



## Buyers' Reluctance Toward USDA GAP Audit Programs: Barriers and How to Address Them

### ABSTRACT

The U.S. experiences about 48 million foodborne illnesses yearly, mostly from multistate microbial contamination of fresh produce, particularly raw leafy vegetables. To minimize such outbreak risks, the United States Department of Agriculture (USDA) collaborated with buyers and other stakeholders to develop voluntary fee-for-service produce safety audit programs for fresh fruits and vegetables. These include USDA GAP&GHP, USDA Harmonized GAP, USDA GroupGAP, and USDA Harmonized GAP Plus+. The audit schemes were aligned with regulatory and prevailing food safety requirements in the fresh produce industry for wider buyer acceptance. However, many buyers have been reluctant to accept the GAPs audit programs for unexplored reasons. We surveyed and interviewed buyers and service providers to understand this hesitancy and how it could be addressed. Buyers' hesitancy stems from various factors: USDA GAPs audit schemes were seen as not stringent enough, lacking GFSI benchmarking, and not meeting some buyers' food safety needs. Other issues included governance barriers,

complicated naming, unclear communication on how the GAPs standards differ from private standards like GLOBAL G.A.P., lack of supplier requests, information deficits, audit response time, and distrust in audit quality. Suggestions for improved buyer acceptance included the USDA working with large produce retailers to strengthen their GAPs standards.

### INTRODUCTION

Between 1998 and 2002, the United States (U.S.) recorded 6,647 foodborne outbreaks, from microbial pathogens like *E. coli*, *Listeria*, *Salmonella*, and norovirus, resulting in 128,370 illnesses, hospitalizations, and deaths (14). The outbreaks were mostly due to multistate fresh produce outbreaks, particularly from leafy vegetables typically consumed raw (4, 23). To address this growing threat and protect the public by enhancing the safety of the U.S. food supply chain through a preventive approach, in 2002, the United States Department of Agriculture (USDA) developed Good Agricultural Practices (GAP) and Good Handling Practices (GHP) audit program for fresh fruits and vegetables. The creation

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of the audit program was also in response to requests by growers and shippers for a national verification program that would help them meet the food safety requirements of fresh produce wholesalers (6, 28). The voluntary fee-for-service audit program was developed together with the Association of Fruit and Vegetable Inspection and Standardization Agencies (AFVISA) (28). Its implementation by buyers and growers was expected to help reduce microbial foodborne illness outbreaks and other forms of contamination (31); for other objectives associated with implementing the audit program, see Marine et al. (18).

Since introducing the traditional GAP&GHP audit program, USDA AMS has created three other suites of GAP standards. Among them is the industry-informed USDA Harmonized GAP (HGAP) program. This was created in 2011 by incorporating the United Fresh Produce Association's Harmonized GAPs Food Safety Standards into the USDA GAP&GHP audit program. As an upgrade on the basic GAP&GHP audit program, the USDA HGAP was designed to be more rigorous and to meet additional fresh produce buyers' food safety requirements by requiring more preventive measures (19, 27). In 2016, the USDA GroupGAP audit program was launched to offer a cost-effective internal audit program for small and mid-sized producers and grower groups to help expand their access to larger markets. The audit program was expected to help buyers to broaden and diversify their supplier base and meet the increasing demand for locally grown foods that meet industry-recognized food safety practices and regulatory requirements (29). Unlike others, the USDA GroupGAP audit program involves a system audit that verifies compliance with the group's Quality Management System (QMS) (20).

In response to requests from some specialty produce industry stakeholders and growing buyer demand for Global Food Safety Initiative (GFSI)-benchmarked certification programs, the USDA Harmonized GAP Plus+ standard was introduced in 2018. Like others, the USDA HGAP Plus+ audit program involves a process audit verifying that a commodity was produced, handled, packed, and stored in compliance with the requirements set forth to mitigate food safety hazards (20, 28). The audit program integrated the USDA HGAP with Harmonized Global Markets Addendum requirements. It is the only USDA GAP audit program designed to comply with, and is acknowledged as equivalent to, the GFSI Technical Equivalence Requirements. The other standards evolved in different ways and were designed to address different requirements. This means the program requirements of USDA HGAP Plus+ meet all the food safety requirements in the GFSI Benchmarking Requirements (Version 7.1) (10). In 2022, the USDA HGAP Plus+ audit standard and checklist were updated to continue to meet the GFSI Technical Equivalence requirements (31). With the technical equivalence, the USDA HGAP Plus+ is expected to

be widely accepted by fresh produce buyers requiring GFSI audits (13).

To foster wider acceptance by buyers, the creation of USDA GAPs standards accounted for the prevailing food safety requirements in the fresh produce industry (Table 1). To make the administration of food safety stronger and more efficient, the technical requirements of USDA HGAP and USDA HGAP Plus+ were aligned with the Food Safety Modernization Act (FSMA) Produce Safety Regulation (PSR) (5, 13). In addition, the USDA GroupGAP was aligned with FSMA requirements and could be certified to "USDA GAP&GHP, Harmonized GAP, or Harmonized GAP Plus+, and GFSI Equivalent audit standards" (20). However, many buyers, especially top retailers, have been reluctant to accept USDA GAP audit programs (USDA AMS, personal communication 2021). Buyers seem to prefer that their suppliers certify their produce and operations against private and GFSI-benchmarked schemes. Noting this, Lytton (16) reported that while Primus Labs performed 15,000 audits in 2016, only 4,224 farms were certified against government food safety audit standards. In 2020, only 3,882 farms were audited against USDA GAPs standards (USDA AMS, personal communication 2021). As of April 2020, 13,514 sites were certified against the following GFSI benchmarked schemes: Food Safety Systems Certification 22000 (FSSC 22000), Safe Quality Food (SQF), CanadaGAP, and Brand Reputation Compliance Global Standard (BRCGS), previously called the British Retail Consortium (BRC) (34).

