

The role of Quality Assurance Schemes in raising environmental standards within British Agriculture: A sector driven response to addressing environmental responsibilities

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Abstract

The rise of sustainable development on the national and international policy agendas has presented the business community with a fundamental challenge: how to deliver continued economic growth whilst at least containing detrimental environmental and social impacts. In the drive to achieve this goal voluntary approaches to the management of environmental and social responsibilities have come to the fore in the business-environment debate. However, researchers have questioned the willingness of companies to adopt generic EMS and, where implementation has occurred, have criticised the levels of environmental improvement that have been achieved.

Researchers have called for a greater sensitivity to the capability of the organisation adopting a more systematic approach to environmental management to ensure that the potential of the EMS tool is more fully exploited and thus the environmental and commercial benefits maximised. This demands a more focused and tailored approach to the design and implementation of EMS.

The emergence of Quality Assurance Schemes in the Agro-food industry may represent one way of addressing this need for more integrated, flexible and bespoke approaches to environmental management.

This paper aims to examine the extensive participation in QAS and among the schemes that introduce environmental commitments establish the extent to which environmental management is a condition of participation. Research into scheme standards revealed a range of compliance and dynamic commitments, which suggest that QAS offer an opportunity for more widespread adoption of proactive approaches to environmental improvement.

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Introduction

The rise of sustainable development on international and national policy agendas has presented the business community with a fundamental challenge: how to deliver continued economic growth whilst at least containing detrimental environmental and social impacts. This requirement to compensate for growth demands massive increases in eco-efficiencies, which are above and beyond the current levels of environmental behaviour demanded by legislation (von Weizsacker *et al* 1997, Hawkins & Lovins 1999). Thus, voluntary approaches to the management of environmental and social responsibilities have come to the fore in the business-environment debate. This has provided the impetus for the adoption of generic environmental management systems such as ISO 14001 and EMAS (Barrow, 1999). However, researchers have questioned the willingness of companies to adopt generic EMS and, where implementation has occurred, have criticised the levels of environmental improvement that have been achieved. In other words, questions have been raised regarding the 'breadth' and 'depth' of the impact of EMS.

Given these reservations, some commentators have called for more tailored solutions to the specific environmental management challenges being faced by industrial sectors and even individual organisations. The emergence of Quality Assurance Schemes in the Agro-food industry may represent one way of addressing this need for more integrated, flexible and bespoke approaches to environmental management. By focusing on the nature of QAS requirements, this paper aims to establish the extent to which environmental management conditions are part of the QAS agenda and thus offer an opportunity for more widespread adoption of proactive approaches to environmental improvement in a sector dominated by SMEs. In order to set this research in context we first turn to the limitations of generic EMS alluded to above.

EMS: Not a panacea to all environmental ills

EMAS and ISO14000 remain the two dominant environmental systems available to companies and industries wishing to demonstrate proactive environmental management. Fundamentally, both schemes provide a framework which allows for the:

- Identification and prioritisation of environmental liabilities
- Derivation of environmental policy objectives and more specific targets in the light of the strengths and weakness identified above
- Allocation of appropriate levels of human, financial and technical resources to achieve policy targets
- Development of accountable management structures to ensure the most effective use of allocated resources
- Review of performance and appropriate modification to the policy and processes outlined above.

Given these qualities, generic EMS have been credited with helping industry comply with environmental regulation, obtain technical benefits (Barrow, 1999) and execute environmental improvements (Hillary, 1995), resulting in commercial as well as social benefits.

These returns have encouraged the spread of generic EMS across the globe. However, as the evidence presented in Box 1 demonstrates, even in Europe where EMS first originated, formally accredited companies remain in a tiny minority.

The reasons for the relatively poor participation in EMAS have been attributed to the vague auditing criteria (Karl, 1994) and the fear that public reporting requirements may damage corporate reputation (Barrow, 1999). More generally, the low levels of adoption have been attributed to mismatch between the requirements of generic EMS, which were conceived with the large firm in mind (Palmer & van der Vorst, 1996), and the organisational capabilities of SMEs. Given that SMEs represent the vast majority of business organisations this does not bode well for their more widespread adoption.

