Food Safety Culture in Wet-condiment Manufacturing: A Secondary Qualitative Assessment in South Africa

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ABSTRACT

This study investigated food safety culture (FSC) at a South African wet-condiment manufacturer to identify organisational and behavioural barriers related to FSC maturity. While traditional audits assess compliance, this study explores underlying organisational factors that contribute to vulnerabilities in complex supply chains. Using secondary qualitative data from interviews (n = 13), focus groups (12 groups; 120 participants), and observations, the study applied inductive coding, followed by deductive mapping to the Global Food Safety Initiative (GFSI) 2026 framework. The subsequent thematic analysis identified a misalignment between stated food safety commitments and daily operational practices. Specifically, barriers to leadership and structural inadequacies unsupported by organisational values and operational and supervisory limitations contributed to inconsistencies in execution. Furthermore, gaps in training and communication were also associated with reduced risk awareness. Mapping these inductive themes to the GFSI dimensions, this study examines the qualitative factors underlying employees FSC maturity scores. The findings suggest that retail management may benefit from assessing supplier FSC in addition to conducting compliance audits to support supply chain resilience.

Keywords: communication; food safety barriers; food safety culture; organisational behaviour; retail supply chain; secondary qualitative analysis; supervision; wet-condiment industry

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1. INTRODUCTION

Food safety culture (FSC) encompasses shared values, beliefs, and behaviours that influence how individuals approach food safety responsibilities within organisations in the fast-moving consumer goods supply chain (GFSI, 2018). Traditional food safety management has focused on regulatory requirements and technical compliance, but research indicates that this alone may not prevent all food safety incidents (Pai *et al*., 2024; Lin & Roberts, 2020. Retail operations increasingly recognise that organisational culture and behavioural factors play a critical role in sustaining long-term food safety performance (Pai *et al*., 2024; Powell *et al*., 2011). Failures in supplier-level product integrity and safety can undermine brand equity, consumer trust, and supply chain continuity, making upstream suppliers' culture and practices critical considerations for retailers (Griffith *et al*., 2010; Mgoduka & Heeralal, 2023). To address this, several frameworks have been developed to conceptualise and assess FSC, highlighting factors such as shared organisational vision, employee motivation, training, performance and compliance behaviours, and openness to change (Griffith *et al*., 2010; Jespersen *et al*., 2016; Nyarugwe *et al*., 2016; Yiannas, 2009). Drawing on these frameworks, the external consultancy team developed and implemented a qualitative assessment tool containing 20 open-ended questions across five FSC constructs, including shared opportunities and leadership commitment (vision); employee motivation (inspiration); empowerment through training and operational resources (empowerment); performance and compliance behaviours (performance); and organisational change appetite (change appetite) (Griffith *et al*., 2010; GFSI, 2018; Yiannas, 2009).

Although FSC has been widely researched in general manufacturing contexts, less is known about its application in South Africa's retail supply network. Quantitative analyses focus on identifying and measuring organisational constructs and barriers (Visser *et al*., 2026). However, scores alone cannot reveal underlying concerns, supervisor responses, or the effectiveness of corrective actions (Jespersen *et al*., 2016). Therefore, qualitative analysis provides important insight into the meanings behind the scores, complementing quantitative measures, since cultural dynamics are complex and may not be fully captured by a single number (Creswell & Poth, 2018; Denzin & Lincoln, 2018; Griffith *et al*., 2010; Yiannas, 2009).

While quantitative assessments can identify FSC maturity scores, they do not fully explain how leadership behaviour, operational pressures, communication barriers, and employee relationships shape the practices underlying those scores. To address this gap, this study explores the qualitative factors influencing FSC maturity in the context of South African wet-condiment manufacturing. Specifically, it investigates how organisational and behavioural barriers affect daily food safety practices that inform maturity scores. This research contributes to the FSC literature by presenting empirical evidence from a manufacturing environment, detailing the impact of factors such as linguistic barriers, communication silos, and production-over-hygiene pressures, and by using the updated GFSI (2026) framework to map local behaviours against internationally recognised cultural dimensions (Table 1). This approach aims to provide a methodological bridge between global food safety metrics and observable frontline practices.

After reviewing the theoretical foundations of FSC and the GFSI framework, the article describes the secondary qualitative methodology used to evaluate the manufacturing environment. Thematic findings are mapped to the GFSI dimensions, resulting in a structured discussion outlining possible implications for retail supply chain management and future supplier assessments.

TABLE 1: THE GLOBAL FOOD SAFETY INITIATIVE (GFSI) 2026 FOOD SAFETY CULTURE FRAMEWORK DIMENSIONS

Framework Layer	GFSI 2026 Dimension
Organisational Culture Foundations (The Outer Ring)	Company Values, Vision and Mission
	People: Commitment, Empowerment, and Accountability
Manifested Cultural Essentials for Food Safety (The Inner Core)	Adaptability, Change and Continuous Improvement
	Hazard and Risk Awareness
	Consistency for Food Safety

Note: Adapted from A Culture of Food Safety, Position Paper from the Global Food Safety Initiative (p. 6), (GFSI, 2026).

