

Unannounced Audits in the Food Industry as a New Instrument of Hygiene and Quality Control based on the Example of IFS Food Checks

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Whereas in the past unannounced audits with focus on quality management were only performed by public authorities, in recent years other parties started to exploit the benefit of those. Meanwhile unannounced audits are being used increasingly. Many retailers already use unannounced audits for supplier monitoring, some standard owners have already included them in their certification scheme. The aim of this study was to analyze the benefit of unannounced audits and to examine the pressure, the companies are burdened with. Referring to a wide range of empirical data, this paper provides initial qualitative and quantitative results by comparing announced and unannounced audits. This study focuses on issues concerning observed deviations during site inspections and on company and auditor statements. Hygiene deficiencies and the risk of contamination turned out to be found more likely during unannounced audits. Companies with IFS product scopes 1 and 6 failed more often during unannounced audits; sometimes audit situations are assessed differently depending on product scopes. We conclude that the performance of unannounced audits is in general reasonable as long as they are conducted risk oriented and further controls are not associated with additional economic pressure on companies. Therefore a major rethink in the market is required.

Keywords: Quality Management, Quality Assurance, Food Safety, Auditing Practices

Introduction and Background

The consumer of today expects “to be able to purchase food that will not cause illness or injury” (Snyder, 2014), is strongly accustomed to products with certain quality level and has increasing expectations in quality and sensory aspects. To ensure the achievement of the consumer expectations or even to exceed these, a comprehensive quality management system needs to be implemented throughout the whole supply chain. Particularly in the food industry, the last decades have shown that a targeted process control is essential, above all to guarantee safe and reliable products for the consumer. Kyriakides (2014) observed that “the most serious food safety incidents in recent times occurred due to the supply, from the manufacturing sector, of contaminated products”. Despite the implementation of comprehensive quality management systems in most European food processing companies and measures to monitor their efficiency, the withdrawal and recall of products is required from time to time. The appearance of several food scandals (BSE, rotten meat, Dioxine, Melamin) in recent years demonstrates that the solely implementation of a quality management system is often not sufficient to reduce the risk of non-conforming products on the market. The European horse meat scandal in 2013 (Premanandh, 2013) has highlighted the additional, considerable risk of food fraud. The high economic incentive to violate the terms of regulations within the food industry, are discussed by Hirschauer and Zwoell (2008). Perennial scandals demonstrate the need of superior surveillance by independent authorities or independent certification bodies and have resulted in the development and implementation of several food related certification standards (Hobbs et al., 2002). “To serve as instruments of quality assurance within the food supply chain” (Deaton, 2004; Fulponi, 2006, Jahn et al., 2005; Albersmeier et al., 2009) those standards were developed to protect the retailer and the producer against food scandals and to assure their reputation (Graffham et al., 2007; Richards et al., 2011, Dannenberg, 2012). In recent years a complex ‘certification world’ has been established at national and international level. In addition to common internationally accepted food safety and food quality standards, such

as IFS or BRC, many other types of certification schemes, which are related to environmental or social aspects, are gaining importance. Nowadays for most companies at least one of those certification schemes is required to access the national or global market. According to Gawron and Theuvsen (2008) it is almost impossible to supply the retail sector without being certified against the demanded standards. As a result “technically ‘voluntary’” standards become a voluntarily obligation, when they are “mandatory (...) to do business with the major retailers” (Davey and Richards, 2013). The “shift from public to private governance (Hatanaka et al., 2005) and the considerable power of retailers is reflected in numerous scientific studies (Hatanaka et al., 2005, Burch and Lawrence, 2007; Davey and Richards, 2013).

The majority of cases show that customers demand supplementary supplier audits in addition to the already mandatory certification standards to ensure compliance of common certification schemes plus their customer’s own specifications and requirements. Whereas in the past unannounced audits were only performed by the German authorities, today it has become an important instrument especially for large retailers to monitor their suppliers. Assuming that the de facto daily operation and the situation during the on-site certification audit may show substantial differences, unannounced auditing appears to be the ideal way of improving the quality of certification processes.

In present literature numerous studies focus on quality management, on relating certification schemes and on third party audits. Only few studies refer to unannounced auditing practices within the food industry. Jahn et al. (2004), Albersmeier et al. (2009) and Padilla Bravo et al. (2013) noted that third party audits might not always guarantee the detection of deviations or food fraud during an audit. They observed a possible positive aspect of unannounced audits on the certification quality in organic certification systems, if the unannounced inspections “are considered as an improvement during the verification procedure” (Padilla Bravo et al., 2013). According to Padilla Bravo et al. (2013) and Zorn et al. (2012) it has not yet been proven completely if the performance of unannounced audits can lead to a higher detection rate of non-conformities. However, since no empirical study directly focuses on unannounced audits related to food quality and safety aspects this study seeks to gain an insight in these complex inspection systems. As Davey and Richards (2013) have argued, it is normally difficult to get “‘behind the scenes’ world of audit” and to get access to information which is mostly confidential due to “its enactment in the private realm”. It is therefore a unique opportunity to get deeper insights in audit reports which are normally not accessible to the public. Some of the analyzed data were directly provided by the IFS Management GmbH, complete reports of the unannounced Food Checks and related IFS Certification audit reports could have been analyzed in an appropriate manner. Through the comparative evaluation of these reports, this study highlights the benefit of unannounced audit practices and analyzes the most frequent deficiencies observed during an unannounced audit. Simultaneously the paper addresses the difficulties in the performing of the audit and the enormous pressure with which the company is burdened resulting from innumerable audits. Considering the fact, that Food Checks have just been implemented in the beginning of 2014 and thus for both companies and auditors is posing a new challenge, this study additionally reflects the current acceptance of the food industry regarding the implementation of unannounced audits.