The underlying reasons why major buyers hesitate to accept USDA GAP standards are yet to be studied. Existing research primarily focuses on growers, examining the following themes: the labor implications and cost of implementing USDA GAP certifications by farmers (3); growers' awareness, understanding, and implementation of U.S. Food and Drug Administration (FDA) GAPs Guide (8); and farmers' training needs attitudes about the Food Safety Modernization Act (FSMA) (2). The only study on produce buyers explored retailers' demand for food safety implementation by growers and FSMA (19). To bridge the identified gap in scholarship, this study explored the factors limiting buyers' acceptance of USDA GAPs standards and how to address them. Buyers' food safety requirements and distrust in audit quality—particularly with government GAPs auditors and GFSI-benchmarked schemes—affect the GAPs audit schemes they accept (8, 11, 15, 16). Additionally, some buyers confuse the FDA's food safety responsibilities with the USDA's (8, 15). This study explored how these factors contribute to buyers' reluctance to accept USDA GAPs audit schemes. To achieve our study's underlying objectives, we surveyed and interviewed fresh produce buyers in the U.S. Additionally, we conducted semi-structured interviews with purposively selected buyers and fresh produce service providers. In this study, buyers included retailers and institutions such as food hubs, schools, and hospitals. We

**TABLE 1. USDA GAP audit programs: similarities and differences**

	Global Food Safety Initiative Acknowledged as Equivalent	Produce GAP Harmonization Initiative Alignment	FDA FSMA Produce Safety Rule Alignment	Adherence to Industry and FDA Best Practices	Process Audits	System Audits
USDA GAP & GHP				X	X	
USDA Harmonized GAP		X	X	X	X	
USDA GroupGAP		X	X	X	X	
USDA Harmonized GAP Plus+	X	X	X	X	X	X

Adapted from NASDA Foundation (2022)

broadly defined service providers as food safety auditors/inspectors, certification body employees, university faculty/extension, and industry association members or employees.

### MATERIALS AND METHODS

We used sequential mixed methods to collect data for this study. Due to the lack of empirical information on buyers' reluctance to implement USDA GAPs standards, we first conducted interviews with seven purposively selected key informants (fresh produce retailers and service providers). The interviews focused on their experiences with food safety standards, perceptions of voluntary food safety certification programs and barriers to accepting USDA GAPs standards. These interviews helped us develop an initial understanding of the factors influencing buyers' decisions to accept USDA GAPs audit programs. We then integrated the initial qualitative findings with insights from studies on implementing GAP audit programs and food safety regulations to develop a buyers' survey. After preliminarily analyzing the survey data, we combined the findings with those from our initial interviews to identify areas needing further exploration. This led to ten additional interviews with buyers and service providers, focusing more on ways to address buyers' hesitancy to accept USDA GAPs standards.

The data for this study was from the survey sections that consisted of Likert-type and semi-closed multiple-choice questions (single and multiple answers), which assessed factors hindering buyers from accepting USDA GAPs audit programs and how they can be addressed. We asked respondents whether their organization/institution accepted USDA GAPs audit programs. Those who answered "yes" were asked to identify the variant of the USDA GAPs audit scheme they accepted. The respondents who answered "no" were asked the underlying reasons using the Likert-type question. We also asked whether they would consider accepting USDA GAPs audit programs in the future, why they would want

to do so, and what factors would encourage them. Some of the questions were specific to USDA HGAP Plus+. Despite its GFSI Technical Equivalence status, current buyers' acceptance of the audit program has been limited. So, the survey asked respondents questions, including the following: whether they were accepting USDA HGAP Plus+; factors that would encourage the buyers who are yet to implement the scheme to start accepting USDA HGAP Plus+; whether the buyers might lose suppliers if they were to require their suppliers to certify their produce against USDA Harmonized GAP Plus+ and the type of suppliers those might be; whether the buyers would provide technical and financial support to suppliers to adopt and implement USDA HGAP Plus+; The survey also included an open-ended question on how the USDA AMS can foster improved buyers' acceptance of their suites of GAP standards. We used pseudonyms to attribute quotations from a specific respondent's response to the open-ended questions in the survey.

The survey was widely administered via Qualtrics to dedicated and general listservs of buyers, through professional societies. Some of the listservs comprise the buyers already implementing USDA GAPs audit programs, which may have biased the survey sample. Reminders were sent to boost the survey response rate, resulting in 41 buyer responses, 34 of which met the inclusion criteria. Due to the COVID-19 pandemic, the 16 key informants were interviewed virtually. This included three food safety trainers; one food safety consultant with about 15 years of experience as a Quality and Food Safety Manager, Food Safety Manager, and Quality Assurance Manager; two cooperative Extension professionals; one third-party auditor, and ten well-ranked officials in fresh produce retail and marketing organizations, with annual revenues ranging from around \$135 million to \$69 billion. These officials, from major produce retail organizations partially implementing or not yet accepting USDA GAPs audit programs, held the following positions:

Own Brand Quality Assurance-Manager; Produce Quality Manager; Director, Food Safety and Quality Assurance; Manager, Food Safety Vendor Audits; Food Safety and Compliance Manager; Vice President Food Safety; Manager, Quality Assurance; Director of Food Safety; Quality and Food Safety Manager; and Executive Vice President. Most buyer interviewees were well-versed in the factors influencing other major food retailers' decisions to accept food safety audit schemes, which informed their responses.

We analyzed the quantitative data using STATA software to compute descriptive statistics and cross-tabulations of factors influencing buyers' reluctance to accept USDA GAP standards. The semi-structured interviews were analyzed using thematic analysis. Representative verbatim quotations were used to illustrate findings from the interviews and open-ended survey questions. Pseudonyms were applied to attribute quotes from a specific interviewee.

Eight experts on the research project's advisory council reviewed the data collection instruments, which the Michigan State University Institutional Review Board approved. The council included three members from produce industry associations, two university faculty/Extension experts in fresh produce safety, and one each from a nonprofit organization and service provider for the produce industry.