Research on the integration of environmental management components into daily practice within an SME organisation has revealed a number of difficulties posed by such schemes. Specific obstacles identified by researchers include:

- Resource deficiencies, such as access to information or lack of human and financial capital (Hutchinson & Chaston 1994, Welford 1994, Winter & Ledgerwood 1994).
- Lack of corporate planning and a business perspective orientated towards short-term profitability (O’Laire & Welford 1995, Johnston & Stokes 1995, Epstein & Roy 2000).
- Reluctance to dedicate time and commitment to EMS implementation (Palmer & v. d. Vorst 1996, Rowe & Hollingsworth 1996).

As a consequence of these obstacles researchers have concluded that the consideration of environmental issues within an ancillary system is incompatible with an SME organisational framework (DeCanio 1993, Post & Altman 1994, Merrit 1998).

In addition to the concerns raised about the diffusion of EMS, researchers have also questioned, the extent of change elicited where systems have been implemented.

Kolk & Mauser (2002) recently completed a comprehensive study of approaches to environmental management, which highlighted the significance of organisational dedication, business strategy and the wider corporate case for ‘greening’ in determining the extent of genuine environmental improvement achieved by the organisations in question. In other words, the context of implementation will influence the extent to which the EMS ‘tool’ is used to deliver change. Whilst some models have been based on the assumption that environmental risk, experience and opportunities will lead reactive organisations to evolve into more proactive entities (Hunt & Auster 1990, Greeno 1993, Newman & Breeden 1993). Other researchers assert that very little evidence has been forwarded to substantiate this vision of an evolutionary process (Cramer, 1998). Petts et al (1999) reinforce this position by advocating that ‘greening’ is more of a staggered rather than smooth linear process. In fact, Welford (1995) suggests that the steps from one stage to another in this ‘greening’ process are so difficult that EMS implementation vary rarely induces firms to go beyond the low-hanging fruit of compliance with regulation. Thus, Petts *et al* (1999) conclude that to expect EMS to deliver anything more than compliance is unrealistic.

In the light of these constraints on the diffusion and penetration of EMS this paper has raised significant questions over the capacity of generic EMS to make a substantial contribution to the challenge of sustainable development as outlined in the introduction. However, research conducted

among the SME community suggests a possible way forward. A greater sensitivity to the capability of the organisation adopting a more systematic approach to environmental management may ensure that the potential of the EMS tool is more fully exploited and thus the environmental and commercial benefits maximised. This demands a more focused and tailored approach to the design and implementation of EMS (Merrit 1998, Tilley 1999, Williams *et al* 2000), which should increase their relevance and stimulate more widespread adoption of environmental management principles.

So how can we test this proposition? The Agro-food industry offers some potential in this regard as a sector in which a range of tailored Quality Assurance Schemes (QAS) - crucially incorporating some elements of environmental management - have recently been introduced. The remainder of this paper seeks to explore this potential by investigating the nature of the environmental commitments made in QAS and the extent of their diffusion across the industry.

Agro-Food industry: An Alternative Model of EMS Implementation?

The rapid development of QAS in the Agro-food industry and their integrated approach to encompassing a range of assurances to meet the specific needs of industry sector, these tailored approaches present a unique opportunity to study the integration of environmental responsibilities into bespoke EMS.

In order to establish why QAS have emerged, it is first important to situate these developments in the context of the industry by highlighting the environmental implications of intensive agriculture and characterising the importance of addressing environmental responsibilities in the current marketplace.

The Agro-food industry is an immensely important sector of British industry, and agriculture is a vital link in the UK food supply chain estimated to be worth £55 billion pounds a year. The industry employs more than three million people and agriculture utilises 18.3 million hectares of land, some 75% of the total land area in the UK (MAFF, 2000).

Since the introduction of the Common Agricultural Policy in 1947, farming and food production in the UK has undergone a process of intensification, specialisation and mechanisation in a sustained drive to maximise production and reap the rewards of state subsidies based on yields and headage.

