppliers, which operate through more opaque RFPs, purchasing contracts, and on-line registration and reporting portals.

Amid this cacophony of food safety pressures, it falls to businesses to sort their way through the morass. A small-scale wholesaler or distributor, for example, must know not only the HARPC requirements for its loading dock and cold storage, but also monitor the compliance status of its suppliers (i.e. growers, packing houses and brokers) and track the purchases of its customers in case of a recall. The onerous task of navigating the bureaucracy which has grown up around the seemingly simple ideal-typical model of food safety has opened the door for a lucrative new industry—"an auxiliary support army" (Timmermans and Epstein 2010)—comprising consultants, trainers, laboratories and auditors, to spread "food safety culture."

[5] FDA leadership has repeatedly argued that its current budget and workforce are insufficient to fully implement the FSMA rules (e.g. Taylor 2015).

### The rise of food safety culture

The latest pressures imposed by the colonizing ideal-typical model manifest discursively as a call for operators from farm to fork to adopt "food safety culture." Food safety culture means that controlling foodborne pathogens should permeate every aspect of an operator's mission and be at the forefront of every employee's mind:

> If you really want to be safe and you want to have the safest products available for your customers and consumers, then it has to be a risk-assessment-based program that is part of your culture, so that it's not just your food safety guy in your plant or in your field who knows about food safety, but the guy driving the tractor… and the guy harvesting the crop… The biggest misconception is that we worry about passing audits when in fact we should be conducting risk assessments and building a culture of food safety at our individual companies, and that goes across the supply chain (Editorial, *The Packer*, April 21, 2008).

In November 2014, the influential consumer advocacy group STOP Foodborne Illness interviewed Wal-Mart's vice president of safety and health, Frank Yiannas, about "getting to the path of food safety as a social norm" (STOP 2014). Yiannas, who has also authored a book on the subject (Yiannas 2009), reiterated in the interview the book's mission to focus on "the soft stuff", or human behavior and organizational culture:

> Generally, food safety professionals feel much more comfortable talking about specific microbes, food safety standards, and process controls. In fact, we often consider these the hard science. Food safety professionals generally feel less comfortable talking about terms related to organizational culture and human behavior—often referred to as the "soft stuff."
>
> However, if you look at foodborne disease trends over the past few decades, it's clear to me that the soft stuff is still the hard stuff. We won't make dramatic improvements in reducing the global burden of foodborne disease, especially in certain parts of the food system and world, until we get much better at influencing and changing human behavior (the soft stuff).

For the growing class of professionals who specialize in the "soft stuff", food safety culture translates to a livelihood. "It's my job, it's my passion, it's my life in a lot of ways," one of our respondents at a major food safety auditing organization told us. "It's what I do administering this program and training the people involved in this and getting people to understand, because people are willing to do it if they know what they have to do. That's why we've really

focused on training so much. It's been my life for the last seven years." The goal of food safety culture is to instill that same zeal for the ideal-typical model in all agrifood workers. When sanitization, constant vigilance, and sanitary standard operating procedures become simply a way of life, no longer will workers require outside discipline or incentives to wash their hands properly, wear hair nets, fill out their work logs perfectly, and so forth. Instead, employees will engage these practices at an almost subconscious level as food safety becomes simply "the way we do things around here" (Bower 1966, quoted in Deal and Kennedy 2000, p. 4).

To engender this behavior in employees from farm to fork—and turn a profit doing so—training workers in food safety culture has become an industry in its own right. The envisioned regulatory, scientific, technological and cultural shifts needed to bridge the gap between this "new" way of doing business and traditional food-ways creates a manufactured demand for third-party training, validation, consulting, monitoring, auditing and testing services. One private third-party firm—known primarily for its laboratory and auditing services—has recently expanded its services to cover the "soft stuff" as well: "NSF International combined leading research on human behavior and psychology with the organization's expertise in food safety to design an intelligent behavior-based food safety assessment model that helps companies build a culture of food safety."

> Through using the right certified equipment and designing sound quality manufacturing systems, many food processing facilities are able to significantly reduce food safety risks and develop sanitary environments suitable for food processing. However, one rogue element will always remain. Humans, regardless of the sanitary environment in which they are working, still contribute the greatest risk to food processing environments…
>
> People are dynamic. We don't simply do what we are told, and we can't be programmed like a computer to perform perfectly at all times. Our research and experience to date, and that of the food companies we work with, confirms our belief that sustainable safe practices within the food sector are best achieved when we go with the grain of human behavior. Only by effecting change in food handler behaviors will we be successful in embedding food safety within organizational culture (Fone 2012).