## RESULTS

### Interview results

#### USDA GAPs acceptance constraints

##### Communication—complicated naming

Communication was a key barrier to buyers' acceptance of USDA GAPs audit schemes, especially due to confusion over the complex and varied names of the programs—USDA GAP&GHP, USDA Harmonized GAP, USDA Harmonized GAP Plus+, and USDA GroupGAP. One buyer rhetorically asked about USDA HGAP Plus+: “Can you tell me why it is Plus+?” (BSP14, Buyer, Own Brand Quality Assurance-Manager). Another added, “There are all these pluses and addendums. Let us call it what it is. And let us make the names very clear” (BSP5, Buyer, Executive Vice President). The complex naming conventions created confusion, made it hard and less appealing to buyers to decide which USDA GAPs standards to recognize and review, and accept: “But do you understand there is a decision tree that needs to happen? And it feels like it is difficult for a buyer to figure out which one they should recognize, or which one is what; it is all very technical. When we write a standard of our own or a requirement for our suppliers, we want to make it generic. We don't want to list the many different schemes, the different plus+ or the no plus; it just gets too complicated. You don't need to differentiate it in the naming convention of your audit scheme. It should move in time. It is just too many different versions, too confusing” (BSP11, Buyer, Food Safety and Compliance Manager).

##### Communication—lack of clearly communicated scope/limited scope

Poorly communicated scope hindered buyers' acceptance of USDA GAPs audit programs. This issue stemmed from the different flavors of the GAPs standards, their naming, and the perceived lack of side-by-side comparison of their differences. Buyers believed the names USDA GAP&GHP, USDA HGAP, USDA HGAP Plus+, and USDA GroupGAP suggested distinct scopes for each program, which they felt the agency failed to clearly communicate: “I am very confused with the different standards out there. Even from USDA, there are many different standards within. And there are different nuances like GAP&GHP, HGAP, and HGAP Plus+. If you were to ask me, what are the differences, I couldn't tell you” (BSP11, Buyer, Food Safety and Compliance Manager). As noted by the buyer and others, this confusion was because the USDAs “issues communicating the value” of each program, compounded by many buyers' unfamiliarity with USDA GAPs standards: “So for USDA GAP locally, it is hard to find buyers who will accept that. When it comes to Harmonized GAP or Harmonized GAP Plus+, a lot of buyers don't know what those are” (BSP2, Food Safety Specialist).

Some buyers cited unclear communication about which USDA GAP audit program is “superior,” why some are harmonized, and what “harmonized” actually means: “Why can't they come up with when they talk about harmonized GAP? What is it you are harmonizing when you are doing your auditing? Your auditing service, all these audit schemes, and you have your own scheme, and you call it harmonized? I want to know what harmonized means to you or me, how, and why this is important. I just do not understand that differentiation. And I would have to talk to the auditor to see which is superior” (BSP11, Buyer, Food Safety and Compliance Manager).

Some buyers questioned whether some USDA GAP standards were benchmarked against the U.S. FDA's Produce Safety Rule, adding another scope-related barrier to acceptance: “I am even confused about the GAP audit itself. In my reading, I did not see whether it is benchmarked against the Produce Safety Rule. I know the Harmonized GAP is, but I am not sure about the other” (BSP11, Buyer, Food Safety and Compliance Manager). Addressing this issue from the growers' perspective, a service provider remarked: “They do not necessarily distinguish between the Produce Safety rule and Harmonized GAP. It is not clearly delineated. There is no clear difference in their minds with the Produce Safety rule and Harmonized GAP unless they have had some experience with it” (BSP4, Food Safety Educator and GroupGAP Consultant).

Equally, some growers and processors conflated USDA Harmonized GAP standards with FSMA: “I would say less on the processors, but more so on the grower side, because

of the harmonized one, they very much think that, somehow, it is going to keep FSMA off their farm. So that is a huge point of all the training we do in the winter. Even though it may be aligned with FSMA, it is not in place of FSMA. In that respect, it could be a little confusing” (BSP2, Buyer, Food Safety Specialist). A buyer also wondered, the “USDA GAP Plus+, is what equivalent?” (BSP14, Buyer, Own Brand Quality Assurance-Manager).

### **Information overload**

Some buyers and service providers cited information overload as a barrier to accepting USDA GAPs audit standards. Due to various flavors of USDA GAP standards, one respondent noted, “there is a lot of information” (BSP11, Buyer, Food Safety and Compliance Manager) that buyers and even growers need to read to make adoption decisions. This complexity led the respondent to request: “Give me a simple solution for me to dig deep into the different requirements, or the different elements within those standards and be able to make a decision quickly” (BSP11, Buyer, Food Safety and Compliance Manager).

### **Awareness deficit**

A general and relatively low awareness of USDA GAP audit programs was a key reason for their low acceptance by buyers. The interviews suggest that buyers were more aware of USDA GAP&GHP than USDA HGAP flavors and least aware of USDA GroupGAP. When asked about USDA GroupGAP, a buyer responded, “we have not seen that” (BSP14, Buyer, Own Brand Quality Assurance-Manager).

Several reasons were cited for the awareness deficit. One respondent argued that buyers were poorly aware of USDA HGAP flavors because USDA AMS has not adequately educated them about the standards: “When it comes to the harmonized standards, I don't think there is enough education. They don't know what it is. They don't know what their requirements are. So, they just haven't considered asking their growers for it. I think a lot of the buyers too, ... a lot of buyers don't know what those are, so they have issues communicating the value” (BSP2, Buyer, Food Safety Specialist). Another issue highlighted was the lack of sales efforts promoting USDA GAPs standards: “It is not as bright and shiny as Primus, GLOBALG.A.P. Go on those websites, and they do a good job of trying to make you feel secure. There are no salespeople out there for USDA GAP schemes” (BSP4, Food Safety Educator and GroupGAP Consultant).

### **Standards governance and management**

The governance and operational management of USDA GAPs audit programs were key concerns for some buyers and a major reason for not accepting them. These buyers questioned USDA AMS's role as the certification body for its GAPs schemes and the perception that, as the “certification program owner,” the USDA is essentially the

government: “Assuming that the gap analysis works well, I don't necessarily see anything keeping us from accepting the standard. However, I have more concerns about accepting USDA AMS as a certification body... I think that there might be conflict of interest there that they might need to address” (BSP12, Buyer, Director, Food Safety and Quality Assurance) arising from USDA AMS being the certification body for their GAP audit programs. The concern was also because some buyers “tend to trust private auditors more” (BSP2, Buyer, Food Safety Specialist). They believe that, unlike government auditors, private auditors were more likely to treat growers as customers and that “growers can change certification bodies if they want to” (BSP2, Buyer, Food Safety Specialist).