Methodology – Data and sample description

The study is based on two different types of data sets. One main part is based on data sets provided by the IFS Management GmbH. The IFS Management GmbH is a private sector standard owner who offers “unannounced IFS Food Checks” since the beginning of 2014. The Food Check focusses in particular on the HACCP, the pest control and the general health prevention requirements related to the IFS Food standard. As part of the study, reports of 56 failed Food Checks from March 2014 to April 2015 have been analyzed regarding the cause of failing the Food Check and with reference to the result of the previous IFS Food certification audit. Three reports have been excluded from the comparative analysis since in one case the IFS Certification report was written in a foreign language and in two cases reports could not be found in the database. Audit reports of companies of the following countries have been analyzed; 42 reports from Germany, 6 from Italy, 3 from the Netherlands and 1 from Greece, Hungary, Spain, Turkey and from the United Kingdom. Furthermore the study is based on empirical data taken from online surveys of food auditors and food companies carried out in Au-

gust and September 2015. Both surveys were consisted only of closed questions. Most auditor questions were obligatory with no possibility to proceed to the next question without answering the previous questions. The company survey did not contain any obligatory questions. Despite having contacted several certification bodies and auditors, only 31 auditors participated in the auditor survey. The company survey was published by the certification body DNV GL Business Assurance in the Newsletter of August 2015 and in the business professional network LinkedIn. Additionally around 650 companies were contacted by email. Most of the 69 participants in the survey were companies, directly contacted through emails. As the study focusses partially on unannounced audit practices, such as IFS Food Checks and unannounced audits which are ordered by retailers, companies were excluded in the course of the survey, when one of those requirements could not be applied to them. Questions regarding the IFS Food Checks were answered by 32 respondent companies. 37 companies have already gathered experience in the performing of unannounced on-site retailer audits and answered the relating questions. A large part of the survey was constructed with pre-formulated statements. In these cases the respondents had the choice between 5 prioritizing answer options (w): completely true (w = 5), true (w = 4), neutral (w = 3), not true (w = 2), absolutely not true (w = 1). Considering the number of answers per option (x) and the number of participants in the survey (n) a weighted average was calculated using the following formula:
$$weighted\ average = \frac{x_1w_1 + x_2w_2 + x_3w_3 \dots x_nw_n}{n} \quad (1)$$

Empirical results

In total 23 (74 %) of the surveyed auditors are approved for IFS Food, 16 (52 %) for ISO 22000 and 10 (32 %) for QS, a German quality assurance system. 26 (68 %) of the auditors declared having an approval for further standards. On average they have the knowledge of 4.5 scopes. The scopes characterize the specific domain in the food industry the auditor is firm with and demonstrate his ability to perform an audit in this specific domain. Most of the auditors are firm with the scopes “red and white meat, poultry and meat products” (hereinafter to be referred to as scope 1) and “grain products, cereals, industrial bakery and pastry, confectionary, snacks” (hereinafter to be referred to as scope 6). Approximately half of them have skills within the product scopes “fruits and vegetables” (hereinafter to be referred to as scope 5), “combined products” (hereinafter to be referred to as scope 7) and “dry goods, other ingredients and supplements” (hereinafter to be referred to as scope 10). Fewer of the respondent auditors are able to conduct audits in other scopes. Most of the surveyed companies are certified according to the IFS Food Standard (in total 53 companies) or the European organic logo requirements (in total 44 companies). 30 Companies are QS certified and fewer e.g. for Halal or Kosher (20), ISO 9001 (18), RSPO (14) and UTZ (8). More than half of the respondents stated to be certified for at least one additional certification scheme. On average the companies are certified according to at least 3.4 certification schemes. Figure 1 illustrates the quantity of additional customer audits the companies in general have on-site per year. 57 of 69 surveyed companies plan to have at least one customer audit per year on site. 13 companies stated that additionally to the certification audits, 3 customers are conducting further on-site audits. 9 companies even receive 6 to 10 customer audits per year. Nevertheless 12 companies don't have annual performed customer audits. As it is shown in figure 2 generally most companies plan around 6-10 or 11-20 audit days/ year.

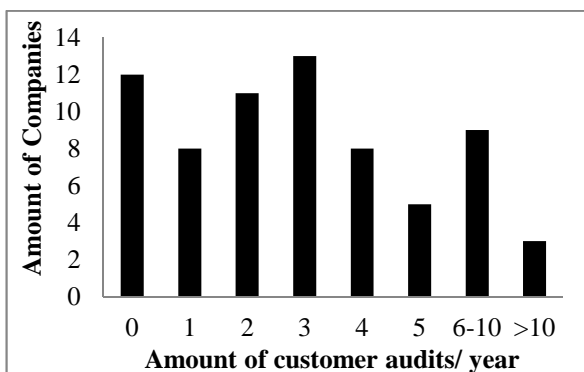


Figure 1 Quantity of customer audits the surveyed companies in general have per year (n = 69)

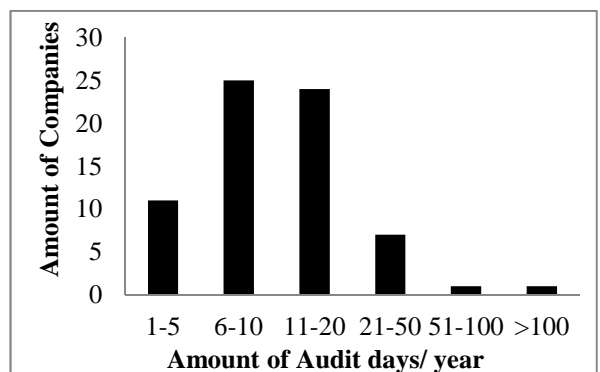


Figure 2 Quantity of audit days the surveyed companies in general plan per year (n = 69)