In addition to introducing a large demand for training, modern management systems frame food safety as a never-ending journey of "continuous improvement", which translates to continuous reliance on outside consulting services, technologies and expertise. As the Chief Science Officer for one multistate supermarket chain told us, "there's not a point that you say, okay, we're done… you're never quite satisfied and happy with where things are, you always want to find a way to get them a little bit better." This version of food safety, which has been referred to as "chasing after zero" (Wilson and Worosz 2014), is reinforced by food safety experts—people holding advanced degrees in fields such as food science, microbiology, chemistry, or public health—who frame food safety as an exercise in risk management. Here's the way that one food safety auditor described how he believes continuous improvement should play out on produce farms:

> What managing risk means is, every single day making sure that you're doing everything you can to identify and mitigate the things we know might create a food safety problem for you on the farm. You can only do that by making sure, from top to bottom, everybody on your farm is aware of those risks and aware of the steps they're required to take and that the company is taking to reduce it. We're never going to be able to say that there is zero risk. These crops are growing outdoors in the environment. It's not like *E. coli* originates on a head of lettuce. It's coming in from somewhere else. You've got to be mindful of and cognizant of those risk factors and do everything you can to reduce them.

There is thus a self-perpetuating cycle embedded within food safety culture that requires ever more input of costly outside expertise and technology. Not only does the growth of an ancillary food safety industry impose new costs that operations must bear, but it also devalues the expertise and experience of the people working every day to grow, harvest, pack and distribute produce. They lose autonomy and discretion to the extent that their knowledge and judgment are outsourced to food safety professionals who are perceived to have superior expertise (Thompson and Lockie 2013; Parker et al. 2012, 2016).

To make good on the ideal-typical hazard control model, food safety experts seek control over the "soft stuff" through behavioral modification that instills zeal for constant vigilance and improvement in agrifood workers. This modification amounts to a cultural displacement, and in the following section we explore how this displacement impacts working life along the produce supply chain.

## Food safety in lived experience

> The more one thinks about it, the more apparent it is that the imperative "never trust, always check" could not be a universalizable principle of social order: constant vigilance is somehow autodestructive... Some

> societies have tried to institutionalize checking on a grand scale. These systems have slowly crumbled because of the weight of their information demands, the senseless allocation of scarce resources to surveillance activities and the sheer human exhaustion of existing under such conditions, both for those who check and those who are checked (Power 1997, p. 2).

In its ideal-typical form, food safety appears as a simple imperative: prevent harmful pathogens from contaminating produce. As we have shown, this imperative has been translated into a mission of behavioral readjustment and a system-wide cultural transformation embracing the mantra, as Power puts it, "never trust, always check." With a true hegemonic cultural revolution, one might assume the need for constant vigilance would eventually be eliminated as all individuals would embody and enact the new food safety governmentality. But despite its discursively reinforced monolithic image, food safety culture does not uniformly produce new subjectivities or evenly enroll people on the ground. Individuals and companies respond differently to the imposition of the ideal-typical model on their daily lives and working identities. While some embrace food safety culture and the associated values of constant vigilance and continual improvement, others ignore, resist, or subvert the imposition. What does the pursuit of a seemingly impossible ideal—given the scant resources allocated to system-wide oversight and enforcement—mean for people on the ground? What are the conditions under which agrifood actors receive food safety culture unquestioningly or resist it, and in what forms? How does it impact the everyday lives of agrifood workers across the fresh produce industry and with what consequences?

Through semi-structured interviews, farm and facility visits, and close reading of textual material (e.g. policy documents, position papers, websites, blog posts), we have collected a wide range of perspectives from small farmers and large growers, packer-shippers, wholesalers, distributors, retail and institutional buyers, scientists, auditors, and professional consultants to shed light on whose food safety is pursued, and at what cost. Specifically, our research is grounded in space and time at the Market, where we interviewed five vendors. The Market was illustrative as a central node at which various value chains touch down in the hustle and bustle of produce distribution (Fig. 2). From this empirical anchorage, we examine the contrasts between ideal and practice that manifest when clashing imperatives along these value chains pit food system values against each other, obliging produce operators to make increasingly tough decisions and sacrifices. What emerges in practice is a food safety culture marbled with persistent uncertainty, a tendency to reward performance over substance, and a pervasive fear of blame and liability.