In addition, as the government, the moniker USDA AMS was wrongly understood by some buyers as denoting a regulator. Some respondents still shared this view, while aware that the USDA AMS differs from the FDA, the USDA Food Safety and Inspection Service (FSIS), and other food safety regulatory agencies. The buyers argued that while USDA AMS is not a regulatory authority, it is still part of the whole, with some saying it focuses more on oversight regulatory action than being an assistance body. The buyers stated that they “struggle with the idea of who would, what production facility would invite a regulatory branch into their facility and say, please look at my food safety and tell me where I am wrong” (BSP12, Buyer, Director, Food Safety and Quality Assurance). The buyer surmised: “It is like inviting the police in. I don't know. It is just an odd concept to me. I cannot imagine why I would request the USDA to come in and audit me and see any potential flaws when I could hire a third party that could tell me where my flaws are, I could fix them, and there would not be any chance of regulatory implications. I would say that is our biggest hesitation, as we are kind of like, we cannot see anyone really wanting to do that” (BSP12, Buyer, Director, Food Safety and Quality Assurance).

### **Distrust in the quality of the audits**

A key factor limiting acceptance is distrust in the quality of USDA GAP audits. One buyer explained that large produce retailers like them, that are members of industry associations, are not unaware of USDA GAPs audit schemes but do not trust in the audit quality: “They are all involved in industry associations, like United Fresh Produce Association (now the International Fresh Produce Association (IFPA)) and PMA and all that. I do not think for them, ... it is a matter that they are not aware of, but just that they don't respect the audit. As far as the quality of it, I think the main problem is that ... a lot of them have had relations with these other companies, which conduct certifications. They don't see the need to change if they have done work with Primus for the last 20 years. Why change if they are basically satisfied with the service” (BSP10, Buyer, Director of Food Safety);

[note: Produce Marketing Association (PMA) is now part of IFPA]. Another buyer echoed this, noting, “there is a lack of confidence on some buyers' part on the quality of the audit” (BSP5, Buyer, Buyer, Executive Vice President).

#### **GFSI-benchmarked status**

Respondents stated that GFSI-recognized (benchmark) food safety certification programs are the minimum accepted by most buyers, particularly big retailers. The prevalent trend is to accept only fully GFSI-benchmarked certification standards. As a result, some buyers indicated they only accept GFSI-recognized produce safety standards or, in some instances, USDA HGAP Plus+, due to its GFSI Technical Equivalence. This stratification of audit standards also depends on brand and commodity risk profile, as most buyers were not accepting USDA GAP standards for “high risk” products or as part of their own brands, with the HGAP Plus+ as a possible exception. This is because some buyers considered the harmonized standard much more aligned with GFSI-recognized food safety certification programs. Another reason some big buyers accept only GFSI-recognized produce safety standards or similar audit programs is that “it is much easier to administer” (BSP5, Buyer, Executive Vice President). Thus, buyers limit the number of standards they accept to simplify the administration of their requirements.

#### **Request by suppliers**

Respondents stated that buyers review or accept an audit program not just because it exists. Instead, it is sometimes because suppliers ask buyers to start accepting the audit program. As one buyer explained, this is because they have “a lot going on; you cannot just be reviewing every standard and every certification body under the sun” (BSP12, Buyer, Director, Food Safety and Quality Assurance). Some buyers cited the lack of requests by their suppliers as a reason for not reviewing or accepting USDA GAP standards: “We haven't been requested to review. None of our suppliers have asked us to use it” (BSP12, Buyer, Director, Food Safety and Quality Assurance). Another buyer noted: “We are not seeing that a lot of our suppliers are certified against USDA GAP. So, we are not encountering that often enough to, you know, to make a full assessment of how it stands. I know there has been a lot of work with United Fresh educating the industry on the harmonized standard. But honestly, that is not what we are seeing from our suppliers at all; the USDA GAP or the harmonized standard is not common” (BSP14, Buyer, Own Brand Quality Assurance Manager). A buyer said the requests must meet certain conditions to be considered: the request must come from at least ten large suppliers representing a good portion of their vendors, “because it is not an easy thing to review and make that assessment” (BSP12, Buyer, Director, Food Safety and Quality Assurance).

#### **Limited scope**

The scope of USDA GAP standards, particularly USDA GAP&GHP and USDA GroupGAP, was seen as a barrier to acceptance. A key concern for some buyers was that USDA GAP standards focus solely on food safety, excluding food quality, which is crucial in their decision-making about acceptable produce audit safety standards, especially for their own brand. As one buyer noted, their own brand requirements exceed “food safety going into the quality, ensuring that they (growers) have the quality systems as well as the food safety” (BSP14, Buyer, Own Brand Quality Assurance-Manager). The respondent added: “We accept all GFSI requirements. However, some of the GFSI schemes are more encompassing and kind of dip into our own brand requirements. Some standards, like SQF, already have quality and safety standards. So that is probably the closest to meeting all of our ... requirements that you can get.”

Scope limitations led buyers to view USDA GAP standards as less involved than popular standards accepted by buyers. The concern was less with USDA HGAP flavors, as they were seen as more stringent and comprehensive in food safety requirements. However, the USDA GAP&GHP was considered by many to be “basic, too simple, and not a high enough standard” (BSP2, Food Safety Specialist). It was assessed as omitting some critical control points for food safety, the addition of which was considered key for improved acceptance of the standard by buyers. One respondent noted that the USDA GAP “skips all the necessary areas; it just has a few entries per area where they check a box, or they make a comment, but it does go into great detail” (BSP10, Buyer, Director of Food Safety). The audit report was seen as limited in detail, reinforcing the perception that USDA GAP&GHP is inadequate: “As far as the subsections of the section, you know, about, let us say, pest control. They may tell you that they have a pest control program and that there are some records and all that. But it doesn't really go into great detail about what kind of records are necessary, do they have a map, do they have a team, all these things that you might get in a different kind of audit, which is a lengthier audit report. ... the actual report just doesn't show a lot of details” (BSP10, Buyer, Director of Food Safety). The scope limitations explain to a varying extent why most buyers were not accepting USDA GAP audit programs, particularly USDA GAP&GHP and USDA GroupGAP for “high-risk” produce.