The product scopes 1, 5 and 6 are the most common scopes of the surveyed companies. It has to be considered that, out of 69 companies, 15 companies stated to have at least more than one scope. Most companies which failed the Food Check (51 out of 56) achieved higher level in the IFS certification audit. This means that these companies fulfilled at least 95 % of the IFS requirements during the IFS audit. Out of 56 failed companies 18 companies produce products within the product scope 6, 11 the product scope 1 and further 11 the product scope 7. Failed IFS Food Checks are classified in three categories:

1. A risk to food safety has been identified
2. Severe hygiene deficiencies exist
3. The conformity to fulfill IFS Food Standard requirements is in general not assured.

The second and third category has been identified to be the most common reasons for failing the IFS Food Check (Fig. 3). It is apparent that companies with scope 6 fail more often due to severe hygiene deficiencies than companies with other scopes.

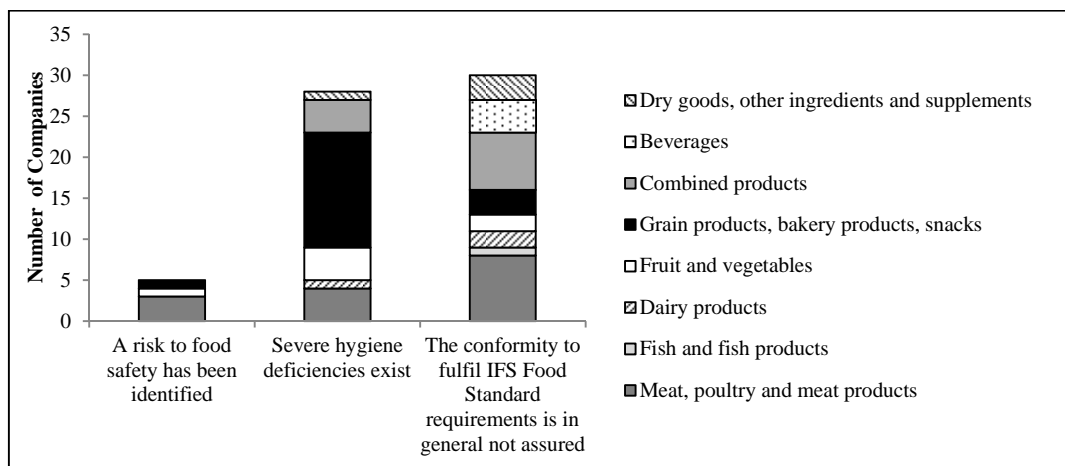


Figure 3 Amount of failed companies distinguished in scope and failing categories (n = 56)

Not all findings in the IFS Food Check reports caused the failing of the company. Findings are listed separately in the report: findings which lead to a failing of the company (hereinafter to be referred to as F-deviation) and further findings which require corrective actions (hereinafter to be referred to as CA-deviation). The report analysis highlights four main focus areas in which F- and CA-deviations can likely be observed during an unannounced Food Check. Those are deficiencies concerning the risk of contamination, general hygiene aspects, structural conditions and deficiencies in pest control. In more than half of the companies (61 %) a contamination risk or hygiene deficiencies (55 %) were leading to the failing of the Food Check, followed by deviations regarding pest control (45 %), CCP control (25 %) and structural deficiencies (16 %). It has to be considered, that in several reports more than one deviation was leading to a failed Food Check and some reports were at great detail, others were kept very short.

The deeper analysis of the partial aspects shows, that foreign bodies (in 34 cases) and glass and hard plastics (in 25 cases) are the most important reasons for a contamination risk in the company, followed by mold (in 18 cases), rust/ corrosion (in 14 cases) and risks with structural causes such as rubbed off paint (in 12 cases). Hygiene related findings in the IFS Food Checks have been divided in two types: the general hygiene condition in the company including deviations regarding the performance of cleaning (in 36 cases) and in deviations regarding observed deficiencies in the cleaning documents (in 21 cases). In 18 cases both types appeared together during the Food Check.

The comparison between Food Check reports and reports of the previous IFS certification audit shows, that 55 % of the F-deviations (in total in 42 reports) have not been detected in the IFS certification audit neither resemblances to detected findings in the IFS audit were existing (Fig. 4). Between the F-deviation in the Food Check report and deviations identified during the certification audit in 26 reports (34 %) resemblances could be found. The term “resemblances” denotes cases in which the company failed in the Food Check due to a deviation in a specific area in which deficiencies have already been identified during the previous IFS audit. Only in 4 failed companies the F-deviation was mentioned

similarly in the certification report. 5 findings (6 %) were deviations with a possible selective and unexpected occurrence. This means that the likeliness of an identical or similar occurrence in a previous audit is considered very low.