2. LITERATURE REVIEW

2.1 CROSS-SECTORAL APPLICATION OF FOOD SAFETY PRACTICES

Broader public health concerns highlight the significance of FSC, as foodborne illness remains a global challenge shaped by organisational behaviours. Each year, an estimated 866 million individuals, representing nearly one in nine people worldwide, become ill after consuming contaminated food, resulting in 1.52 million deaths (WHO, 2026). As supply chains grow more complex, food safety depends on both technical controls and the cultural systems that shape decision-making and resilience throughout the supply chain (Spagnoli *et al*., 2025; Taha *et al*., 2025.

Wet-condiments, including sauces, mayonnaise, marinades, salad dressings, relishes, chutneys, fermented sauces, and wet pastes, are commonly consumed products that form part of various food systems and global trade (Spence, 2018; Peter, 2012; García-Casal *et al*., 2016). These products are often produced as private-label goods for retailers and represent high-volume supply chains. Although these products are generally considered shelf-stable, it is a highly complex product category that presents unique food safety challenges compared with dry goods (Beuchat *et al*., 2013; Smittle, 2000). Because it often possesses a wide range of water activity and pH levels, these high-moisture products are susceptible to microbiological risks, including *Salmonella spp*., *Listeria monocytogenes*, and spoilage organisms (Smittle, 2000; Keerthirathne *et al*., 2016).

Poor hygiene and sanitation, temperature mismanagement, and cross-contamination can increase the risk of foodborne-related outbreaks (FAO & WHO, 2022; Taniwaki *et al*., 2019). Such incidents may lead to product recalls, reputational damage, and legal exposure under the South African Consumer Protection Act (CPA) (Republic of South Africa, 2008; Shoprite Holdings, 2023). To mitigate these risks, consistent food safety practices are essential throughout the manufacturing process. In this context, FSC relies on employee awareness and the application of sanitation and contamination-prevention practices across organisational levels (Griffith *et al*., 2010; GFSI, 2018; Sharman *et al*., 2020). To support product integrity, reduce contamination risks, and address consumer health considerations alongside regulatory compliance (Powell *et al*., 2011; De Boeck *et al*., 2017; Zanin *et al*., 2021). However, while existing studies emphasise technical compliance in manufacturing (Powell *et al*., 2011), the specific behavioural patterns that influence compliance in high-moisture, complex wet-condiment production, receives less attention (Zhang *et al*., 2025). Current literature describes FSC as a uniform construct. It does not address how unique product vulnerabilities and the associated operational pressures, shape specific behavioural requirements on the production floor (De Boeck *et al*., 2015).

2.2 FOOD SAFETY CULTURE AS A STRATEGIC RETAIL MANAGEMENT IMPERATIVE

The farm-to-fork continuum encompasses a wide range of interdependent entities in which agriculture, primary and secondary processing, packaging, distribution, retail, and hospitality all play essential roles. Patently human behaviour has a considerable influence on these processes (da Cunha *et al*., 2025). Historically, traditional food safety management systems have relied on annual audits to verify supplier compliance; however, these mechanisms often create an audit failure or "audit illusion", where a manufacturing facility demonstrates technical compliance during inspection but fails to sustain these standards once the audit is complete (Powell *et al*., 2013). From production through distribution to retailers receiving and shelving products, cross-contamination is a risk (Reinholds *et al*., 2015). Since FSC reflects how employees behave without supervision during daily operations (GFSI, 2026; Yiannas, 2009), it is recommended that retail management actively assess suppliers' existing FSC maturity levels (Jespersen *et al*., 2016). Supporting this cultural development can help frontline workers understand the consequences of non-compliance and feel safe reporting potential hazards before it escalates into public health risks and brand damage (Zanin *et al*., 2021)

In today's expanding market, when a private-label product, such as a wet condiment, is implicated in a public health crisis, consumers may attribute responsibility directly to the retailer rather than the manufacturer, potentially exposing the retail brand to legal and reputational liabilities (Ni *et al*., 2014; Yoon, 2013). This pattern of consumer behaviour, is supported by market research (Laufer & Coombs, 2006). With ever-evolving technology and social media, news of an outbreak spreads rapidly (Rutsaert *et al*., 2013), resulting in the retailer facing a rapid reduction in public trust, foot traffic and class-action lawsuits, all of which can negatively impact market share (Vassilikopoulou *et al*., 2009).