#### **Audit report response time**

Some buyers noted that the industry's highly competitive nature demands prompt audit reports. They raised concerns that government agencies operate under a different protocol, feel different competition and time pressure, and face certain obstacles preventing them from promptly making audit reports available: “Do they have a sense of urgency that we have? We don't sit and wait for you to give us this stuff. We have a deadline that you have to meet, and we

have structures in place, and not every audit company can meet those. And so, you know, the very first step is, can you even meet that?” (BSP12, Buyer, Director, Food Safety and Quality Assurance). There was also a perception that, as a “government regulatory agency,” the USDA “may have their own restrictions or their own sense of urgency” leading to some delays in communicating audit reports (BSP12, Buyer, Director, Food Safety and Quality Assurance). A respondent added that the delays “take a long time” with the harmonized flavors of USDA GAP audit programs and can be auditor- or region-specific (BSP6, Service Provider, President).

### **Enhancing buyers’ acceptance of USDA GAPs schemes** **Communication – what to communicate**

Interviewees stressed the need to dispel the erroneous perception and fear that USDA AMS is a government regulatory agency, as this deters some buyers from accepting their GAPs audit programs. The respondents also underscored the need for USDA AMS to provide more information about the values of their GAP audit programs, including their alignment with FDA Produce Safety Regulation and FSMA requirements. Additionally, the respondents stated that the benchmarking requirements of USDA HGAP and USDA HGAP Plus+ should be clearly articulated, and their meaning harmonized in both standards.

### **Communication – how to communicate**

Due to confusion ascribed to the naming of USDA GAP standards, respondents suggested simplifying the names, instead of differentiating them based on their naming convention: “Please simplify it for us; make it simple” (BSP11, Buyer, Food Safety and Compliance Manager). Respondents also indicate the necessity for USDA AMS to make an informative, clearly communicated, side-by-side comparison of their GAP certification standards. As surmised by some respondents, doing that will make it easier for “buyers to make a decision about what their programs offer against the competitive set” (BSP11, Buyer, Food Safety and Compliance Manager). The competitive set comprises the GFSI-benchmarked standards earlier mentioned.

### **Awareness creation/marketing campaigns/standards promotion**

Interviewees stressed the need for USDA AMS to boost marketing and awareness efforts to address low buyer awareness of its GAPs certification programs: “But I think there needs to be more effort on the buyer side... I know the USDA has worked on marketing their standards. I know they had an initiative here last year. I just think that they need to continue more outreach to the buyers” (BSP1, Produce Safety Auditor, Company Owner). Another added that USDA GAPs audit programs face “a sort of branding and marketing challenges” that should be tackled through buyer-focused marketing campaigns (BSP4, Food Safety Educator and GroupGAP Consultant).

Respondents suggested that the marketing campaigns should focus on the value offerings (details, strengths) of each USDA GAPs standards. This includes the alignment of the audit programs with FDA regulatory requirements and the GFSI Technical Equivalency of USDA HGAP Plus+, which, according to most of the respondents, should be capitalized on in buyer-targeted marketing campaigns: “Information, you know, is needed; a good, good, directed marketing campaign into the retail and foodservice organizations highlighting what that certificate truly means to the buyer” (BSP6, Service Provider, President). The respondent added: “I am aware of the retailers in my region that require full GFSI recognition. And that is why I say if USDA did a stronger run at explaining what they do have, even though they are not fully benchmarked, I think they might be able to make some inroads in that regard.”

### **Survey results**

#### **Sociodemographic of the survey respondents**

The demographics of survey respondents are presented in *Table 2* (note: some did not answer all the demographic questions, explaining the discrepancy between the total  $n = 34$  and the number of observations per data subcategory in *Table 1*). Most respondents (64%,  $n = 16$ ) were food safety directors/managers. While 36% ( $n = 9$ ) were owner/upper management directors, 8% ( $n = 2$ ) were quality assurance directors/managers. On average, the buyers had about 20 years of experience in the fresh produce sector and nearly 17 years with food safety standards. Of the buyers who answered ( $n = 25$ ) the question on the nature of their organization/institution, 56% ( $n = 14$ ) identified as wholesalers, 24% ( $n = 6$ ) as retailers, and 20% ( $n = 5$ ) as processors. The buyers’ operations were mainly within a state or region. Only 16% ( $n = 4$ ) described their operation as national, and 20% ( $n = 5$ ) as multinational. Over 75% ( $n = 18$ ) of the respondents ( $n = 23$ ) who shared their organization/institution’s transaction values reported annual produce sales between \$1 million and more than \$40 million per year.

#### **USDA GAPs audit programs’ acceptance constraints by buyers**

The findings in this section should be read, noting that some of the listservs used in distributing the survey comprise the buyers already implementing USDA GAPs standards. Of the 25 respondents who answered whether their organization/institution accepts any USDA GAPs audit programs, 36% ( $n = 9$ ) said “no,” and 64% ( $n = 16$ ) answered “yes.” The buyers who had not implemented any USDA GAPs standards identified the reasons for their decision (*Fig. 1*). The most cited reasons were the lack of their suppliers’ demand for USDA GAPs standards, and the standards’ failure to meet the buyers’ produce safety requirements. Many also found the USDA GAP audit schemes insufficiently

**TABLE 2. Characteristics of the buyer respondents and their organization/institution (n = 34)**

Characteristics of survey respondents	Percent of total survey respondents and number of survey respondents, n(%)
<b>Role Within Organization/Institution (n = 25)</b>	
Food Safety Director/Manager	16 (64)
Owner/Upper Management/Director	9 (36)
Quality Assurance Director/Manager	2 (8)
Compliance Department	1 (4)
Hub Manager	1 (4)
Production Coordinator	1 (4)
Regional Manager	0 (0)
Food Service/Nutrition Services Director	0 (0)
Executive/Head Chef	0 (0)
<b>Description of Buyers' Organization/Institution (n = 25)</b>	
Wholesale	14 (56)
Retail	6 (24)
Processor	5 (20)
Food Hub	4 (16)
Higher Education	2 (8)
Other food service	2 (8)
Large store	1 (4)
Small store	1 (4)
Early Childhood Education	1 (4)
K-12 Education	1 (4)
Elder Services	1 (4)
Healthcare	1 (4)
Other food retail	1 (4)
<b>U.S. State Where Buyer's Organization/Institution Is Located (n = 24):</b>	
Michigan	7 (29.2)
California	4 (16.7)
North Carolina	2 (8.3)
Virginia	2 (8.3)
Florida	2 (8.3)
New York	1 (4.2)
New Jersey	1 (4.2)
Indiana	1 (4.2)
Arizona	1 (4.2)
Pennsylvania	1 (4.2)
South Carolina	1 (4.2)
Wisconsin	1 (4.2)
Indiana	1 (4.2)