Intensive agriculture in production terms has been incredibly efficient, however, the environmental consequences of intensification have been significant. Pretty *et al* (2000) estimated that in 1996 the total external costs of UK agriculture were £2343 million. The most substantial costs arose from contamination of drinking water with pesticides (£120m/year), damage to wildlife, habitats and hedgerows and drystone walls (£125m) and from gaseous emissions (£1113m).

The implications of these environmental liabilities are most commonly depicted in the extent of environmental damage caused to natural features and the loss in wildlife population and diversity. The recent Farming and Food Commission report (2002) highlighted that England has lost over two-thirds of its hedgerows since 1950. The British Trust for Ornithology (2000) report that in the past 30 years, populations of farmland birds have reduced by 50% whilst woodland species have declined by 10%.

It is increasingly evident that the past 50 years of intensive agriculture has had a profound effect on the natural environment. In response, both the Government and wider public have exerted pressure on the farming community and food producers to acknowledge and address these environmental concerns. In a marketplace where consumer concerns have been heightened by numerous food scares and crises, associated with BSE, E-Coli, Salmonella and animal diseases such as Swine

Fever and Foot and Mouth disease extra impetus has been added to the demand for: food safety; animal welfare; environmental care; provenance; accountability and transparency.

QAS have emerged as bespoke systems capable of integrating tailored assurances to assist and influence a range of organisations in addressing environmental and social responsibilities. Their acceptance and influence is reflected in the high participation levels: QAS to date have attracted over 78,000 participants accounting for between 65% - 90% of each sector represented (AFS, 2001). Presently, there are QAS that represent: each sector of the Agro-food industry; regional provenance and each stakeholder in the food chain. (see Figure 1).

Figure 1. Examples of QAS

Schemes	Scope	Sector	Developer
Farm Assured Beef & Lamb	English	Beef & Lamb	National Scheme developed by industry bodies (NFU / MLC)
Scottish Quality Cereals	Scottish	Cereals	National Scheme promoted through Scottish industry body
Grampian Farm Quality	Business Wide	Livestock	Food Manufacturer -Grampian Foods Company
RSPCA Freedom Foods	UK	Livestock	Third Party Independent Group
Quality Lincolnshire Beef and Lamb	Regional - Lincolnshire	Beef & Lamb	Food & Farmer Cooperative
Safeway Farm Assurance	UK	All sectors	Retailer

Given the extensive portfolio of QAS, tailored approaches to environmental management appear to offer firms wishing to engage in proactive environmental management, the opportunity to accommodate environmental responsibilities and potentially derive commercial benefits (Baines et al 2000, Morris 2000). However, insufficient research been commissioned to determine the breadth of commitments espoused in scheme documentation or the extent to which environmental management implementation has delivered environmental improvement (BRTF 2000, Morris 2000).

A review of environmental commitments in QAS Documentation.

Exploratory research identified 42 QAS: 19 of which espoused environmental care or protection as a condition of participation. Of the 19 schemes promoting environmental management, only 18 schemes were analysed further, as the British Food Standard is an umbrella marketing scheme designed to promote 8 of the single sector schemes already represented in the group (Figure 2). A review of the remaining 18 schemes (Figure 2) was undertaken in an effort to determine the breadth of environmental commitments incorporated into scheme standards.

Figure 2. Environmental QAS

Name of Scheme	Abbreviation
Assured Chicken Production*	ACP
Assured Combinable Crops Scheme*	ACCS
Assured Produce Scheme*	APS
British Farm Standard	BFS
Farm Assured British Beef & Lamb*	FABBL
National Dairy Farm Assurance Scheme*	NDFAS
Northern Ireland Beef & Lamb Farm Assurance Scheme*	NIBLFAS
Scottish Quality Beef & Lamb Assurance Scheme	SQBLA
Scottish Pig Industry Initiative	SPII
Scottish Quality Trout	SQT
Scottish Quality Cereals	SQC
Scottish Quality Superior Salmon	SQSS
Tartan Quality Mark	TQM
Linking Environment & Farming Marque	LEAF
Soil Association Organic Scheme	SA
Farm Assured Welsh Livestock*	FAWL
Northern Ireland Farm Quality Assured Cereals Scheme	NIFQACS
Genesis Quality *	GQ
Quality Trout UK	QTUK