Major GFSI-approved benchmarking schemes, including Brand Reputation through Compliance Global Standard (BRCGS), Food Safety System Certification (FSSC) 22000, Safe Quality Food (SQF), and International Food Standard (IFS), have incorporated behavioural requirements into their audit protocols, shifting from general concepts to specific and measurable operational standards (BRCGS, 2018; FSSC 22000, 2023; GFSI, 2018). Adopting these standards reflects a growing recognition that organisational culture plays an important role in supporting technical systems (De Boeck *et al*., 2015). The BRCGS introduced FSC as an auditable element in 2018 and subsequently mandated the development of formal culture plans with measurable indicators. Other schemes followed suit. In 2023, FSSC 22000 integrated culture into its leadership framework and later required evidence of behavioural accountability (FSSC 22000, 2023). SQF transitioned from general statements to a structured assessment plan, and IFS Food mandated regular review of behavioural metrics by senior executives. Collectively, these developments have positioned FSC as an increasingly important regulatory requirement for global market access (Henson & Humphrey, 2010; Nyarugwe *et al*., 2016). Furthermore, the Safe Quality Food Institute (SQFI, 2026) Edition 10 standards and the United States Food and Drug Administration (FDA, 2020) New Era of Smarter Food Safety frameworks recommend formal change management and behavioural observations to verify systemic resilience.

Despite recent regulatory changes, existing research relies on quantitative self-assessment tools to measure FSC (Jespersen *et al*., 2016). While frameworks mandate implementing FSC plans, these tools do not indicate the discrepancy between reported compliance and what occurs on the production floor. As a result, it is unclear whether audit protocols can assess FSC maturity without including qualitative detail (Griffith *et al*., 2010; Nyarugwe *et al*., 2016)

2.3 OPERATIONAL COMPLEXITY AND VULNERABILITIES IN SOUTH AFRICAN SUPPLY CHAINS

While FSC is recognised as an important part of global food safety assurance, its practical implementation in complex operational settings, such as wet-condiment manufacturing, remains understudied (Zhang *et al*., 2025). Wet-

condiment supply chains face risks due to raw material heterogeneity, variable processing, different shelf-life needs, high product turnover, and frequent disruptions (Maalouf & Zaduminska, 2019).

In South Africa, these upstream operational risks are also affected by severe socio-economic, educational, and structural constraints. Despite high national unemployment at 33.9% (Statista, 2025), the manufacturing sector faces a shortage of qualified food safety professionals, technicians, and quality supervisors (FoodBev SETA, 2019; Ruggles, 2023). This capacity shortage increases exposure to foodborne hazards and product recall risks. Small and medium-sized enterprises (SMEs) often rely on seasonal labour during peak periods, creating operational friction, inconsistent compliance with food safety management systems, and disruptions to internal FSC (Resource Employment Solutions, 2025). Persistent broader instabilities such as raw material shortages (Euromonitor, 2024), logistical delays (Pizzemento, 2024), and continuing infrastructure failures including power and water interruptions (Ermes *et al*., 2022) also add to operational strain and threaten temperature-dependent safety controls (Tazvivinga & Pooe, 2024; Van Nieuwenhuyzen *et al*., 2018).

At the same time, changing consumer expectations favour ethically sourced, fair-trade products (Material Handling & Logistics, 2021; Banker, 2021). Downstream retail reliability depends on how organisational structures, communication, and employee behaviours shape daily practice, representing the foundational constructs that define an organisation's FSC. (Frankish *et al*., 2024; Visser *et al*., 2026; Mgoduka & Heeralal, 2023). Drawing on literature that links upstream cultural barriers to downstream performance (Jespersen & Wallace, 2017; Nguyen, 2022), this study proposes a framework for retail management, illustrating how understanding a supplier's FSC may contribute to supply chain resilience, support private-label brand value, and facilitate the delivery of safe products to retail shelves. Many established FSC frameworks were developed in stable, high-income economies (Nyarugwe *et al*., 2016) and have not examined how socio-economic pressures may influence frontline behaviours in emerging markets (Mgoduka & Heeralal, 2023). Existing frameworks have not considered how working conditions could affect the behavioural aspects of food safety (Tazvivinga & Pooe, 2024). This study examines these questions in South Africa in the context of supply chain resilience in high-risk settings.

3. RESEARCH STRATEGY

3.1 STUDY DESIGN

To address this aim, the research used an interpretive descriptive approach to examine cultural and behavioural aspects of food safety in a wet-condiment manufacturing organisation. Rather than conducting another empirical investigation, this study adopted a qualitative secondary analysis design, systematically re-examining anonymised data originally collected during a 2021 FSC assessment conducted by an external consultancy at the wet-condiment manufacturing organisation (see Figure 1). Since the present study was independent, the author was not involved in the original data collection, participant selection, or interpretation. Ethical approval (UFS-HSD2024/1169) was obtained before accessing the primary datasets, which included interview transcripts, focus group transcripts, and a consolidated observational assessment report.

Re-examining these datasets allowed exploration of how organisational cultural foundations and the manifestation of cultural food safety essentials influence an organisation's FSC as an upstream retail supplier (GFSI, 2026). Secondary qualitative data analysis, when grounded in methodological principles, can provide additional interpretation while preserving the original data (Cheong *et al*., 2023; Johnston, 2014). Additionally, the existing datasets can be used to address new research questions (Kelly *et al*., 2024).