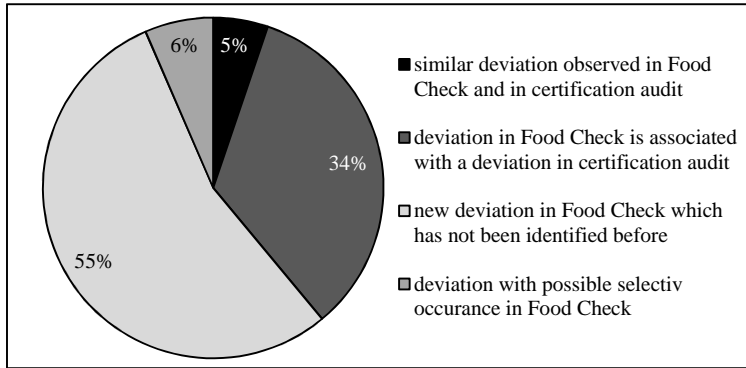


Figure 4 Comparison between the F-deviations in IFS Food Checks and related deviations in IFS Certification Audits (n = 53)

As the above mentioned results demonstrate, companies often show deficiencies in the domain of hygiene, structural conditions, pest control and foreign body management during unannounced audits. The comparative analysis of the announced IFS audit and the unannounced IFS Food Check indicates that, regarding both the F- and CA-deviations, deficiencies related to hygiene aspects, structural conditions, pest control and the risk of foreign body have been observed simultaneous in both audit types. It is highlighted again, that the domain of hygiene shows the highest occurrence of deficiencies. Irrespectively of whether an audit is announced or unannounced it is noticeable that most companies show deficiencies in the domain of hygiene. As shown in figure 5 the auditor and company surveys came to similar results. 26 (84 %) of the respondent auditors assume that deviations regarding hygiene aspects can be observed more likely during unannounced audits. In the framework of the company survey almost 27 (40 %) auditors stated the occurrence of hygiene deficiencies to have a higher likelihood. 17 companies and two auditors adopted a neutral position. Around one third of the auditors positioned neutral regarding the likelihood of more frequent findings in unannounced audits with aspects of structural, documental, legal and IFS relating requirements deficiencies. Almost half of the companies said, that deviations regarding the IFS requirements cannot be found more likely in unannounced audits. Legal requirements are not considered to be relevant.

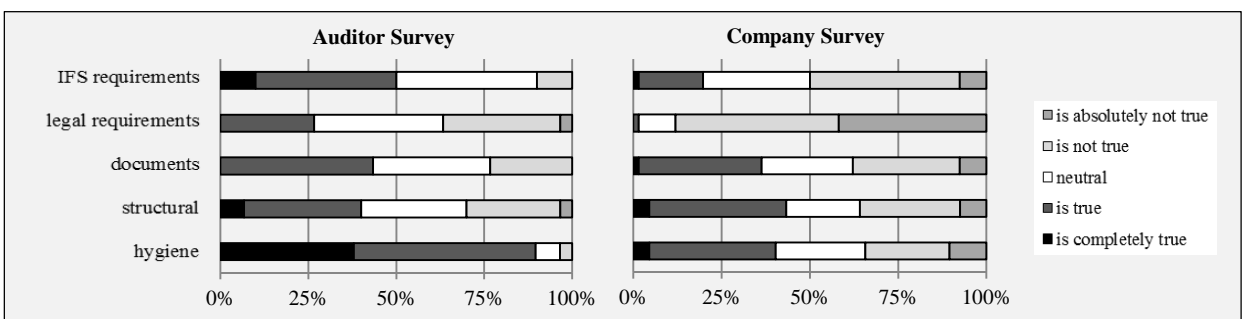


Figure 5 Assessment of auditors (n = 31) and companies (n = 69) regarding the more likely occurrence of a deviation in unannounced audits by categories

Figure 6 reveals the relation of the time period between the previous IFS audit and the IFS Food Check regarding the number of companies which failed in the Food Check. It is conspicuous that the amount of failed companies first increases with a growing amount of time in between and then decreases when the period among both audits extends.

Additionally auditors and companies have been surveyed on their assessment of time a company usually needs to prepare for an announced audit. 18 (74 %) respondent auditors estimate, that the required preparation time of companies amounts to several weeks or even to several months (Fig. 7). More than half of the surveyed companies said, that they are preparing themselves several weeks. According to

the company survey, almost one-third of the companies prepare several days in advance for an announced audit whereas only 4 of the auditors assumed the amount of preparation time to several days. It is shown in figure 7, that the expectations of auditors and the data given by the companies are in line regarding the statement that a company usually prepares announced audits. However, at least 5 surveyed companies stated not to prepare at all before an announced audit.

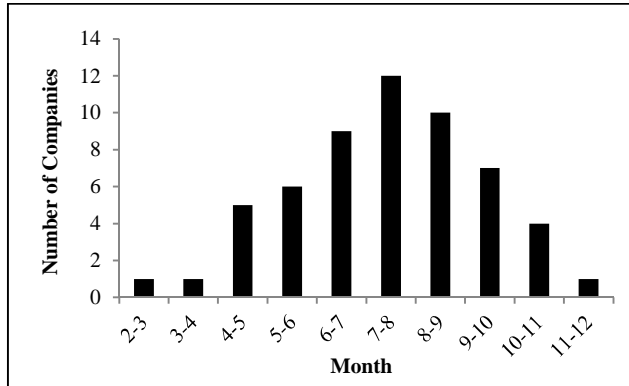


Figure 6 Time period in between the certification audit and the Food Check in relation to the number of companies which failed in the Food Check (n = 56)