*Continued on the next page*

**TABLE 2. Characteristics of the buyer respondents and their organization/institution (n = 34) (cont.)**

Characteristics of survey respondents	Percent of total survey respondents and number of survey respondents, n(%)
<b>Organization/Institution Locational Description (n = 25):</b>	
Regional	13 (52)
Located in one state	10 (40)
Multinational	5 (20)
National	4 (16)
Other (please specify)	3 (12)
<b>Size of Operation (\$ of annual produce sales) (n = 23):</b>	
\$40 million or more/year	7 (30.4)
\$20 million to less than \$40 million/year	5 (21.7)
\$10 million to less than \$20 million/year	2 (8.7)
\$5 million to less than \$10 million/year	2 (8.7)
\$1 million to less than \$5 million/year	2 (8.7)
\$500,000 to less than \$1 million/year	1 (4.4)
\$250,000 to less than \$500,000/year	2 (8.7)
\$25,000 to less than \$250,000/year	2 (8.7)
Less than \$25,000/year	0 (0)

The variation in 'n' value is because some respondents chose not to report their revenue, location, and description of their organization and their roles within their organizations.

stringent and noted that USDA HGAP, USDA GroupGAP, and USDA GAP&GHP were not benchmarked against GFSI requirements. Some buyers also mentioned audit/certification costs as a factor.

#### Accepting USDA GAP audit programs

We asked the buyers (n = 9) not currently accepting USDA GAPs audit programs whether they would consider implementing them in the future. Seventy-eight percent (n = 7) said "yes," and 22% (n = 2) stated "no." Those who answered "no" included buyers whose organizations/institutions were transacting produce worth at least \$20 million annually. Among those who responded "yes" were two buyers whose organizations/institutions transact produce worth more than \$40 million per year. The rest transacted between \$250,000 and less than \$5 million per year. Those who stated "yes" cited the following reasons: the USDA GAP audit programs would have to be demanded by their customers or suppliers (71.4%, n = 5); if the USDA Harmonized GAP audit scheme allows buyers to demonstrate compliance with the FDA Produce Safety Rule

(57.1%, n = 4); and full GFSI benchmarking of the standards (28.6% n = 2).

We asked the buyers (n = 9) what would encourage them to accept USDA HGAP Plus+. Being the only USDA GAP audit standard with GFSI Technical Equivalence was expected to make it more attractive to buyers who value its GFSI recognition. This has not happened yet. For this to change, 55.6% (n = 5) said that USDA HGAP Plus+ would need full GFSI benchmarking, while 33.3% (n = 3) sought improved clarity on USDA's implementation of the schemes. Also, 33.3% (n = 3) cited suppliers' request that they start implementing the standards (Fig. 2).

When asked if they were to start accepting USDA HGAP Plus+, whether they would provide technical or financial assistance to their suppliers to implement the scheme, most buyers said "no" (n = 6). Some (n = 6) anticipated losing some of their suppliers, particularly the very small growers, should they be required to certify their produce against USDA HGAP Plus+.

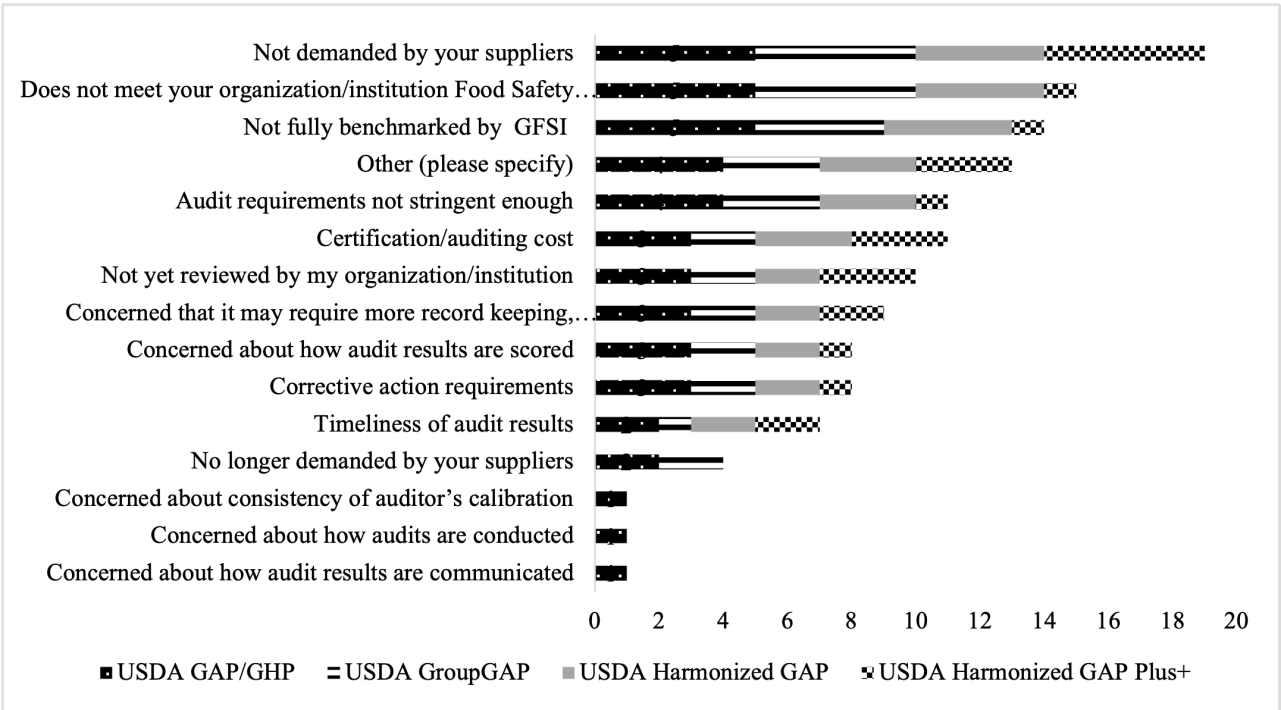


Figure 1. Reasons why some organizations/institutions have not or do not accept USDA GAP audit schemes.

