

## HACCP in small companies: benefit or burden?

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### **Abstract**

This paper acknowledges the importance of small companies across the food chain and identifies the slow uptake of HACCP in these companies as an area of concern for the production of safe food. This sets the scene for an analysis of the barriers to HACCP implementation which include availability of appropriate training in HACCP methodology, access to technical expertise and the general resource problems of time and money. The burden that this places on the small business, particularly in terms of documentation, validation and verification, are then discussed. The paper concludes with a summary of the burdens and benefits that this sector faces as it moves towards compliance with food safety legislation.

*Key words: HACCP, small companies.*

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## 1. Introduction

Practical experience and a review of food safety literature indicates that success in developing, installing, monitoring and verifying a successful HACCP system is dependant on a complex mix of managerial, organisational and technical hurdles. In coping with this set of interrelating factors, even the largest food companies, equipped with significant resources of money, technical expertise and management skills may face a difficult challenge; the small company may feel that the difficulties of HACCP are potentially insurmountable. This paper aims to discuss general problems, propose solutions and identify opportunities for small companies in their attempt to develop systems which are technically sound, appropriate and manageable.

## 2. An economic profile of the small company.

There is no single, clear and widely accepted definition of a small company but they are usually classified by number of employees, turnover and profit levels as can be seen in Table 1. The category *small* can be further sub-divided into *micro-businesses* with less than 10 employees and *sole traders* who have no employees. The nature of the small company can also be defined by the qualities they *generally* share: they serve local customers; have a limited share of the available market; are owned by one person, or by a small group of people; are managed by their owners who deal with all management issues, usually with little other help; and they are independent businesses not parts of, or owned by, larger companies.

Small companies contribute substantially to the production, manufacture and retail of food in both advanced and developing countries. It is argued that they are 'everywhere

essential to economic development' (Bannock, 1990) as an integral part of all market economies. It is unfortunate that the study of their role in economic development has been retarded by lack of reliable statistics at both national and international level. However, figures available from the UK indicate that small companies account for 99% of all food operations, employ 50% of the workforce and contribute over 38% to turnover (DTI, 1999). Such figures demonstrate that a substantial proportion of food is produced, processed and sold by small companies and therefore that the safety of their operations affects the integrity of the entire food chain. Indeed, with no valid alternative, the application of HACCP in small companies is essential to secure public health. The recognition of this fact has led many Governments to recently focus attention on the control of food safety in these smaller businesses.

### **3. HACCP implementation in small companies**

There is increasing evidence that whilst HACCP is widespread in large food operations its use is limited within small companies. This is reflected in recent studies in the UK and Europe which have found that small companies are less likely to invest in hygiene and food safety than larger companies and are less likely to have HACCP in place (Gormley, 1995. Mortlock, Peters & Griffith, 1999) Indeed, one study identified that for companies with less than 50 staff, HACCP implementation decreased proportionally as number of employees decreased (Panisello, Quantick & Knowles, 1999). The following sections of this paper discuss general problems and identify benefits and opportunities for small companies in their attempt to develop HACCP systems.

## 4. Burdens

### 4.1 Change

For most small companies the adoption of HACCP requires owner-managers to embark on a completely new system of managing food safety. They have little motivation for such change largely due to their firm belief that they produce safe food already. Whilst change in larger companies has been largely customer driven this has had little impact on smaller operations, many of whose customers are the end-user. The only pressure to apply HACCP for these companies has been from legislation which, given the low risk of prosecution (within the regulatory system of most countries) has not proved a sufficiently strong motivator for change. It is also evident that the typical owner-manager has yet to be convinced that HACCP is either effective or practical in the context of their businesses. Given that there is no evidence of the latter, despite various on-going pilot studies, it is perhaps premature for Government to attempt to *enforce* such radical change at this juncture.

### 4.2 Expertise

It is doubtful if any company can implement HACCP without specific training. This is particularly true for the small company with limited access to information and often without the time or skills to interpret textbook scenarios. Indeed, good HACCP literature is restricted to a handful of user-friendly books amidst a plethora of *watered down* manuals of limited use. The fundamentals of HACCP methodology are as necessary for the small company as any other, and the typical short course (2 days) is an effective introduction to the concept and the jargon. However, for the small business, without in-house technical support, it is important not to 'abandon trainees to their fate after the initial familiarisation is

completed' (Mossel, Jansen & Struijk, 1999) Further specialist help is required which will consider the development, implementation and management of the system within the constraints of the small business.