While the published quantitative study evaluated survey responses to determine the organisation's baseline FSC maturity (Visser *et al*., 2026), the present study employed an independent qualitative secondary analysis of interviews, focus groups, and observations. The quantitative methodology provided numerical benchmarking and broad trends, whereas the qualitative approach enabled in-depth exploration of human behaviours, relational dynamics, and underlying motivations. By contrasting these methodologies, the shift from quantitative to qualitative analysis highlights how the current study examines context and meaning that are not accessible through survey data alone, thereby offering a complementary perspective on organisational FSC.

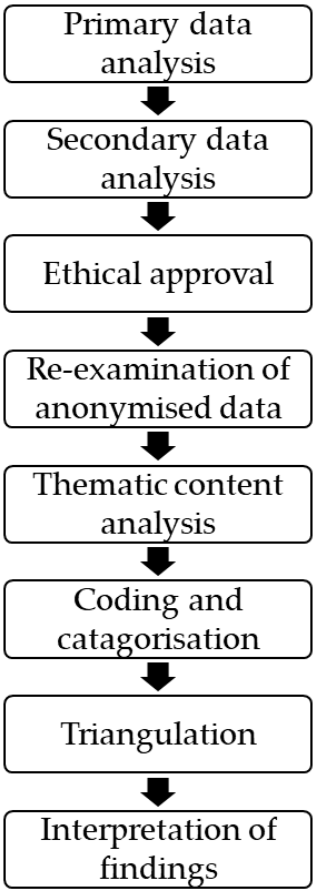

FIGURE 1 SCHEMATIC OVERVIEW OF THE PRIMARY STUDY (EXTERNAL CONSULTANCY) AND SUBSEQUENT SECONDARY QUALITATIVE ANALYSIS.

The figure outlines the development of the food safety culture assessment instruments and primary data collection, followed by the author's secondary qualitative analysis of the anonymised datasets.

3.2 ORGANISATIONAL SETTING AND TARGET POPULATION

This study was undertaken at a wet-condiment manufacturing organisation in the Western Cape province of South Africa. Having evolved from a family-run enterprise, the company is now a leading supplier of private-label wet condiments to national retail chains. At the time of the study, the workforce comprised approximately 190 individuals from the local community, with Afrikaans, isiXhosa, and English commonly spoken. Employees represented a range of educational and socio-economic backgrounds (Statistics South Africa, 2011). Participants were purposively selected to ensure representation across organisational levels and roles relevant to food safety. These contextual and demographic characteristics were integral to interpreting the secondary qualitative findings.

3.3 SAMPLING STRATEGY

The external consultancy team used purposive sampling for the interviews to identify participants directly involved in food safety roles and responsibilities (Guetterman, 2015). This included managers and food safety team leaders responsible for operational activities and compliance (Powell *et al*., 2011), ensuring viewpoints from across organisational levels were included (Nayak & Waterson, 2017; Wu *et al*., 2020). The focus groups drew on a demographically and functionally diverse sample, with convenience sampling accommodating production schedules and voluntary participation. The sample included employees from various departments (Saunders *et al*., 2023). For the observational assessment, both purposive and convenience sampling were used to observe operational areas relevant to themes that emerged from the interview and focus group discussions (Saunders *et al*., 2023; Bouncken *et al*., 2025).

3.4 PRIMARY DATA COLLECTION

The organisation's human resources (HR) department oversaw ethical compliance framed by the South Africa's Protection of Personal Information Act (POPIA) and obtained informed consent through both written and verbal procedures (Republic of South Africa, 2013). To examine FSC within the organisation, three qualitative data collection methods were employed.

Thirteen semi-structured interviews were conducted to explore participants' experiences with food safety activities in the organisation. The sample size was guided by the principle of data saturation (Saunders *et al*., 2023). The secondary researcher did not participate in the original sampling process. The consultancy team determined that data saturation had been achieved during the initial data collection phase, rather than during this secondary analysis.

Additionally, twelve focus groups, each comprising ten participants (n = 120), were organised to achieve thematic saturation and to capture a wide range of perspectives from across the organisation. These sessions addressed both organisational and food safety topics, and anonymous written feedback was invited to help mitigate potential social desirability bias (Saunders *et al*., 2023). Finally, an observational assessment focused on routine employee activities and operational practices in both production and support areas, providing further context to the qualitative findings.

3.5 RESEARCH INSTRUMENT AND DATA TRIANGULATION PROTOCOL

The external consultancy team used an FSC assessment tool, developed from established FSC frameworks, to guide interviews and focus groups (Griffith *et al*., 2010; Jespersen *et al*., 2016; Nyarugwe *et al*., 2016; Yiannas, 2009). The assessment tool included 20 open-ended questions mapped to five foundational constructs: leadership commitment, employee motivation, training, operational resources, and change appetite. The questionnaire was developed using relevant literature, expert consultation, and pilot testing to ensure contextual relevance and clarity for the study population (Figure 1). The external consultancy team conducted the interviews and focus groups on-site using a semi-structured format. Each session followed the same guiding questions, with flexibility for additional probing and discussion. The team facilitated focus group sessions to ensure inclusive participation, allowing sufficient time for every attendee to provide at least one response. When possible, sessions were conducted in participants' preferred languages to support communication. The observational assessment used a structured checklist, which addressed operational conditions, employee practices, hygiene behaviours, and environmental factors relevant to food safety requirements. The consultancy team recorded observations as notes during a walkthrough of production and support areas, then consolidated them into an observational report.