*Schemes promoted through the British Farm Standard

Although evidence of environmental statements has been acknowledged in almost half of the QAS identified, the rhetoric of ‘environmental care’ does not clarify what commitments are being made or practices implemented through QAS participation. To elicit such information, a classification of agri-environmental practices was utilised as a yardstick against which all schemes could be measured. To assess the breadth of environmental commitments and practices being employed within schemes, the research used accepted indicators of environmental quality and existing agri-environmental studies to generate a list of possible commitments that could be incorporated into QAS environmental policy (Countryside Agency 2001, BRTF 2000, 2000a, Environment Agency 2000b, MAFF 2000, OECD 2001, Scottish Office 1997).

In total, 24 attributes were identified, (Figure 3) which acknowledge diverse levels of skill and necessary organisational commitment to environmental management. Each attribute was assigned to one of five levels of comprehensiveness: Basic; Standard; Intermediate; Intermediate Plus and Advanced. The basic attributes reflect established codes of Good Agricultural Practice, which exist for all farmers irrespective of enterprise (MAFF Codes of Practice, 2000). Standard attributes represent specific legislative requirements that may affect certain farming activities such as the Special Waste Regulations (1996) and Pesticides Regulations (1994). Intermediate attributes reflect commitments, which are slightly beyond mere compliance with regulatory areas, and in some cases pre-empt the future legislative requirements such as the Producer Responsibility for Regulation. Beyond these initial levels, attributes are either considered Intermediate Plus or Advanced dependent on their perceived difficulty and extent of organisational dedication.

Figure 3. Agri-environmental management attributes

ID	Level	Attribute Name
A	Basic	Soil Quality
B	Basic	Air Quality
C	Basic	Water Quality
D	Standard	Pesticides Management / Fertiliser Management
E	Standard	Contamination / Pollution of Land & Water Courses
F	Standard	Waste Management / Plans
G	Intermediate	Packaging Codes
H	Intermediate	Emissions Monitoring
I	Intermediate	Resource Efficiency (Energy, Lighting)
J	Intermediate	Land Use Management
K	Intermediate	Biodiversity Plans
L	Intermediate Plus	Nutrient Management
M	Intermediate Plus	Integrated Crop Management
N	Intermediate Plus	Promotion of Agri-Environmental Scheme Adoption
O	Intermediate Plus	Cooperation with LEAF / FWAG
P	Intermediate Plus	Conservation Management (Wood/Wetland, Habitats)
Q	Intermediate Plus	Environmental Training
R	Advanced	Recognition of Climate Change & need for Sustainable Management
S	Advanced	Whole Farm Management
T	Advanced	Depletion of Natural Resources Management
U	Advanced	Environmental Reporting
V	Advanced	Impact on Communities
W	Advanced	Other Local Environmental Issues
X	Advanced	Environmental Management Systems

Having created a framework for assessing the breadth of environmental commitments contained within schemes, scheme specifications were inspected and measured against the list of attributes to identify the extent of environmental management commitment being made in each scheme.

Analysis of scheme documentation suggests that schemes differ considerably in their adoption and promotion of agri-environmental practices. Figure 4, depicts the breadth of attributes incorporated into each individual scheme this resulted in a segmentation of schemes based upon their environmental credentials.