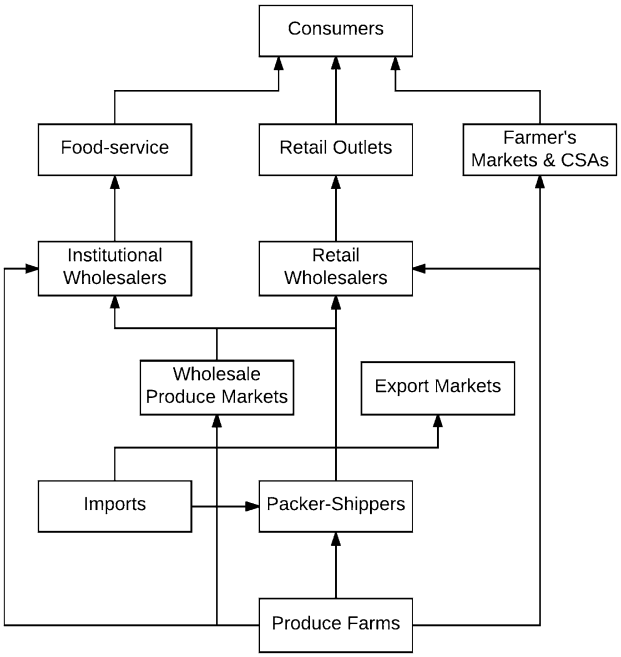


**Fig. 2** US fresh produce value chain. Adapted from Cook (2002)

The Market is a hive of activity. In operation for over 50 years, it houses 30 vendors, employing more than 650 people who supply an extraordinary diversity of both conventional and "exotic" produce. Our first visit to the Market early one morning in 2014 brought us into contact with an overwhelming variety of people and volume of food. We arrived at the end of the overnight peak, but dozens of trucks were still pulling up to, parked at, and driving away from the loading docks, which themselves were a gauntlet for us to thread—we dodged forklifts, skirted boxes and crates filled with a prodigious variety of fruits and nuts all while side-stepping workers zipping past with hand-trucks to load and unload the waiting trucks. As they do nearly every day, these trucks were set to deliver produce from hundreds of farmers to hundreds of local restaurants, hotels, grocery stores, and caterers.

Over the course of a year, the Market—a sort of "shopping center for food businesses" and a reliable market outlet for farmers—moves more than $500 million in food. Big retailers like Safeway or Whole Foods do not regularly source from the Market, but they do occasionally visit to cover "shorts", or gaps in their supply. While vendors carry plenty of staple commodities—carrots, broccoli, potatoes, etc.—the Market is perhaps better known for its diversity of specialty crops. Many vendors sell to niche ethnic and immigrant markets that are not well-served by mainstream supermarkets. For example, they provide hard-to-get Asian vegetables such as gai lan, yu choy, and bitter melon as well chayote, epazote, squash blossoms and unique pepper

varieties that are important ingredients in traditional Mexican cuisine. The individual businesses comprising the market vary widely, as well. Some are traditional wholesalers, aggregators of produce (and other foods) whose customers come to the docks to pick up their goods. Others go by the label "jobbers", market lingo for the growing industry that delivers fresh food directly to customers. Then there are the hybrids, vendors who sell boxes of produce at the docks for anyone who drives up but also fulfill and deliver orders placed in advance. With its plethora of vendors and center-node position in produce value chains, the Market proved an ideal site for understanding the contrast between food safety on paper and food safety as it is lived and experienced by people working across food provisioning networks.

## "Vigilant every day"

Operations are genuinely worried about the health and well-being of their customers; no one we spoke with expressed indifference or apathy toward the possibility of foodborne illness. Many operators view food safety not just as a moral responsibility, but also as an aspect of quality on which they pride themselves. As one mid-scale farmer, who grows primarily under contract, told us:

> I'm super proud of the fact we grow super healthy vegetables and they're good for people… and I want people to eat 'em! I want to make sure people are safe when they eat them, and don't get hurt by them.

Pride combined with the ever-present need to reinforce their own self-confidence can engender in operators a zealous attitude toward food safety, as expressed by one of our interviewees who is in charge of purchasing food for a hospital:

> I'm very proud of our accomplishments here. And yet, we continue to have to be vigilant every day. Every day, every shipment, we need to assume that something is wrong. The minute we relax our view is the minute that something comes in. We're looking at everything, everything.

Never "relaxing" and always "looking" is also a pragmatic and proactive approach to staying ahead of the curve. Several Market vendors shared a strong perception that they needed to "think differently" and take the initiative on food safety or be "left behind" by the developing expectations of their customers and the food safety credentials and capacity of their competitors. Customers are perceived to be increasingly aware of and concerned about the safety of their food. "Food safety is top of mind for most of the folks, consumers out there, as well as the growers, who have a big stake in it—that's their livelihood," said one government auditor who has worked among produce growers for decades. "The consuming public is very aware of food safety," he continued, "The information via the internet, word of mouth, and community groups is very good." Amid such panoptic scrutiny, operators at all stages of production are concerned with how their food safety management appears from the outside.