Statistics from the UK's major provider of HACCP courses illustrate the limited uptake and availability of even introductory level training.

e.g. Royal Institute of Public Health & Hygiene. *Certificate in HACCP Principles*.

Established 1995. Currently 31 centres in the UK with 4,220 candidates (Oct.99)

Given that there are 600,000 food premises within the UK, the majority of these being small operations, this equates to a **severe skills shortage**.

Whereas competency in HACCP methodology can be effectively gained through training this must be complemented with the appropriate knowledge of food microbiology and food chemistry. Whilst the Codex Decision Tree, and other such hazard analysis tools, are readily available they rely on the underlying technical expertise of the user

Research has shown that the employment of an experienced, technically qualified person is the single most important factor influencing the implementation of HACCP (Holt, 1999). This is uncommon within a small business with the highest level of hygiene training for most owner managers to be a six hour basic introduction. This has dire consequences when HACCP studies are undertaken, for example:

(a) A lack of ability to prioritise the risks from physical, microbiological and chemical hazards. Given the time involved in hazard analysis it is important for small companies to focus HACCP studies on the group(s) of hazards which pose the greatest threat to public health. For example, caterers will focus their efforts on microbiological hazards whilst the

soft fruit grower will be more concerned with foreign body contamination. Many small companies are unable to make these decisions and attempt to study all groups of hazards at once; a process which invariably ends in confusion, overload and a dilution of control. This scenario impinges on the wider debate as to how risk is perceived by, and communicated to, both the food industry and consumer.

(b) The inability to distinguish between the relative risks of different pathogens on particular foods. This leads directly to the common scenario where the HACCP studies involve every pathogen 'in the textbook'. For example, the sandwich manufacturer who spent many weeks developing a HACCP plan to control the growth of *Clostridium botulinum* on lettuce leaves - an anaerobe which would never grow in the presence of air.

(c) A lack of focus at the stage of hazard identification is compounded by the inability to make technical decisions as to criticality. This results in too many CCP's being identified. This is a problem in many large organisations also, but its root within these companies is usually the misinterpretation of methodology. This can easily be remedied with HACCP training. For the small company the problem is insoluble without recognition of, and access to, technical expertise.

#### *4.3. Time and money*

The typical small business can be described as having a busy, day to day existence without designated staff to get involved in long term planning of non-essential activities i.e. those not directly related to production. In larger companies the training and technical departments often lead the HACCP project: most small companies do not have these resources. It is evident therefore that even if owner-managers can be convinced of the necessity for HACCP, the allocation of sufficient 'time' for its development becomes a

major constraining factor. This is compounded by the requirement for specific HACCP training and the need to access the necessary technical expertise, as discussed above. To the small business this translates into a heavy financial burden and most owners look to Government or other agencies for external help at minimal cost. Whilst the ethics of this are debatable the reality is that small and micro-businesses, in particular, do not feel *they* should pay for change initiated externally.

The UK Government has recently attempted to support the large scale implementation of HACCP in 7000 retail butchers . The project involved a two day training course for groups of 20 butchers using material specifically adapted to suit the size and nature of the business. This was followed by eight hours of one-to-one consultancy within the butcher's own premises. Whilst the training and consultancy was delivered free of charge many butchers complained that 'time was money' and it was 'costing too much'. Indeed, many had to close their business to attend the training and meet with the consultants in the evenings or on Sundays. Despite this massive investment it is likely that the butchers will still need on-going support as they struggle to get to grips with HACCP implementation

#### *4.4 Documentation*

One of the criticisms made by small businesses trying to operate the HACCP system is its requirement for documentation. For many, especially micro-businesses, paperwork of any kind is a burden with verbal communication playing a major role in the successful management of their businesses.

The message which must be sold to small companies is that HACCP (a) aims to ensure food safety with the *minimum* necessary control (b) if correctly applied *focuses* control at a small number of CCP's and that (c) the necessary record keeping can be

*integrated into existing practice* (with minimal disruption) if managers believe it to make good business sense.

It is noteworthy that both researchers and practitioners confirm that the excessive documentation reported by companies, of all sizes, is usually associated with the system being developed inappropriately (Moy, Kaferstein & Motarjemi, 1994. Taylor, 1999). This highlights the need for effective training in HACCP methodology.