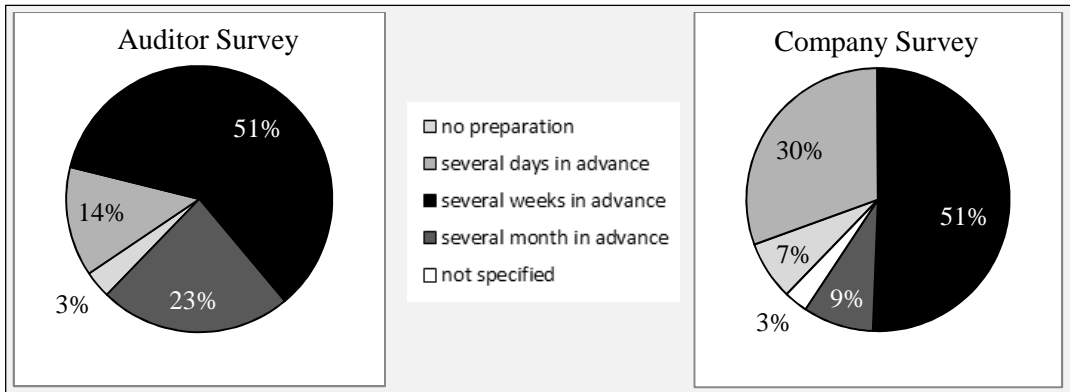


Figure 7 Assessment of auditors (n = 31) regarding the amount of time a company needs in general to prepare for an announced audit in comparison with the actual value companies (n = 69) indicated

It is apparent that in comparison of the auditor and company surveys more than three quarters of the auditors (77 %) but less than one-third of the companies have the opinion, that the unannounced audit better reflects the actual daily routine on-site (Fig. 8). 22 (60 %) companies and 7 (23 %) auditors share the idea that both types of audits reflect the de facto daily operation equally. Only few companies (in total 3 of 37) and no auditor selected the announced audit in the survey.

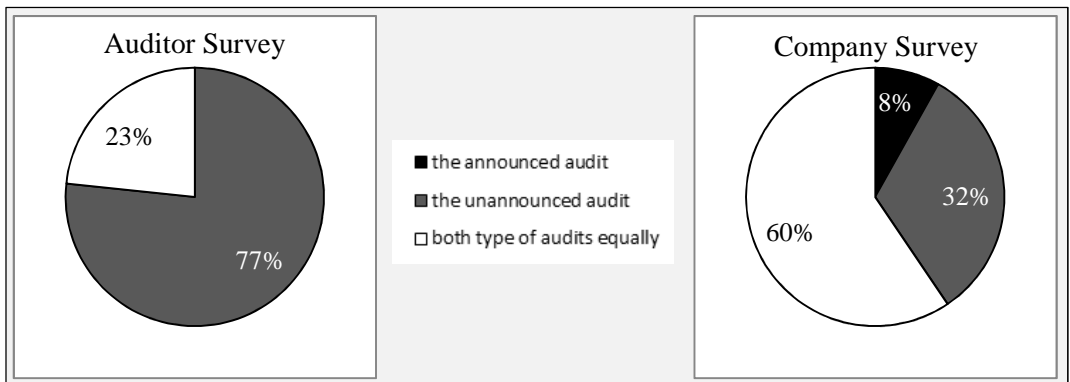


Figure 8 Type of audit which better reflects the actual daily routine according to the auditors (n = 31) and companies (n = 37) opinion

Figure 9 illustrates how companies assess the different audit situations depending on the audit type and the outcome of stress. The weighted average of companies which stated that it makes no difference for them if an audit is conducted in an unannounced manner was 2.65. For most companies the stress factors during unannounced audits are particularly when no suitable person is on-site who is sufficiently firm with the performing of audits or with the quality management systems (26 cases) when personal resources are in general short-time limited (32 cases) or when other pre-arranged appointments might not be kept (30 cases). However the auditor survey shows that the risk for 'no suitable person on-site to conduct the audit in an appropriate manner' is low. 16 auditors assess the risk as rarely or very rarely. It turns out that the risk not to be able performing an unannounced audit in an appropriate manner because of the non-availability of a suitable contact person is considerably higher in audits abroad. 9 (30 %) auditors stated that the communication in audits abroad is impeded for the non-availability of a contact person with suitable language skills. 11 auditors have rarely or very rarely made this experience.

Referring to figure 9, 19 Companies stated that the atmosphere during an unannounced audit differs compared to an announced audit. The auditor survey came to equal results. The weighted average regarding the tense audit atmosphere during an unannounced audit was even higher (3.45, thus 20 of the 31 surveyed auditors). According to the auditor survey, many auditors have the impression that the reception on site is less friendly if the audit is unannounced. Separated by scopes, figure 9 demonstrates that companies with scope 1 feel more uncomfortable in unannounced audits than companies with other product scopes. The fact that in an unannounced audit the company faces a situation in which the site inspection could not have been prepared in advance and therefore the probability to detect a non-conformity is more likely, was rated with an weighted average of 2.19. Here again, figure 9 reveals the dependency on the product scope. Equal results have also been observed in the Food Check relating questions of the company survey (fig. 10). 30 companies stated that they are able to spontaneously facing an audit and that they demonstrate the credibility of their products by participating in the IFS Food Check program (weighted average 4.38). The variation between the scopes is low. Nevertheless 18 companies out of 37 respondents are concerned about the consequences if deficiencies might be discovered. The data given by companies with Scope 1 show, that they assess the consequences more relevant than companies with other scopes. It is apparent that for all companies the demand of the retail sector is one reason for participation in the Food Check program (fig 10). Out of 32 respondents, 18 companies have doubts about the benefit of the participation and are more concerned about their economic factor. Companies with product scope 1 in general have no doubts about the benefits. The weighted average (2.72) shows, that most companies do not think, that the IFS Food Check may reduce the performance of further unannounced audits e.g. retail and authority audits. Although they are currently participating in the IFS Food Check program, the largest number of companies does not support a participation in the meaning of deriving the benefit to have an additional verification of their processes during the de facto daily operation. However, as it is shown in figure 10 companies with scope 1 and 6 more often support participation. As mentioned above, in figure 9 and 10 it is apparent, that there is a certain dependency on the product scope of the company.