The care taken over appearance was poignantly displayed for us during our first tour of the Market. We noticed that one vendor, in contrast to most others, had installed curtains of clear vinyl strips to seal off its visually spotless stall from the rest of the dock area. Reinforcing this hygienic image, the vendor also had hung a line of brightly colored banners across the entryway ceiling, proudly displaying the logo of AIB, an international food safety certifier. While vendors such as this one wear their food safety credentials on their sleeves, many others "aren't there yet", as the market director put it, both in practice and attitude. But with pressure mounting from consumer advocates and government regulators, the Market, like the food industry as a whole, is ramping up its efforts and expectations to deliver safe food to the public. It seems only a matter of time until the Market, and its many vendors, must follow suit in embracing food safety, or at least appearing to do so.

## "We're sterilizing our world"

Maintaining the appearance of constant vigilance, however, requires tradeoffs with other values. The ecological dangers posed by "unintended consequences" of food safety practices have been clearly articulated in the agricultural setting (Karp et al. 2015), but we were still surprised to see a strongly expressed concern for the fate of environmental sustainability under a food safety regime emerge in our conversations with wholesalers and distributors. During one in-depth interview with the sustainability manager for an all-organic produce distributor at the Market, the respondent phrased the tension in terms of competing versions of integrity:

> I think that food safety standards are inherently displacing some of the integrity [of organic food]. [Food safety] changes the conversation, it changes the way that you perceive quality: quality is no longer about quality of the soil and quality of the biodiversity on the farm.

She went on to warn of a future in which sanitary conditions are prioritized over "wholesome" food and the environment: "we don't want to get to the point where we are over-sanitizing everything and losing beneficial bacteria… that are necessary in organic agriculture." Similar sentiments are expressed by other distributors working to expand market access for local produce, who perceive a

level of hypocrisy in the attention given to environmental risks at the farm level:

> How can you possibly say that more biodiverse farms are more dangerous? It seems that centralization is dangerous, that a total lack of diversity is dangerous, right? That's why you see so many recalls in meat products. We're sterilizing our world, and I think that's a big problem too.

As a result of this apparent clash of values, many of the organic-certified farmer/suppliers seeking to tap into growing markets for local and sustainable food are going through the motions with their required food safety programs but "don't necessarily believe in them" especially in so far as the food safety protocols pressure them to minimize biodiversity-friendly cultural practices.

More broadly, our interviews revealed tension between food safety and "green" supply chain practices. Respondents indicated that food safety has increased their use of resources, since packaging material like plastic bags and plastic wrap generally cannot be re-used: "there's just a monstrous amount of that, so we recycle just a huge amount of plastic." Perhaps the most common complaint had to do with food safety-related restrictions on reusable containers such as waxed cardboard boxes. As one of the Market vendors complained:

> I mean, what are we talking about in terms of food safety when it comes to using reusable containers? Or what about issues of recycling? Aren't we supposed to be cognizant and trying to work toward a more environmentally conscious approach toward how we distribute and what happens to the waste products that we use?...
>
> [Y]ou can't reuse box…. A lot of those boxes are going right into landfill.... If you put a cardboard box out anywhere or even on our back dock, a recycler will be there within an hour and pick it up. If you put a waxed cardboard box out, nobody wants to touch it… And we constantly get requests from restaurants, can you pick up our waxed boxes? And we tell them, well we don't really have a use for them because we can't reuse them. Which seems like a shame.

While the ideal-typical model hones vigilance toward specific types of hazard—those capable of causing an acute and highly-visible illness—other hazards that cause harms more similar to what Rob Nixon has termed "slow violence" (2013, pp. 2–3) are rendered invisible and insignificant in comparison. Damage to ecosystems, pollution and waste, the burdens placed on farm and retail workers, rising costs of production and liability insurance, toxics related to sanitization, and so on fall by the wayside, victim to the overwhelming pull toward food safety's myopic field of vision (DeLind and Howard 2008; Stuart 2008; McMahon 2013).

### "Puros papeles"

The ideal-typical model is also a bureaucratic model, one in which verification and holding actors to account are paramount—"if it's not written down, it didn't happen," as the mantra goes. Ensuring safe food becomes an exercise in accounting, checking off the boxes exactly the same way that an auditor performs an audit. The chief scientist for one produce trade association, and a leading proponent of food safety reform for the industry, described these sequential steps:

> In the produce world, that you understand the most likely risks of contamination, that you monitor those risks, you have corrective actions in place—well, you have alert parameters first of all, that tells you when you've gotten into a less safe region of that risk than you're used to, than is normal—you have corrective actions to bring you back under control, you have evaluative procedures to determine whether or not the risk has actually created a public health concern, you have records that demonstrate that you have done all that you can do, and that's pretty much it… That's food safety in the produce world.