#### 4.5 Validation

Identification of CCP's must be followed by decisions as to how they can be controlled effectively. In many companies, large and small, such decisions are often based on *custom and practice* rather than on *evidence*. HACCP should be seen as an opportunity to justify these practices using whatever means are available. Small companies need not be daunted as many CCP's are based on parameters, such as temperature and time, which can be validated using simple experiments. Indeed, many owner-managers enjoy this aspect of HACCP, feeling that they are *taking control* of food safety rather than being *pushed into change* by external forces.

For example, a self employed butcher whilst undertaking HACCP training was frustrated by the conflicting advice he received as to safe procedures for cooling cooked hams. His trade organisation, enforcement officer, tutor and textbook all gave differing views. After the training he bought a temperature probe and plotted the temperature of a cooked ham at hourly intervals until it reached a safe temperature. He was shocked to find that, even following the most stringent procedure recommended, this took over 17 hrs. He subsequently reviewed and revised all his cooking and cooling procedures until he had confidence that his practices were safe and the subsequent monitoring was valid. This

butcher, who had received no formal education for over 30 years, so enjoyed this *research exercise* that he enrolled at his local University on a part-time MSc in Food Safety Management.

It is invariably the case, however, that some critical limits, for example the shelf life of new products, will need to be validated by technical experts and the small business must access this expertise as and when necessary. Local educational institutions, trade organisations and enforcement authorities are a useful starting point. It is important for the small and micro-business in particular, with limited funds, to focus on specific problem areas when seeking advice.

#### *4.6 Verification*

Once a HACCP plan has been developed and introduced into a food operation it must be maintained on a continuous basis and auditing is a commonly used tool to ensure this. However, for the owner-manager who is usually *on site at all times* and has *visual confidence* that the system is running according to plan, this often appears to be a pointless, double checking exercise. This is especially so for the micro-business and in particular for the self-employed.

In addition to such routine auditing the HACCP plan also requires periodic review to demonstrate that it is meeting its objective - producing safe food. The technical expertise and costs associated with such an activity are outside the scope of most small businesses. Perhaps the way forward for both verification of the system and reviews of validity should fall into the formal remit of the enforcement officer's routine visits.

#### *4.7 Supplier vetting*

Large companies invest considerable time and money into attempts to assure the safety of food bought in from suppliers. This often involves detailed specifications, Certificates of Analysis and on-site audits - any of which would pose logistical and technical difficulties for the typical owner-manager. The smaller the company the greater the problems, with many micro-businesses relying on negotiation through telephone contact and buying from middle men who are themselves small businesses with little formal control over food safety. Even those companies attempting to follow standard vetting procedures can fall into difficulties if they lack an adequate knowledge of food science and statistics.

For example, a snack manufacturer was buying garlic flavouring on the basis that each batch came accompanied with a Certificate of Analysis to show the absence of Salmonella in 25g of product. Only after a major food poisoning outbreak, identifying this as the source, did the sampling regime come into question: one 25g sample was tested per tonne of product!

Such difficulties may be resolved in the future as formal accreditation for all but the smallest businesses may become commonplace. This would allow purchasers, whatever their size, to confidently rely on the external vetting of their suppliers by third parties.

## **5. Benefits**

With little evidence of HACCP implementation in small companies it is difficult to make anything other than assumptions regarding possible benefits of the system. There is, however, growing anecdotal evidence from practitioners confirming the largely theoretical benefits outlined below.

### *5.1 Confidence*

Small businesses, without internal technical expertise, are vulnerable to take food safety advice from *anyone* and *everyone* - even when they feel it to be unwarranted. If, however, the company works through all the stages of a HACCP system then the outcome is a thorough understanding of food safety issues affecting their business and confidence in their products. This confidence allows managers to challenge the legitimacy of demands from enforcement officers, external auditors and others, whilst at the same time tapping their knowledge and experience to help review and refine the system. This level of *empowerment* is a commonly quoted benefit from companies who have worked through what they often describe as the *torture* of HACCP.

### *5.2 Reduced costs*

HACCP effectively puts the entire food operation under the micro-scope and although owner-managers complain that this is laborious, tedious work they also admit that there are unexpected outcomes which save the company money. Identified areas include reduced waste, better use of manpower and less documentation once focus is achieved.