Considering the number of audits per year which have to be performed due to several certifications, authorities, retailers etc., 22 companies (out of 37) have no patience with additional unannounced audits. The analysis of the auditor survey shows, that the auditors assess the companies opinion regarding this point equally. Although 40 % of the auditors adopted a neutral position in this question, 44 % assessed the above mentioned statement as true. Nevertheless, according to 20 auditor statements companies in general understand the motives for conducting an unannounced audit and are aware of the possible differences between the daily operation and the on-site situation during an announced audit. Many of the surveyed companies (in total 18 out of 37) share the idea that through the conduct of unannounced audits the "black sheep" among the food companies can be identified. Simultaneously 17 companies see unannounced audits as an additional tool for the "certification world" with an economic purpose. Furthermore, the companies were questioned about their assessment of whether the main purpose of performing unannounced retailer audits is, to increase the pressure for subsequent price negotiations. The weighted average of the answers to this question was 3.68 and therefore stated as true.

Further possible difficulties which might occur have been assessed by the surveyed auditors. The possibility of an additional audit which takes place at the same time and the possibility that the company

is on vacation the day of the audit have been identified as rarely and very rarely. Several auditors (10) stated the case that an unannounced audit coincides with the company vacations has never occurred before.

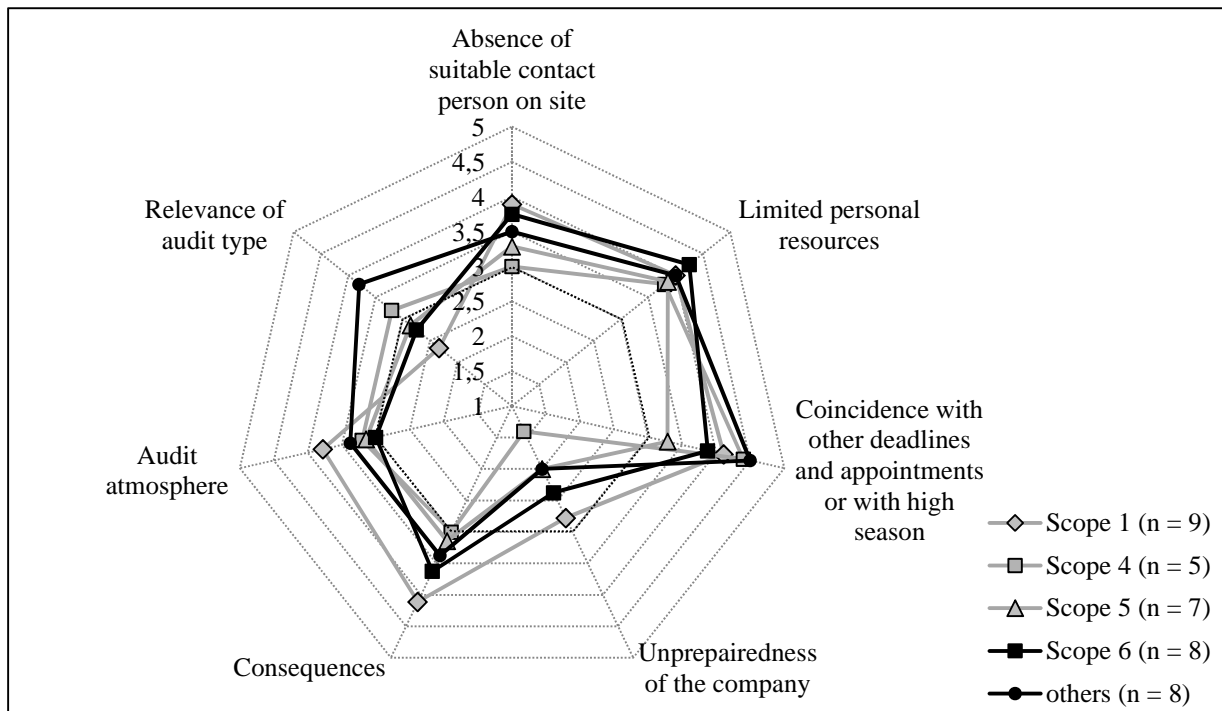


Figure 9 Relevance of stress factors for companies regarding the performance of an unannounced audit by scope (with 1 to 3 = not relevant and >3 = relevant; n= 37)