For large-scale operations already keyed into the bureaucratic necessities of vertically-integrated supply chains, compliance-via-paperwork poses little challenge. In fact, many have come to view food safety as an abstract formalization of common sense. As one large-scale leafy greens farmer put it:

> Basically it goes back to using science and then taking that and using common sense, in that the water you use, checking the ground you use before you plant in it—it goes from the ground all the way up, and then all the way through your harvest deals. It's emphasizing common sense.

This view is reinforced by trainers who tell growers and handlers who are worried about complying with new regulations that food safety management largely means simply writing down all the work they already do—inspecting their fields and/or facilities for hazards, training their employees, monitoring their suppliers, properly cleaning their equipment, and tracking to whom they sell their products. As stated above, it is not coincidence that auditors and inspectors monitor food safety compliance in the same way:

> For the most part, it's just common sense. The science is there to tell you what to test for and what to

> do, but most of it is just common sense. Don't spit on the field. Use the restroom. Wash your hands. That's where most of it is. There are certain rules, but it's just to make sure that the product you sell is safe and you've done everything you could possibly do to make sure it's safe.

But the "common sense" that seems self-evident to large-scale agribusiness and food safety professionals is not common to everyone, and some operators feel they are being pressured to take preventive steps or engage in busywork that do not align with what they think of as common sense. Operators situated in small-scale, face-to-face value chains tend to view food safety work more as a meaningless exercise in jumping through hoops. This is especially true of the paperwork requirements. The most ubiquitous complaint is that food safety takes a lot of paperwork: "trabajamos en puros papeles," or "we work purely in paper", as one strawberry grower protested at a focus group for beginning Latino farmers. A typical operation may maintain dozens of preventive control programs for potential hazards ranging from pests to dirty hands to bioterrorism, and must keep additional records proving its employees actually follow the control procedures. Logs of employee training, records of traps laid and pests trapped, copies of laboratory reports, and so forth must be kept up-to-date and held accessible, typically for 2 years, for any visiting auditor or inspector to review. All told, operators face a massive data-keeping workload that costs substantial labor time and money. The sheer volume and tedium of this work, with little reward, can lead to intense frustration. As one small-scale Hmong farmer from the Central Valley stated,

> The government, whoever out there, put all the burden on the farmer. I put a lot of time into putting all these food safety programs in place, why don't we share the cost for the audit? Once they find out we follow [these programs] properly, we should be rewarded with certification, so we don't have to pay someone to come out… I went to sell product for a school—we needed a food safety certificate. I paid $600–$800 for an audit, then the school only buy [sic] five boxes of tomato a week! What do I get from them?

Frustration may resolve into cynicism, divorcing the ostensible public health mission—preventing foodborne illness—from food safety activities in the minds of operators. As the regulatory compliance manager at a mid-scale family farm specializing in organic produce acknowledged, food safety is "as much the perception of what's going on as it is the facts of what's going on." To a certain extent, all the paperwork, laboratory results, audits and certifications are a performance for the sake of the customer, a value-added service that makes them feel better without necessarily changing how produce is grown or handled. The performance is only necessary to the extent that customers expect it; some operators can get by without extensive and formal preventive control programs, while others must make costly infrastructure and equipment upgrades and employ staff dedicated solely to food safety compliance.

Adding to frustration is a strong sense that food safety culture neither values nor acknowledges long-standing customary norms, practices, relationships, and experiences. Many of our respondents, particularly those at the Market, discussed and lamented how food safety regulations are shifting a culture of trust built up over many decades—where interpersonal history and a handshake could seal an agreement—towards a heavily formalized culture of rules, paperwork, documentation and traceability. Waning are the days of flexible spot-market transactions, waxing is the importance of indemnity agreements, liability insurance, and third-party audits. We also learned of widespread frustration that food safety protocols are forcing out practices that have been going on for "a hundred years." One Market vendor specializing in Asian vegetables and fruits noted that, according to the latest guidelines, any food product or container that touches the floor should be considered contaminated even though "for one hundred years" the bottom case has been on the floor: "It's the one issue that's going to be tough to solve because everybody's going to put stuff on the floor." Another vendor, representing one of the oldest companies at the Market, lamented that the new food safety protocols are butting up against "one hundred years of tradition."