### *5.3 Focus*

HACCP is a useful lens with which to focus attention on the aspects of food production that impact on food safety; and it is by filtering out the less essential controls that management can give its full attention to the critical control points of the production process. Managing by exception, through focusing on what is important, allows small companies to maximise the benefits from their efforts.

### *5.4 Team building*

The team based approach to problem solving, with involvement across the whole organisation, is an explicit part of the HACCP system irrespective of company size. This

approach, of utilising fully the human resources across the company to develop solutions through teams, can offer a powerful guide to future action in other areas of the business operation.

### *5.5 Organisational development*

Organisations need to develop in order to cope with the demands of change. The successful achievement of a HACCP system necessitates changes in traditional approaches to using the skills and knowledge of the workforce, in managing teams to solve problems, and in developing a culture that is focused on safety rather than purely on output and costs. The organisation that learns to change to accommodate HACCP can use the knowledge and techniques developed to manage change in other areas. Indeed, for the small company HACCP development and implementation may offer a cost effective method of gaining modern management skills.

### *5.6 Legal protection*

It is now widely accepted that HACCP presents the food industry with the most effective management tool to secure safe food. As such the adoption of its principles will offer a legal defence (in many countries) in the event of an outbreak of food borne disease.

### *5.7 Trading opportunities*

Finally, HACCP is a clear benefit to those companies seeking to expand their markets. This is very evident for those who attempt to supply large retailers (e.g. supermarkets) whose contracts often require documented evidence of a HACCP system from their suppliers - no matter how small. It is also becoming a pre-requisite for export trading even in low volume, specialist markets.

## **6. Conclusions**

It is doubtful if even the most ardent HACCP enthusiast would not conclude that, from the perspective of the small company, the benefits of tomorrow are outweighed by the burdens of today, as can be seen depicted in Fig. 1. Given that the food chain is only as strong as its weakest link the economic survival of the entire food industry is jeopardised unless the 'scales are tipped' to encourage the adoption of HACCP by small companies. There are many measures at local, national and international level which could facilitate this, a few of which are described below.

(a) Current research to develop workable blueprints and bench mark best practice are encouraging, but it is important that relatively small investments are not wasted with duplication of effort. Governments should work at an international level to co-ordinate activities and disseminate results, perhaps under the auspices of the World Health Organisation.

(b) Any pilot projects must be set in the context of thorough evaluation, with clearly identified *indicators* of success. Practitioners should only be encouraged to change when there is evidence that such change is both practical and achieving its aims. Just as medical intervention is now moving toward an 'evidence based approach' so too should 'experiments' with managing food safety: there are as yet no validated model(s) for the application of HACCP in small companies.

(c) In general terms, the nature of the risks inherent in the food industry must be communicated more effectively to both producer and consumer. This falls within the remit of local and national Government and is high on the agenda in many countries. At the present time a combination of *ignorance* and *optimism* combine to block efforts to give safety the high profile necessary to stimulate change.

(d) At a more practical level high quality HACCP training must be widely available, at an appropriate cost, to all small companies. Whilst the principles remain the same for all food operations their application needs skilled interpretation for small and particularly micro-businesses. A developmental approach is suggested which concentrates on (1) the installation of a fully operational system of Good Hygiene Practice (2) HACCP studies to identify specific areas which need additional control (3) the development of valid CCP control measures and monitoring routines and (4) appropriate systems of verification and review. This would need to be phased in, over perhaps a period of years, and therefore relies on an on-going support network at local level.

Each local area could develop a 'HACCP Resource Centre' which would provide some of the essential requirements for successful implementation. This may include: directories of suitably qualified HACCP consultants, trainers and courses; funding opportunities; discussion groups to share experiences; on-hand experts to examine specific problems; and computers with access to the internet and HACCP software. Local government offices or educational establishments would be suitable venues. A model of such a centre has been recently established by the University of Central Lancashire to serve small businesses in the NW of England. This is a community project funded by a range of Government and private sources.

Finally, it must not be forgotten that the typical small company manager, who is often the owner, is undoubtedly highly motivated to achieve the best possible standard for the business. This commitment must be channelled into the application of HACCP principles in order to secure safety across the entire food chain and can only be achieved if the food

industry, researchers, educators, enforcement agencies and Governments pool resources and work toward a common goal.

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