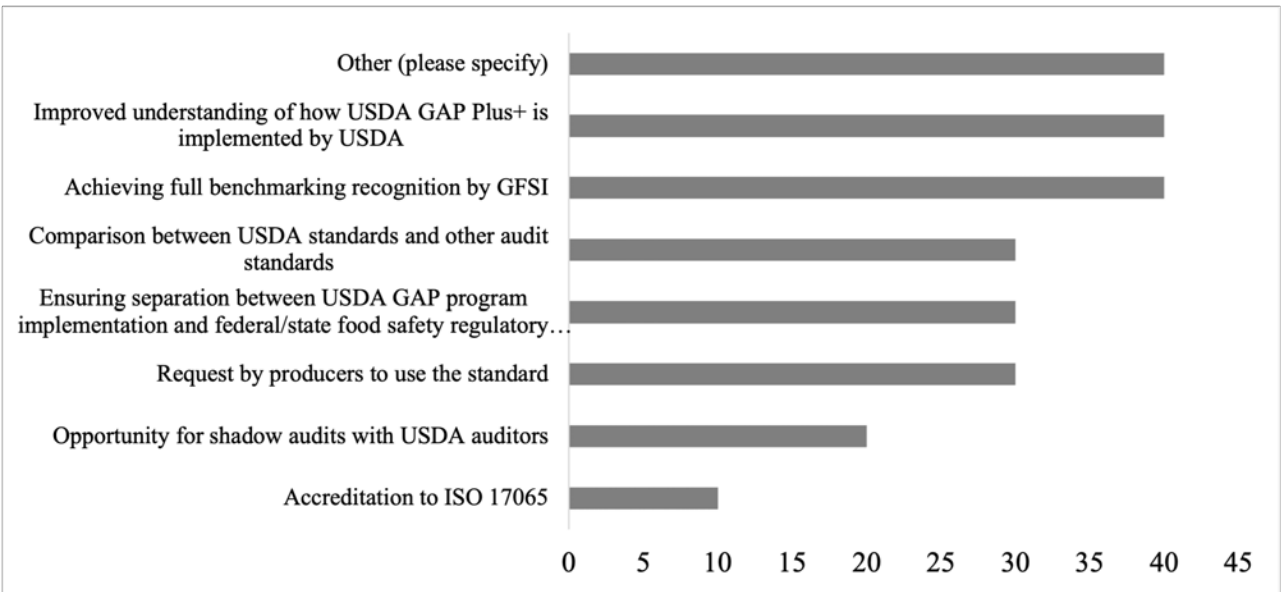


Figure 2. Buyers on factors that would encourage their organization/institution to accept and implement USDA Harmonized GAP Plus+ program (%).

### Enhancing implementation of USDA GAP audit programs

We asked buyer respondents for advice on improving acceptance of USDA GAPs standards. Five of the seven respondents who answered the question suggested that USDA GAPs audit standards should be GFSI-benchmarked. One explained that industry leaders have more trust in GFSI standards: “Any standard must meet GFSI standards to be widely accepted by most large retailers and distribution companies. We accept USDA GAP only to the extent the product is used for USDA bid programs. Again, meeting the GFSI standard is the most important component” (SR10, Wholesale, Food Safety Director/Manager). The respondents emphasized that most major produce buyers require GFSI full-benchmarking or technical equivalence from their suppliers: “GFSI benchmarking or technical equivalence is imperative for us to meet our customer’s requirements” (SR12, Processor, Owner/Upper Management/Director).

The respondents stated the need for USDA AMS to find common ground with large retailers to foster broader acceptance of their GAPs audit programs. A respondent noted that large retailers are the “hold up to the adoption” of fresh produce safety standards (SR13, Broker, Food Safety Director/Manager). To gain acceptance, respondents stated that the USDA AMS would need to revise their GAPs audit programs to meet buyers’ requirements, make them more stringent, and align them with or surpass widely accepted private and foreign standards in the country: “Tighten your standards. Imports are looked at more favorably because of higher/stricter standards in a lot of instances” (SR9, Wholesale, Owner/Upper Management/Director). Respondents also stressed the need to clearly communicate the unique value propositions of USDA GAPs standards and differentiate them against the litany of fresh produce standards in the market. A buyer rhetorically asked: “How do USDA GAPs differentiate themselves from any other of the already accepted standards?” (SR7, Processor, Food Safety Director/Manager).

The buyers stressed the need to streamline and simplify the USDA GAP standards for broader acceptance by buyers and growers. They felt the standards should be more precise and easier to understand. To address this, the buyers advised that the agency should keep their “standards simple and streamlined with flexibility” (SR17, Retail, Produce Coordinator) and “have one standard document or policy that allows us (buyers, authors’ emphasis) to understand the standards” (SR16, Retail, Owner/Upper Management/Director).

Streamlining was also discussed in terms of USDA AMS taking steps that would help reduce the time buyers would spend assessing the value offerings of the GAPs standards. One respondent highlighted this challenge: “The information in this survey accentuates the insane volume of information a buyer would need to know to be able to do anything”

(SR16, Retail, Owner/Upper Management/Director). Buyers suggested creating “updated guidance documents” (SR5, Wholesale, Food Safety Director/Manager) for USDA GAPs standards and reducing the number of forms. They also emphasized the need for consistency across auditors, ensuring that the questions and answers associated with USDA GAP audits “remain the same across state borders and or regionally” (SR3, Wholesale, Food Safety Director/Manager).

The need for additional training to make USDA GAP auditors/inspectors more skilled in reviewing audit papers was also highlighted: “They need to be more thorough on looking at paperwork, train their inspectors more” and “get audit reports and certificates back sooner than 2–3 months after an audit” were also highlighted (SR1, Wholesale, Food Safety Director/Manager). One respondent suggested making USDA GAP audits more affordable “for very small local producers” (SR17, Small Store, Produce Coordinator). Another noted: “In very rural areas with small-scale purchasers, there is not the same income possible to make that investment pay off. The buyers aren’t there demanding it or purchasing enough to warrant demanding it. In our experience, most purchasers are not familiar with these certifications and do not know what they are and what is actually required or not for them to purchase from a local farm.” (SR14, Food Hub, Hub Manager). To foster wider acceptance of USDA GAPs audit schemes, the buyers suggested that the agency “work more with small suppliers to assist them” (SR15, Other Food Service, Quality Assurance Director/Manager) and “offer tax benefits to farms that maintain USDA food safety certificates” (SR6, Wholesale, Owner/Upper Management/Director). However, the tax benefit suggestion falls outside USDA’s power.