### "Food safety is number one a worry"

The demands that food safety imposes on operators can lead to feelings of uncertainty and anxiety (Andrews 2015). As Elizabeth Dunn (2007) has observed, "success" in food safety is a paradoxical state. Given that complete eradication of risk is assumed impossible, failure to document enough instances of non-compliance (such as the presence of a known risk factor) may paradoxically raise suspicion rather than praise: instead of being rewarded for their diligence, an operation with no recorded "deviations" or "corrective actions" might be suspected of negligence in self-inspection or even, in the most extreme cases, of intentionally 'cooking the books.' Some interview respondents expressed annoyance when an auditor finds absolutely nothing to comment on—they feel they've been cheated of a thorough inspection that they paid for, and also worry that their customers may find a perfect audit a rather suspicious occurrence. As Dunn concludes, "Complete 'success', then, only succeeds in introducing anxiety and unease, not comfort" (Dunn 2007).

The current of anxiety running under the heightened fixation on food safety was apparent in our conversations with small and midscale owner-operators alike who have the fewest resources to implement the new rules.[6] As one small-scale Latino farmer put it in a focus group, "Food safety is, number one, a worry… Worry not only for me as a farmer, but also for the recipient who is going to eat the food. And the worry includes many things: the cost, the time it takes to fill out all the papers, all the requirements there are." "We know that if a contaminated product reaches a market and makes somebody sick, it is we who pay," added another woman farmer at the same table, "So yes, we are afraid that something like this could happen."

Producers seek to cope with this anxiety in several ways. One farmer, who was working to start up her own operation after years laboring as a field worker for others, described how food safety primarily means that she must always relate to her farm through a state of personally embodied caution: "For me, I understand that we have to be careful: put on gloves, wash our hands before anything… We have to strive for it in ourselves first, and then in whoever is helping us." Producers worry about the risks of delegation, and some feel that food safety requires their personal presence and oversight. "My primary food safety strategy is just being a small, tight operation", said an organic farmer. "[I'm] not far from anything that happens," he explained, and "[I can] look over people's shoulders to make sure." The need to look over shoulders can become a source of anxiety in itself:

> This is truly a fear that we have. It's a fear that [if] I have a worker, and I go to buy boxes, and the worker goes to the bathroom, does number two, and doesn't wash his hands. It's a risk that I am taking, it is very big. If that man touches the fruit, the strawberries, and makes somebody sick… [well], that is such a big risk that is there constantly.

Food safety may also manifest as a source of persistent uncertainty. Embracing food safety culture also means embracing the posture that one's operation could always be improved, that the current operating procedures, technologies, trainings and so forth may not be sufficient. One operations manager for a "jobber" at the Market described food safety as just "tons of questions":

> Just, what can I use to clean? How many times a day do I have to clean it?... And like I said, a list of the approved chemicals to use… we wipe down our tables with Simple Green, real mild cleaners like that. But is that ok? Is that a food grade cleaner? Those questions, you know?

When confronted with the imperative to constantly improve, even the most zealous proponents of food safety may question where and how to draw the line. "I used to think we're clean enough," confessed a food safety consultant who works with small and mid-scale operations, including several of the Market vendors we spoke to, "but now I think we weren't clean enough. We're finding things that are present that we didn't know about, and now it's not clean enough. I don't know. My auditor side says, well that's good enough. My scientist side says, there's so much more that could be done. My banker side says, well how much do you want to spend?"

## "Keeping track of who's doing what and when"

Throughout our first tour of the Market, our guide Mauricio nodded to those of the hundreds of workers at the Market that he recognized. They all knew him, and one smiled and parroted a "no smoke" gesture at Mauricio as we walked by. Mauricio has been cracking down on smoking on the docks and in the warehouses, part of an ongoing initiative to modernize the Market's hygiene standards. Moments later, we passed another worker (overlooked by Mauricio) taking a cigarette break while leaning over an open box of produce. His pack of cigarettes and lighter lay at his side, balanced on a pile of celery. Change is clearly both embraced and resisted at the Market.

Food safety culture challenges long-standing labor practices by incentivizing scrutiny and discipline in the workplace. Our interviews suggest that owners and management seek to alleviate their own uncertainty and anxiety by increasing in-house oversight of employees and behavior. "It's become different from just keeping a tidy warehouse," said one vendor at the Market, "It's a lot more details, and I think documentation has kind of been more pressing…. Just trying to keep track of who's doing what and when." Keeping tabs on workers is necessary because for many of them, as one wholesaler specializing in Asian produce noted, "it's just a job". They resist management's message that food safety is important and they need to change behaviors, complaining "I've been doing it this way so long". A neighboring vendor echoed the sentiment: "the hardest thing is getting the employees to change—now they are not supposed to smoke, they can't throw trash, they have to pick up the pallets off the floor…." A number of our respondents made clear that ultimately, perfect

[6] Food safety compliance costs are expected to be relatively higher for small-scale producers due to economies of scale. The FDA's regulatory impact analysis of the Produce Safety Rule estimates the cost of compliance for "very small" farms ($25,000-$250,000 in annual sales) at 6% of their annual sales, for "small" farms ($250,001-$500,000) at 4%, and "large" farms (more than $500,000) at 1% of their annual sales (Karp et al. 2015).

implementation of these standards is simply unattainable. "When it gets busy," one vendor admitted, "you can see that certain things are not really followed in that [food safety] rule, because nobody would actually be able to meet that amount of… those guidelines, that is [and still keep their business running]." Far from being a pervasive and all-encompassing imperative, let alone "the way things get done around here", promoting food safety culture and putting the ideal-typical model into practice manifests as a balancing act among competing motivations for the company, the management, and the workers.