For this secondary analysis, the author accessed only the anonymised interview and focus group transcripts and the consolidated observational report and did not conduct direct observations. The observational data were interpreted

as contextual information on behavioural and organisational patterns and were used alongside findings from the interviews and focus groups. As the study relied on open-ended qualitative responses, psychometric validation was not applicable. The study addressed qualitative rigour through methodological steps, triangulation of data sources, and iterative refinement during the consultative assessment (Saunders *et al*., 2023).

3.6 MANAGEMENT OF SECONDARY DATA

The author received only anonymised datasets and supplementary documentation collected by the external consultancy team. No identifiable participant information was provided, in line with ethical requirements and to preserve analytical independence. All relevant ethical protocols for this secondary analysis were followed. Institutional research ethics approval included the secondary use of anonymised interview and focus group transcripts, as well as observational reports. The external consultancy also granted permission to use their data and related documentation. The original consent procedures permitted future secondary analysis and publication of anonymised data. All datasets were stored on password-protected, encrypted local servers accessible solely to the primary researcher. The study complied with institutional ethical approval and the consultancy's original consent conditions. Data management procedures fulfilled the requirements of POPIA, thereby safeguarding participant confidentiality. These POPIA requirements are distinct from institutional research ethics approval.

3.7 TRUSTWORTHINESS OF THE SECONDARY ANALYSIS

Triangulation was achieved by integrating data from interviews, focus groups, the observational assessment report, and a review of relevant, current literature. In the original consultative assessment, consistent documentation and member checking were conducted during data collection to verify the data collectors' interpretations (Saunders *et al*., 2023). For the secondary analysis, credibility and confirmability were supported by the availability of detailed field notes and comprehensive documentation, which enabled assessment of data coherence, contextual relevance, and data sufficiency (Noble & Smith, 2015). As reported in the literature, credibility in secondary qualitative data analysis is strengthened when researchers apply rigorous screening criteria for ethical transparency and clarity of the primary datasets (Cheong *et al*., 2023). For qualitative secondary analysis, this involves a systematic vetting process to assess data fit, ensuring the depth and context of the primary datasets align with and can address the new research questions on cultural maturity (Kelly *et al*., 2024). This process enhanced dependability through consistency, traceability, and transparency, preserving provenance and ethical integrity. The contextual detail reinforced transferability in the original documentation, while methodological consistency was further supported by the application of systematic, transparent analytic procedures (Saunders *et al*., 2023). Based on these criteria, the author evaluated the quality and suitability of the datasets and independently conducted secondary thematic coding. However, the analysis may still reflect the consultancy's research design, interview and focus group questions, or sampling choices.

3.8 SECONDARY DATA ANALYSIS AND CODING PROTOCOL

All datasets were reviewed before analysis to ensure full familiarity with the raw data. A hybrid qualitative analysis was used, combining inductive and deductive strategies to organise, interpret, and consolidate the data (Elo & Kyngäs, 2008). While the original data collection instruments were informed by established FSC frameworks (Griffith *et al*., 2010; Jespersen *et al*., 2016; Nyarugwe *et al*., 2016; Yiannas, 2009), the authors initially applied inductive coding to the secondary data to identify emerging themes and organisational patterns without predefined constraints. To synthesise overlapping findings and eliminate thematic redundancy, the inductively derived themes were deductively mapped onto the GFSI (2026) framework (Table 1) through a directed qualitative content analysis (Hsieh & Shannon, 2005). Themes were categorised under the framework's two tiers and five recognised dimensions. Tier 1 establishes

the strategic and ethical foundation of FSC, encompassing an organisation's values, vision, and mission. It defines leadership expectations and governance while fostering employee capability, accountability, and empowerment to proactively prioritise safety and report violations (GFSI, 2026). Tier 2 translates organisational culture into site-level operational practices. It covers hazard and risk awareness, ensuring employees recognise risks and escalation pathways; consistency for food safety, requiring standardised implementation of food safety management systems verified by systematic records; and adaptability, change, and continuous improvement, which leverages problem-solving and organisational knowledge to strengthen food safety protocols over time (GFSI, 2026). This structured approach ensured that the behavioural data were systematically aligned with internationally recognised food safety metrics.

After the qualitative coding phase, frequencies were quantified across the datasets (Sandelowski, 2001). Although qualitative analysis primarily seeks to understand meaning rather than scale, the data were quantified to provide a practical descriptor of barrier prevalence across the organisation, supporting the prioritisation of interventions (Miles *et al*., 2014). Coding and categorisation were conducted using Microsoft Word (Microsoft Corporation, 2023a), and the categorised data were transferred to Microsoft Excel (Microsoft Corporation, 2023b) for descriptive analysis. These quantitative summaries mapped the prevalence of barriers, and all final interpretations remained grounded in the qualitative context of the data.