### DISCUSSION AND CONCLUSIONS

Multiple factors hinder buyers’ acceptance of USDA GAPs standards. The buyers believe that USDA GAP audit schemes were not stringent enough, not GFSI-benchmarked, and did not meet their food safety requirements. Distrust in audit quality, limited awareness of USDA GAP audit schemes, and lack of requests for their implementation by their suppliers also hinder acceptance. The barriers mostly revolve around discordances between buyers’ expectations and food safety requirements, as well as the scope, management, and governance of USDA GAP audit schemes. This conforms with Eggers et al.’s finding (8) that buyers felt the FDA GAPs Guide must be aligned with their food safety needs for them to be implemented and even adopted by growers (33); See FDA and USDA (9) for the original FDA guidance document. Similarly, Gombas (11) noted that the buyers on the Steering Committee that led the Produce GAPs Harmonization Initiative, from which the USDA Harmonized GAP standard was developed, stated that they “would accept using the Harmonized Standards under their

conditions.” Gombas (11) noted that refusing to integrate such requirements will “only serve as a barrier to using the Harmonized Standards.” This aligns with our study’s primary reason for low buyers’ acceptance of USDA GAPs standards. So, the USDA AMS should work with major produce retailers to strengthen their GAPs audit schemes, especially the harmonized flavors, ensuring they match or exceed widely accepted private standards like GLOBALG.A.P, BRCGS, and SQF (15, 19, 22).

The distrust in the audit quality of USDA GAP programs could be due to the perception by some retailers that government auditors may not be as reliable and competent as private auditors in doing rigorous audits (16). It could also stem from the broad distrust of the government as a food safety regulator (24), especially buyers’ distrust of government food safety auditors (16, 25). Despite limited evidence showing that private food safety auditors do more effective audits (16), addressing the perception can enhance buyers’ acceptance of USDA GAPs audit schemes. Joint audits of suppliers by USDA GAPs auditors and buyers’ representatives or regular shadow audits of USDA AMS GAPs auditors by the agency could help. Such oversight can help “assure the quality of the auditors’ work” while also fostering “thoroughness and consistency” (17). Additionally, better training for USDA GAPs auditors is essential for quality audits (17, 16).

The awareness deficit leading to low buyers’ acceptance of USDA GAPs audit schemes aligns with previous literature (12). This study suggests that promotional and outreach activities to increase buyers’ awareness and understanding of the value offerings of USDA GAP audit programs could address the issue. To be effective, these efforts should focus on produce retailers and supermarkets requiring their suppliers to comply with basic and less rigorous food safety requirements (7). Equally, the outreach efforts can focus more on institutions, wholesalers, and retailers with big chains as they require stringent food safety audits (7, 8).

Existing literature indicates that buyers alone determine the GAPs certification schemes they accept from their suppliers (8, 17, 22). However, this study suggests that suppliers can prompt buyers to consider and accept a GAP certification scheme. Therefore, the USDA AMS could explore supplier-buyer linkages to increase buyers’ awareness of their GAPs audit schemes. The agency could also encourage suppliers to urge their produce buyers to accept USDA GAPs audits, as buyers cited the absence of supplier requests as a key reason for not considering them.

Some buyers misrepresented USDA AMS as a regulatory agency, likely due to the confusion over FDA and USDA’s roles in food safety (8, 15). Eggers et al. (8) found that some buyers and growers viewed the FDA as a policing body and were confused about their roles in GAPs implementation. This study suggests that the confusion and misrepresentation may lead some buyers to believe

that accepting USDA GAPs standards means inviting regulators into suppliers’ facilities. Lytton (15) ascribed this confusion to a limited understanding of FDA and USDA food safety responsibilities and the complex distribution of these duties across multiple federal agencies. The confusion could also be due to USDA AMS’s involvement in quality grading, inspection, certification, auditing, and trade promotion, which some buyers may consider as conflicts of interest. The confusion fosters distrust in USDA AMS roles and hinders the acceptance of its GAPs standards. This highlights the need for outreach to buyers and growers to clarify USDA AMS’s roles (8) and its lack of food safety regulatory authority (30).

The multiple factors driving buyers’ reluctance to accept USDA GAPs audit programs highlight the need for multilayered, integrated interventions to address the barriers. Addressing a few constraining factors may not overcome others (1). For example, communicating the scope and value offerings of the USDA GAP audit programs without enhancing their stringency and broadening their scopes might still deter some buyers. Similarly, revising USDA GAP standards to meet buyers’ food safety requirements without separating the audit scheme governance and operational management from USDA AMS could limit acceptance. Besides, many of the recommendations to improve buyers’ acceptance of USDA GAPs audit schemes are at odds with each other. This presents a challenge for the USDA AMS in addressing disparate needs.

This study has limitations and implications for future research, with the relatively small survey sample size suggesting the need for further exploration using a larger sample. We expected a low response rate from buyers, similar to Robb and Garber (26), who noted that most of the 26 largest U.S. food retailers refused to respond to their food recall survey. The authors noted that “most stores either notified researchers they would not respond or failed to respond after repeated efforts to contact them” (p. 15). Like this study, few respondents in Robb and Garber’s (26) survey “only answered a handful of questions” (p. 2). Although our survey sample size is too small to represent the food retail industry statistically, it reflects what Minor et al. (19) described as “a cross-section of the retail food industry” (p. 8). Thus, akin to Minor et al. (19), our findings indicate the factors hindering U.S. food retailers’ acceptance of USDA GAPs audit programs. Like Nayak (21), this study also highlights the need to explore whether auditors for produce-focused private food safety certification programs are stricter than USDA GAP auditors. Future studies should examine differences in audit outcomes between private and government auditors and how this affects buyers’ acceptance of USDA GAPs audit schemes.

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