Strengthening oversight creates frictions, with food safety marking the border between the "old", informal ways and the "new", formally-regulated processes. It is often left to mid-level managers to tread the fine line between a cooperative relationship with their workers and a company- and self-preserving "cop mentality." And that tension exists across the supply chain, starting at the farm. Take the case of two foremen working for the same leafy greens harvesting operation (connected to a large, vertically integrated packer-shipper). The first talked about how the work is "más tenso" (more tense) now than in the past. Today there is more pressure on the foreman, but he has learned to handle it. The audits don't worry him too much, he said, because all you have to do is follow the rules and get your workers to follow the rules, too. But the other foreman gets anxious before every audit. The pressure is high, he said, because it is his responsibility to constantly check the quality of the product and the diligence of the crew. The foremen joke that they have "a high-paid baby-sitting job", but their role in ensuring food safety depends on carefully cultivated relationships with the workers they oversee. A foreman must enforce discipline, but also can't "be a hard-ass all the time." The foremen must demonstrate understanding and compassion, meet their workers halfway, or they will lose the loyalty of the crew and simultaneously lose control over food safety. But that cooperative approach must articulate with the other half of the job: constant vigilance. A good foreman must also be ready at all times to meet whatever problem may arise with the properly documented corrective action.

## "So we're indemnified"

Amid a continuously reinforced state of uncertainty and anxiety, the darker side of food safety culture emerges: fear of the punitive forces of discipline. Where the positive motivations of protecting people and providing a high-quality product fall short, the potential financial and legal repercussions of failing to make good on either expectation spur operators to pursue food safety also out of fear and self-preservation.

Fear is heightened by high-profile cases in which owners and management of companies linked to outbreaks have faced criminal charges and ultimately jail time. Cases such as the deadly 2008-9 outbreak of *Salmonella* linked to the Peanut Corporation of America (Goetz 2013) or the 2011 outbreak of *Listeria* caused by cantaloupe sold by Jensen Farms both culminated in criminal indictments for the owners and executives of the implicated companies. With the stakes so high, owners and executives look to food safety management systems to protect their businesses from losing market share, buffer them from exposure to bankrupting lawsuits, and avoid severe government sanction such as revoking an operating license or pressing criminal charges. In the case that these preventive measures fail, more and more operators are also requiring indemnity agreements to shift the blame upstream to suppliers and acquiring liability or recall insurance to cover the costs if a recall or outbreak does occur (Andrews 2014, 2015).

The fear of high-stakes repercussions affects mid- and small-scale companies, too. Most of our Market vendor respondents discussed the paramount importance of indemnifying themselves against food-safety-related legal action, and some even suggested that this aspect of their program was of even greater importance than their own or their suppliers' preventive programs. One vendor at the Market, who does not yet have a formal food safety requirement for its suppliers, explained to us that, "For every one of the farms we deal with… we're either in the process of or already have certificates of liability. So we're indemnified." Another respondent working as the food safety manager at a different vendor noted that just as important as the food safety program of their suppliers is the certificate of liability insurance and a "vendor produce warranty" that legally binds them to implementing said program. She confirmed that this is a common sentiment at the Market, where vendors are more worried about indemnifying themselves than they are about truly making changes—a result of operators approaching the food safety issue "from a place of fear and wanting to protect oneself" rather than from a proactive desire to reduce the risk of dangerous contamination.

We observe that fear can drive operators to adopt strategies to shift blame and responsibility for food safety infractions. Such strategies are made necessary, from the operators' point of view, to the extent that they perceive "infractions" as an omnipresent and never fully-avoidable catastrophe that could befall them without warning, a perception reinforced by repeated reminders that risk is never zero. A risk only manifests as a harm after the fact, leading to perpetual uncertainty: the "only way to know you're not meeting the standards," another vendor told us, "is because people are getting sick." By then, of course, it's too late.