4. RESULTS AND DISCUSSION

Building on the qualitative interpretations outlined above, the analysis identified organisational and behavioural barriers influencing the manufacturer's FSC. Table 2 links these localised, inductively derived themes to the formal GFSI (2026) dimensions and forms the basis for the subsequent discussion.

TABLE 2 MAPPING OF QUALITATIVE THEMES TO THE GFSI 2026 FRAMEWORK

GFSI 2026 Dimension	Inductively Derived Themes
Company Values, Vision and Mission	Leadership Food safety objectives Lines of authority
Commitment, Empowerment, and Accountability	Equitability Promotion Opportunities Respect and Acknowledgement Recognition Teamwork Responsibility and Accountability
Consistency for Food Safety	Operational Flow Resources Supervision
Hazard and Risk Awareness	Training Communication
Adaptability, Change and Continuous Improvement	Rigid Culture Reactive Problem-Solving Organisational Silos

Note: Thematic analysis identified barriers in leadership, food safety objectives, and lines of authority (linked to company values, vision and mission); equitability, promotion opportunities, respect and acknowledgement, recognition, teamwork, responsibility, and accountability (linked to commitment, empowerment, accountability); operational flow, resources, and supervision (linked to consistency for food safety); training and communication (linked to hazard and risk awareness), and rigid culture, reactive problem-solving, and organisational silos (linked to adaptability, change and continuous improvement).

4.1 ORGANISATIONAL CULTURE FOUNDATIONS (TIER 1)

4.1.1 Company Values, Vision & Mission

The findings were consistent with the Tier 1 framework (GFSI, 2026). The qualitative data indicated that although top management valued food safety, a gap existed between strategy and everyday practice. Participants viewed food safety as an organisational value but noted a lack of clearly defined objectives and discrepancies between targets and daily execution. A participant noted, "*Food safety is a shared vision, but it is not a shared mission".* Focus group data highlighted specific challenges in communicating responsibilities, including instances in which operators were unsure whether they had the authority to stop a compromised production run. Observational data supported these findings, revealing inconsistencies in how food safety objectives were communicated across reporting structures and a lack of direct links between food safety metrics and performance incentives.

When food safety objectives lack clear lines of authority and rewards are tied only to operational targets, employees may experience role ambiguity. Without psychological safety or explicit authorisation to stop production in the event of quality failures, employees may be uncertain about accountability in operational crises. This situation can lead production speed to take precedence over food safety directives, limiting frontline employees' ability to act in line with management's stated values.

These findings are consistent with prior literature linking visible leadership style to workplace hygiene and food safety outcomes (Zanin *et al*., 2021). Furthermore, this aligns with De Boeck *et al*. (2015), who note that organisations may achieve clear objectives when well-defined lines of authority translate high-level vision into actionable responsibilities. The absence of food safety-linked incentives may relate to broader retail management practices, in which reward systems are often tied to output metrics such as order fulfilment and dispatch timelines (Van Derlyke *et al*., 2022; Yiannas, 2009), thereby fostering slow decision-making and production delays (Christopher, 2016).

For retailers managing private-label wet-condiment supply chains, misalignment between vision and day-to-day operations can create vulnerabilities on the front lines. If operators lack the authority to stop a compromised line, the risk of microbial contamination, such as *Salmonella spp.* or *Listeria monocytogenes*, reaching retail shelves may increase. To address this, retailers could evaluate "authority" as a metric of systemic resilience during procurement. Retailers may also look beyond stated organisational values, ask suppliers to show how frontline safety behaviours are incentivised, and consider unannounced behavioural spot checks alongside scheduled audits to reduce the "audit illusion" (Powell *et al*., 2013; Jespersen *et al*., 2016).

4.1.2 People (Commitment, Empowerment & Accountability)

Defining clear roles and responsibilities helps employees understand accountability (Griffith *et al*., 2017). However, the data showed that frontline empowerment was easily undermined on the production floor. Participants reported general feelings of inequality, particularly regarding workload distribution, recognition, and compensation. Furthermore, limited opportunities for career progression and advancement into supervisory roles were cited as major drivers of frustration and reduced employee commitment across teams.

Interpersonal communication dynamics further illustrated this breakdown in psychological safety. Participants described routine interactions marked by raised voices, dismissive comments during meetings such as *"what a stupid idea"*, and strong emotional confrontations. Interdepartmental relations were characterised by limited collaboration, dominant personalities, and unresolved disputes, which participants described as "*testosterone wars*". These fragmented interactions fostered blame-shifting, "us versus them" narratives, and organisational silos. These

behaviours indicate low psychological safety and trust across the organisation. Employees who feel undervalued, experience dismissive communication, or see career advancement as out of reach may disengage from food safety practices. If fear and perceived inequality exist, frontline employees may be less likely to report operational errors or contamination risks. Some employees may try to avoid disciplinary action rather than proactively escalate food safety-related hazards.