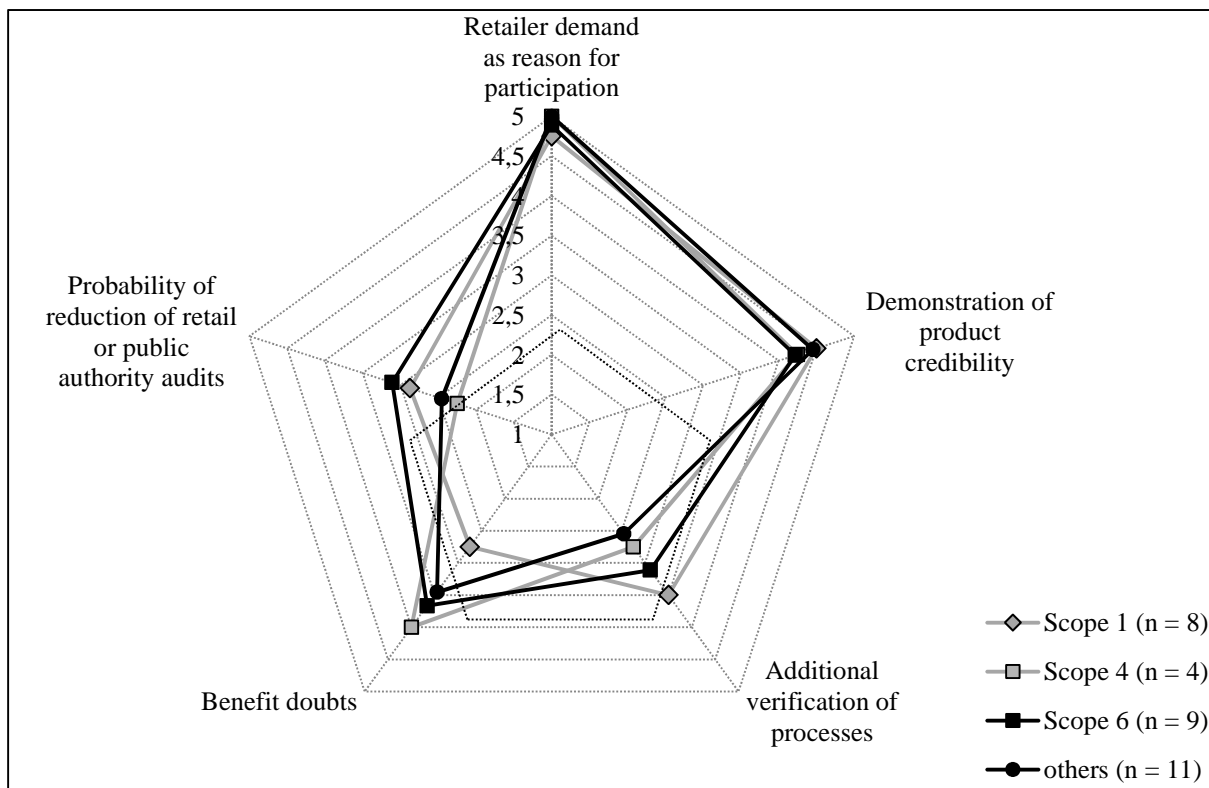


Figure 10 Assessment of companies regarding their participation in unannounced IFS Food Checks by scope, (with 1 to 3 = does not apply and > 3 applies; n = 32)

Discussion

Most companies which failed in the IFS Food Check were classified as 'higher level' in the IFS certification audit. To some extent this may lead to the impression, that there is a lack in audit quality or that in line with the hypotheses of this study the unannounced audit has a higher detection rate of serious non-conformities. Deficiencies regarding hygiene aspects, contamination risks, pest control or the structural conditions were identified to be the most common deficiencies in unannounced audits whereas the risk of contamination includes several aspects and is often additionally connected to non-conformities in other domains. If structural deficiencies like paint rubbed off or if pests or dirt due to insufficient hygiene conditions could come in contact with the product, it poses a risk of contamination. This explains the result of the high amount of deficiencies regarding the contamination risk. Furthermore it has been observed that in many cases deficiencies within these categories already existed in the previous IFS certification audit. However, in 55 % of the examined reports, the F-deviation was not linked to one deviation in the previous audit, either because the auditor of the certification audit did not find the already existing deficiency or the deficiency did not exist during the previous audit. Since most deficiencies are related to the risk of contamination or to hygiene aspects and most companies stated to prepare in general several weeks or even month in advance of an announced audit, it is more probably that the detection rate in unannounced audits is higher. Figure 6 underlines this presumption in illustrating the increasing number of failed companies with a growing amount of time after the announced certification. The number of failed companies begins to decrease when the time period until the next certification audit shortens. The reason of this tendency may be that directly after the certification audit the attention of the employees regarding order and hygiene begins to decrease and from a certain time point, when the companies begin with preparing the next certification audit it increases again. However, in this study only failed Food Checks have been analyzed and it is therefore not fully clear if this tendency will be proven right considering additionally the companies who passed the Food Check. The auditor and company statements confirm indeed the described tendency. The classification of failed IFS Food Checks as mentioned in Figure 3 highlights again the considerable importance of hygiene aspects during unannounced audits. Regarding the higher amount of failed Food Checks which were classified as not adequately fulfilling the IFS Food Standard requirements, it is presumed that often reports with hygiene deficiencies were as well ranged as not fulfilling the IFS requirements. In view of the comprehensiveness of the IFS standard requirements almost every finding during a Food Check could be addressed here. Only few Food Checks were identified by the auditor to pose a risk to food safety. Considering that most findings were categorized as risk of contamination or hygiene deficiency in many cases the risk for food safety can be excluded, if the company has appropriate measures following the process step in which the product has been contaminated. Furthermore the appearance of a pest, rubbed of color of ceilings or dirt in the product is not directly connected to a risk of contamination. The assumed effects of classifying a company in this category could be enormous for the failed company and could lead to lost profit if this result is reported to the customer who would certainly interrupt the supplier relation until the situation has been clarified. Therefore the decision of an auditor to classify a company in this category must obviously underlie a careful consideration. Hence, the low number of failed companies, rated in this category, may have its reason in the auditor character and his ability to assess a situation.

The comparative analysis shows especially in regard of companies with hygiene related F- or CA-deviations during the Food Check that often deficiencies in these domains already existed in the certification audit. This may lead to the general conclusion of missing awareness of several companies within food industry in regard to hygiene aspects. In the framework of the data analysis it has been demonstrated that firstly companies with problems in hygiene often simultaneously have deficiencies in the cleaning documentation and secondly deficiencies regarding the risk of contamination is often linked with the general management of foreign bodies and glass and hard plastics. Probably the awareness of employees regarding those obvious contamination risks including the contamination risk through hygiene deficiencies is not yet enough distinct. Another reason for the lack of initiative to act regarding existing deficiencies would be the missing motivation or missing personal, investment and time resources to focus on those subjects during the daily operations.