Food safety culture adds stress that can cause tension between management and staff. One food safety manager

for a farm/CSA spoke of her continual efforts to oversee her company's employees without slipping into what she called a "cop mentality." But again, the stakes are high in ensuring that employees follow standard operating procedures. "I think there's now more accountability across the board," she said, referring to the Peanut Corporation and Jensen Farms cases. "It's not just the ownership, the CEOs, exec level," she continued, "I mean, it went down all the way to the plant manager… So that it's kind of that game: I could be on the chopping block, you know, or it could just be the owners. And so it's very difficult to know that the owners may make a different decision than you would like to make, so how do you protect yourself? What do you do?" Despite the macro-level discourse of a unified culture, implementing the ideal-typical food safety model on the ground is messy. Friction seems more the order of the day than harmony, and frustration at the pervasive uncertainty can produce cynicism, distrust, and fragmentation.

## Conclusion: a less-than-ideal, reluctantly typical model

As the ideal-typical model and food safety culture have colonized much of the agrifood system, their combined discursive power has given rise to a persuasive new metric for valuing agricultural products along a risk continuum from safe to dangerous. Crucially, that metric judges the context within which a fruit or vegetable was grown, harvested, stored, transported, processed and packaged. Whose hands touched the product, which operational plan plotted its life history, what environments it was exposed to, and what kinds and volume of records travel with it to trace this history all factor into the final calculation of riskiness that increasingly determines whether the product will go to market or to the dumpster. Because the context (sites of production, personnel) and history (traceback records) of food matter so much to the determination of riskiness, food safety values not just the food itself, but also the people and places which produce and distribute that food. It is the unspoken moral economy of food safety culture that we have sought to illuminate in this article by demonstrating how the ideal-typical model of hazard control works through this cultural modification project to "defin[e] what (who) is good and what is bad" and "discipline[e] those people and things that do not conform to the accepted definitions of good and bad" (Busch 2000). Food safety culture sorts farms, warehouses, distribution centers and the people who work in them into categories of good and bad—and in and out of business—as the food they produce is sorted into categories of safe and unsafe.

The moral imperative is mounting with behavioral standardization under food safety culture and FDA's new punitive "human illness standard". But, we are reminded of the caution posed by Busch that "Standards tell us what is relevant, what is valued, what is important; and, by implication, they tell us what is not important" (Busch 2011). One of the primary concerns we raise here is that "safety" may usurp other deeply held values—quality, fresh, local, organic, sustainable, and so forth—and the social goods that may flow from their realization, while reserving the benefits for a narrow socio-economic strata of society. More empirically-grounded research located in other places and value chains is urgently needed to assess the extent to which this vision of safety dominates other goals and evaluate the severity of trade-offs incurred as a result.

While the regulatory regime built around the ideal-typical model expressly targets "real" risks to public health, this regime also exists to protect the political legitimacy and reputation of elected officials and regulatory agencies. Just as government institutions wield food safety regulation to protect against risks to their political reputations, so to do private companies wield food safety culture to "avoid accusation, shift blame, and generally resist change" that would threaten their profits, reputation, and market share (Stuart and Worosz 2012). What both government regulators and powerful corporate actors share is a common interest in preserving the confidence and trust—the (literal) buy-in—of consumer-citizens. The regulatory regime built up around the ideal-typical model aims as much at shoring up faith in the nation's food supply as it does at reducing disease and mortality from foodborne pathogens such as *E. coli, Salmonella* or *Listeria*. What matters most is maintaining "the illusion of control" (Stuart 2008) and the "illusion of safety" (DeLind and Howard 2008). We have illustrated how the mixed motivations of the "sewer state" (Dunn 2007), especially when obscured behind the depoliticizing abstractions of the ideal-typical model and the panacea of food safety culture, lead to very real consequences for who bears the economic, legal and emotional burdens of that continual overflow.

As macro-forces shift the normative terrain of the food system through the perpetual crisis-and-reform cycle, agrifood workers and companies are left to negotiate the trade-offs as best they can, to maintain the illusion that all is well by taking upon themselves the burden of food safety's unavoidable contradictions. This is a precarious illusion for all involved. Although "tinkering, repairing, subverting, or circumventing prescriptions of the standard are necessary to make standards work" (Timmermans and Epstein 2010), within which category we include the ideal-typical model, this necessity opens up a tension and a point of constant vulnerability for operators who may be seen to be non-compliant when they are just trying to work things out to the best of their ability. If complaints about anxiety, fear, and unsustainability are any indication, the ideal-typical

model and food safety culture do not lead to a holistically healthy or sustainable agrifood system, but rather perpetuate a spiraling cycle of crisis and reform that carries a very real human toll.

**Acknowledgements** The research reported in this manuscript was supported by a Doctoral Dissertation Improvement Grant to Patrick Baur from the National Science Foundation, award #SES-1431490, and a research grant to Patrick Baur from the Berkeley Food Institute.

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