These observations align with Edmondson (2018), identifying psychological safety as a prerequisite for effective hazard reporting. Boutros and Roberts (2023) similarly link siloed, conflict-driven interactions to lower trust and reduced operational efficiency. Furthermore, inaccessible career pathways may lead to higher employee turnover, which can cause the loss of established food safety knowledge (Wu *et al*., 2020). In fast-moving consumer goods supply chains, higher turnover may increase reliance on temporary labour and affect the consistency of food safety standards (Jevšnik Podlesnik & Raspor, 2026).

A fragmented “us versus them” culture within a supplier organisation can create supply chain risk for retailers, as isolated teams may be more likely to let internal food safety failures lead to consumer-facing recalls. Rather than relying only on technical compliance checklists, adding FSC assessments to supplier approval processes could provide a broader perspective. Anonymous supplier-culture surveys and frontline interviews can help evaluate psychological safety, supporting an environment where employees feel safe enough to report near-misses before they become public health issues (Vassilikopoulou *et al*., 2009; Zanin *et al*., 2021).

4.2 MANIFESTED CULTURAL ESSENTIALS FOR FOOD SAFETY (TIER 2)

4.2.1 Consistency for Food Safety

In the organisation studied, three interacting themes shaped the consistency dimension: operational flow, available resources, and supervision. The analysis revealed that production targets routinely overrode food safety protocols. Observational assessments identified microbiological, physical, chemical, and allergen hazards across production areas, which had also been flagged by formal retailer audits. Frequent equipment downtime, delayed preventative maintenance, and capacity constraints exacerbated these environmental risks.

The qualitative data highlighted the pressure placed on production lines, captured in participant statements such as, *“when we need to stop a line, we can’t do this as we are behind on orders”.* On the production floor, supervisory practices introduced further variability. Focus group participants reported inconsistent instructions, perceived favouritism, and limited supervisory engagement, illustrated by remarks such as, *“supervisors give different instructions”* and *“supervisors don’t communicate - not even greet”.* Tight deadlines, heavy workloads, and resource constraints can cause tension between productivity and food safety. When equipment maintenance is delayed, and supervisors provide conflicting guidance, risk-taking and rule-bending may become regular practices. Over time, these operational shortcuts may become part of organisational routines, reducing trust in leadership and making it harder for frontline workers to follow food safety protocols.

These findings are consistent with studies showing that when operations are under pressure and supply chain demands are high, employees are more likely to take shortcuts (Nyarugwe *et al*., 2016; Powell *et al*., 2011). Resource constraints extend beyond technical systems and may signal a higher risk of product failure (Charlebois & Summan, 2014; Zanin *et al*., 2022). Supportive supervision with clear and fair communication may help put food safety policy into consistent practice (Pai *et al*., 2024; Zohar, 2011). To support consistency, manufacturing organisations could protect production schedules so mandatory hygiene stops do not penalise employees. For retail management, audit

frameworks may be updated to look beyond standard hygiene checklists. Retailers could review preventative maintenance logs, safety infrastructure investments, and middle-management behavioural skills to help ensure that supplier compliance is shaped by internal leadership as well as external audit schedules (Jespersen *et al*., 2016; von Broembsen, 2016).

4.2.2 Hazard and Risk Awareness

Structured training and internal communication were identified as the primary drivers of hazard awareness, but breakdowns in delivery reduced their effectiveness in practice. While participants saw training as important for recognising risks, researcher observations indicated that generic classroom sessions did not lead to consistent routines on the production floor. Furthermore, effective visual aids, such as colour-coded cleaning tools and hairnets, were rendered pointless by inconsistent signage and prompts.

Internal communication was delayed by departmental silos and unclear responsibilities, and participants expressed frustration at the lack of operational feedback, noting that "*no feedback is given". An important* finding was that all standard operating procedures (SOPs) and food safety documents were available only in English, despite the dominant language of the workforce being Afrikaans. Static, English-only documentation can create a barrier to reporting hazards and following protocols. When employees cannot understand SOPs or feedback when reporting hazards, their engagement with the food safety system may decrease. This language barrier can increase the risk of errors, cross-contamination, and sanitation failures during wet-condiment processing. These findings are consistent with studies suggesting that generic classroom training may not build on-the-job competence when content is not customised to specific operational roles (Zanin *et al*., 2021). Furthermore, language barriers and inaccessible visual aids can weaken procedural compliance and hazard communication on the production floor (Hofhuis *et al*., 2016; Olsen *et al*., 2023; Pai *et al*., 2024).

Language accessibility and communication feedback can be important for product integrity. Retailers managing private-label contracts could consider asking suppliers to provide fully translated, multilingual SOPs and standardised visual controls for onboarding. Retailers may also wish to audit practical, on-the-floor behavioural assessments rather than relying only on classroom training logs (De Boeck *et al*., 2015; Malavi *et al*., 2021).