Figure 4. Breadth of environmental attributes in individual schemes

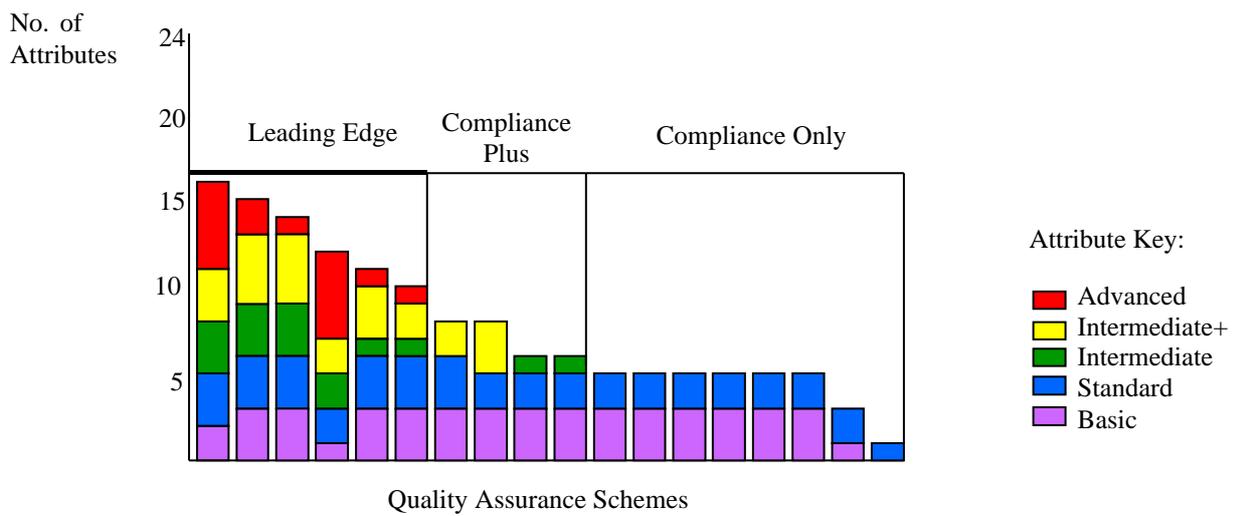


Figure 4 demonstrates that the 18 schemes that promote environmental management vary greatly in the commitments made within the scheme in relation to the practices chosen to ensure environmental protection. The breadth of assurances and variance between basic good practice and proactive dynamic management facilitates a categorisation of current environmental QAS:

- ‘compliance only’ – champion basic and standard attributes in order to ensure that members comply with necessary regulations and appropriate legislation.
- ‘compliance plus’ – acknowledge and integrate attributes considered to go slightly beyond current regulation.
- ‘leading edge’ – utilise appropriate practices from all five categories of agri-environmental practices exceeding any regulatory requirements.

With no classification having previously been devised for QAS in the Agro-food industry in relation to environmental components, the labelling of each group borrowed from the environmental management literature and in particular Roome’s (1992) model of EM approaches to regulation. Roome (1992) asserted that firms have strategic options and choices about environmental provision and that choices are embedded in the way in which the company wishes to approach compliance with regulation. The 3 categories of QAS represent the extent to which organisations wish to conform to or exceed regulatory prescriptions. Since 1992, the compliance model has been tested at both nationally and internationally (Ghobadian *et al* 1998, Berry & Rondinelli 1998) becoming one of the most accepted and comprehensively defined EMS models (Schaefer & Harvey, 1998).

In light of the proposed categories of environmental QAS and evident range of environmental practices being adopted, research focused on the types of enterprises represented in each category through participation in QAS.

A Proposed Typology of Environmental QAS

The rationale for a comparative analysis of schemes was to determine whether a profile could be devised of a typical scheme within each category. This profile would offer a means of establishing the type of enterprises that participate in each QAS category and assess the extent to which QAS have achieved a diffusion of environmental behaviour across the entire industry.

To profile the types of schemes categorised as either: Compliance Only; Compliance Plus and Leading Edge scheme literature was revisited to generate information on scheme: structure; policy; scope and development. The typology presented in Figure 5 represents information collated to date and the findings of research. It is envisaged that this typology will be extended and authenticated in due course.

Figure 5. Characterising the membership of each QAS type

Scheme Characteristics	Compliance Only	Compliance Plus	Leading Edge
Sectors Represented	Livestock & Products	Fish and Cereals	Whole Farm schemes & Fish
Average Age of scheme	Av 7 Years	Av 8 Years	Av 1 Year
Focus	Regulation	Regulation and directives	Alternative Ideals and practices
Omissions from agri-environmental practices	Conservation, Biodiversity, Sustainability	Biodiversity, Sustainability	Sustainability
Developers	National Organisations & Industry representatives	Cooperative Marketers & Private Companies	NGO's and Interest Groups (Charities)
Inspection Period	Av 18 months	Av 18 months	Av 12 months
Participation	Av 6,800 members	Av 3,500 members	Av 4,875 members
Costs of Membership	£60 Registration	£100 Registration	£200 Registration

In relation to the industry, the typology demonstrates that the 'Compliance only' category is dominated by schemes that represent livestock farmers and enterprises associated with livestock products. Whereas arable enterprises are engaged in more compliance plus dominated QAS. The 'Leading edge' category however, embraces mixed farmers and represents a number of whole farm accreditation schemes demonstrating that proactive environmental management is appropriate to all farming sectors should enterprises wish to be more dynamic.