The question arises, if from the above mentioned observation a generic statement regarding the risk of carelessness can be derived through the content analysis of previous certification audit reports. To

explore this subject in greater detail, this paper can only provide indications. Correlations may feed into decisions regarding risk oriented frequencies for unannounced audits.

Even though most companies assessed both audit types to reflect the daily routine equally, it is to be assumed that the auditor prospective better reflects the actual situation, since he is an independent third party and his assessment is more in line with the results from the report analysis.

Furthermore, as it is demonstrated in figure 1, there is a tendency that companies with certain scopes are more likely to fail in a Food Check. This could be of random reason, but on the other hand this could reflect that companies within those scopes generally have more deficiencies with hygiene related aspects or risks of contamination appear more often.

However, because of the complexity of the audit processes it must also be noted that it is difficult to compare a full certification audit with an IFS Food Check which only focusses on certain aspects. Due to unpredictable events a company which generally works in line with the IFS requirements and usually has implemented appropriate measures can possibly fail in a Food Check, when for instance just the day of the audit a machine breaks down, and employees don't react adequate. The inadequate reaction may in this situation be reasoned in the nervousness of the employee in presence of an auditor. This influence has been partially studied in the second part of the paper.

The results from the company survey show that generally companies are certified against several certification schemes and underlie additionally the control of several customers respectively the retail sector. The amount of audit days and the amount of unannounced audits per year is lower than originally anticipated, probably due to the characteristics of the survey participants. Even though most companies plan 6-10 or 11-20 audit days/ year, several companies stated to plan up to 100 or even more audit days per year. It is assumed, that companies with leading positions and high economic power, are certified against more certification schemes and underlie further controls due to the wider range of customers they supply to. Additionally even 6 to 20 audit days per year can already pose a considerable challenge for small and medium sized companies. The performance of perennial unannounced audits creates a new challenge for the companies and companies often find themselves in certain situation of stress if an auditor arrives on site to perform such an audit. Figure 9 highlights the main reasons for companies which lead to an outcome of stress. What companies are mostly concerned about are situations, when the suitable employees who normally accompany audits are not on site, personal resources are limited or in particular when other deadlines or appointments might not be kept. These situations assumed to appear for instance when an unannounced audit coincides with the production period of high season or when quality managers are responsible for various production sites. In line with Biénabe et al. (2007), Albersmeier et al. (2009) and Richards et al. (2013) the companies fear the resulting economic impact of these audits, which require personal and time resources.

On the one hand concerns about the absence of suitable employees are partly confirmed by the results from the auditor survey, in other domains the results illustrate, that sometimes these concerns are unfounded because they were only rarely experienced in recent times.

It is noticeable that for all companies the demand of the retail sector is one reason for participation in the Food Check program, even if they generally understand the overall motives of unannounced audit practices. In general currently the overall mood of the companies in regard to unannounced auditing practices and IFS Food Check shows up to be tense. This has even been noticed by both, the auditors and companies during the performance of unannounced audits.

Furthermore the scope of the company seems to have an influence on the assessment of companies. This might be related to the tendency shown through the report analysis. A possible relation could be the relation between companies with certain scopes who more often have deficiencies during the daily routine and thus made different experiences in audit situations. However, only few companies of certain scopes participated in the survey; to finally prove this presumption a broader range of data is needed. It cannot yet be conclusively proven, if the Food Checks may lead to a reduction of unannounced audits, conducted by the retail sector. For a large part of the companies it is unlikely due to their opinion that those audit types are simply a new tool of the certification world with an economic purpose. As Hatanaka et al. (2005) statet, the additional costs are presumably paid by the companies themselves. In line with his conclusion, it is assumed that the additional performance of unannounced audits particular triggers high challenges for small and medium sized producers. "The high costs (...) will simply be beyond the capacity of many suppliers" (Hatanaka et al., 2005).

Conclusion and further research

This study gains new insights into the complexity of unannounced audit systems, by gathering initial data of the performance of unannounced audits. From the results of audit report analysis and relating company and auditor assessments it can in general be confirmed, that a more reliable view on the de facto daily operation is guaranteed by the implementation of unannounced auditing practices.

For several domains the detection of non-conformities is more likely during an unannounced audit. Since companies often prepare long time in advance of an announced audit, deficiencies concerning the general hygiene and concerning the risk of contamination can more likely be detected in unannounced audits. Deviations in further domains have comparable probability to appear in announced and in unannounced audits.

It is concluded that the combination of announced and unannounced audits in an appropriate frequency is an effective solution.

The way stress factors are experienced by companies differ only in one or two criteria. The general benefit of unannounced auditing practices is assessed differently by auditors and companies.

Further research with a broader range of data is needed to statistically prove the hypotheses. The influence of the company scope shall be examined. Other concerns such as the influence of auditors or certification bodies on audit results and the influence of the retail sector needs to be reflected more intense. With regard to the IFS Food Checks, the ongoing development on the market require continuous monitoring concerning the registration tendency, the overall mood of the food industry and particularly the failure rate over the years.

Acknowledgments

We are very grateful to the “IFS Management GmbH” for the provision of their database and to the “DNV GL Business Assurance Zertifizierung und Umweltgutachter GmbH” for their support during the collection of data. Furthermore we thank all certification bodies, auditors and companies who participated actively in the collection of data. Any opinions, statements, conclusions and recommendations expressed in this paper are those of the authors and do not necessarily reflect the views of the supporting parties.

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