4.2.3 Adaptability, Change and Continuous Improvement

Qualitative analysis found that organisational culture affected company adaptability. The organisation had a rigid, slow-to-adapt culture that prioritised quick line restarts over root cause investigation. Problem-solving was mostly reactive, focusing on quick technical fixes to maintain output rather than addressing the underlying causes of operational non-conformances. Participant responses suggested that organisational silos and rigid communication structures limited cross-departmental collaboration. As a result, internal audit findings, food safety incidents, and near-misses were often isolated within individual departments. These did not always lead to systemic learning or permanent procedural updates across manufacturing runs. A reactive problem-solving mindset may limit an organisation's ability to develop its FSC maturity. When immediate production demands override detailed hazard investigations, recurring quality defects can become normalised. Operating in rigid silos may result in systemic risks remaining unaddressed, which can expose manufacturing operations to repeated compliance failures over time. This is consistent with literature suggesting that a reactive organisational culture can hinder organisational learning, delay system updates, and slow FSC development (Powell *et al*., 2013; Jespersen *et al*., 2016).

A supplier operating in a rigid, reactive FSC may present a vulnerability in retail supply chains, as private-label products carry the retailer's brand equity. To address reputational and public health risks, retailers could track repeated non-conformances across audit cycles. Retailers may also consider encouraging suppliers to move from temporary fixes to formal root-cause analysis frameworks, such as 5-Why or Corrective and Preventive Action (CAPA) protocols, and to verify, through risk registers and committee minutes, that emerging hazards are managed (Barsalou, 2023; Chaudhary & Sharma, 2024).

5. LIMITATIONS

This single-case study examines FSC within a South African wet-condiment manufacturing organisation; however, several methodological and analytical weaknesses limit the generalisability of these findings. First, as part of the secondary qualitative analysis, the secondary researcher was not involved in the external consultancy's research design, sample selection, or data collection process. Importantly, because the secondary researcher was not present for the original interviews and focus groups, they could not independently probe participant responses, clarify ambiguous statements, or pursue emerging operational themes in real time. This constraint inherently restricted the probing depth and interpretive flexibility of the secondary analysis.

Secondly, a structural constraint exists in the retrospective mapping of the data. While the original consultancy team developed the assessment tool around established FSC literature, this secondary study deductively maps those qualitative findings onto the updated GFSI (2026) framework. This mapping provides a framework for retail management; however, the original data were not collected to address every sub-dimension of the updated GFSI standards. As a result, the level of analysis varies across dimensions.

Thirdly, the original data collection process itself may have introduced interpersonal biases. Despite measures such as anonymous written feedback, participant disclosures may have been influenced by social desirability bias, workplace power dynamics, and the presence of managers and the external consultancy team during data collection. These factors may have influenced how comfortably employees articulated sensitive operational failures or leadership behaviours.

Fourthly, linguistic differences may have created communication barriers. At the same time, standard documentation and training were provided exclusively in English while the employees were predominantly Afrikaans-speaking. This may have affected how participants articulated safety practices and interpreted operational directives.

Finally, as a single-case investigation within a single manufacturing organisation, the findings reflect localised socio-technical dynamics and may not be fully transferable to other food-processing sectors. To address these inherent limitations and support analytical rigour, the study employed multi-source triangulation by cross-referencing interview transcripts with focus group notes and the consolidated observational walkthrough report, ensuring that thematic interpretations were corroborated across independent qualitative datasets.

6. CONCLUSION

Although limited to a single case study, this research offers a contextual explanation of barriers to FSC rather than validating a new theory or demonstrating improved food safety outcomes. The findings suggest that daily food safety practices are influenced by the relationship between organisational factors, such as leadership visibility and funding allocation, and behavioural factors, including psychological safety and employee empowerment. Mapping these findings to the GFSI (2026) framework illustrates how organisational culture (Tier 1), shaped by leadership

engagement, authority structures, and teamwork, is associated with procedure performance. Unclear operational flow and supervision, and unmanaged production pressures, create operational vulnerabilities (GFSI 2026 Tier 2), resulting in delayed communication loops, localised workarounds, and unaddressed hazards that undermine long-term food safety compliance. While quantitative values establish a baseline for FSC maturity, this study considers how secondary qualitative analysis can interpret those assessments and identify organisational conditions that may require further investigation. This qualitative approach reveals the "how" and "why" behind scores by highlighting informal norms, day-to-day operational friction, and employees' lived experiences. Achieving a strong FSC maturity may involve moving beyond what some describe as the "audit illusion," or the sense of security provided by periodic, static audit reports. For manufacturing facilities, implementing FSC may require structural adjustments, such as integrating psychological safety, providing multilingual documentation, evaluating behavioural leadership, and establishing non-negotiable hygiene times in production schedules. For retailers, relying exclusively on annual supplier audits may introduce hidden supply chain risks for private-label brands. It is recommended that retailers look beyond paper compliance to evaluate a supplier's daily operational behaviour and organisational culture. Future research should employ longitudinal, mixed-methods designs to pair the measurable scope of quantitative instruments with the contextual depth of qualitative assessment, evaluating how targeted cultural interventions hold up over extended operational cycles. Ultimately, establishing a resilient FSC is an ongoing governance process that requires continuous communication, aligned incentives, and leadership structures that consistently reinforce food safety over short-term yield.

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