Given that any farming sector can implement proactive environmental management, the developers of QAS differ in their opinion about the extent to which farming enterprises should be expected to integrate environmental management into farm practices. The 'Compliance only' schemes are predominantly organised and administered by national industry organisations in the form of the National Farming Union (NFU) and the Meat & Livestock Commission (MLC) who evidently only expect members to comply with regulation and do not consider the agri-environmental attributes involved with conservation, biodiversity or sustainability to be a necessary addition to farm management. Whereas QAS developed by private companies and interest groups go beyond regulatory compliance and integrate more dynamic practices into scheme specifications, even though sustainability issues remain an infrequent addition to scheme standards.

In relation to the profile of each type of QAS, the typology depicts that the category characteristics differ in terms of the influence schemes have and the extent to which schemes impinge on farm management. The 'Compliance only' schemes achieve the largest proportion of participation, with each scheme on average recruiting nearly 7,000 members. Compared to generic EMS participation (Box 1) this level of participation is very significant. However, high participation rates are a commonality amongst all three categories, hence bespoke QAS appear to appeal to a range of organisations and considering that between 65-90% of all sectors are farm assured (AFS, 2001) the dispersion of environmental management (even though it may be minimal compliance with regulation) across the industry is impressive. In terms of how intrusive schemes are, the main difference is that 'Leading edge' schemes demand more exacting standards.

With regard to participants in each category, predominantly enterprises have a choice of how environmentally proactive they wish to be. Farmers with little desire to commit to dynamic practices can pay a nominal fee for a 'Compliance only' scheme that will provide compliance with regulation and a verification process that causes the least disruption. Enterprises that wish to engage in a system that will assist them in undertaking a commitment to more comprehensive agri-environmental management should expect higher membership costs and more frequent inspections.

So what does all this mean?

First and foremost QAS in the Agro-food industry were identified as a possible example of a tailored approach to integrating environmental responsibilities into a bespoke management system. Research has confirmed that an assurance of 'environmental care' is an integral part of almost half of all QAS identified in this research, and that where promoted, consideration of the environment takes the form of a range of agri-environmental practices.

The breadth of environmental management incorporated into schemes has identified that farming enterprises have a choice as to the extent to which they desire to exceed compliance with environmental regulation through the provision of: 'Compliance only'; 'Compliance plus' and 'Leading edge' QAS. Fundamentally, the suite of QAS available to farmers and the spectrum of environmental management practices appear to attract and influence an immense number of enterprises: achieving at the very least a compliance oriented baseline of environmental behaviour within this specific industry.

However, the findings presented in this paper can only realistically be regarded as insights into the emergence and development of QAS, based upon scheme documentation and literature. As such it is important to recognise that commitments made in documentation cannot be considered as tantamount to practice.

Conclusions

This paper began by addressing the limitations of generic EMS affecting numerous organisations and in particular SMEs. The poor participation levels in EMSs such as EMAS and ISO 14001, and where implemented, the failure to induce significant environmental improvement has resulted in numerous commentators questioning the reliance on formalised generic management systems to deliver environmental improvement.

In other words, researchers called for a more tailored approach to environmental management provision that could facilitate environmental adoption amongst a range of heterogeneous organisations. In response to this challenge it was proposed that developments taking place in the Agro-food industry in the UK, with respect to Quality Assurance Schemes offered the chance to

witness and explore the use of integrated mechanisms as an alternative to generic and supplementary EMS.

Research focused on the emergence of QAS in the Agro-food industry and the ability of these tailored approaches to induce the adoption of environmental commitments. Findings demonstrated that these flexible and bespoke systems appear capable of attracting significant membership and thus offer a potential for more widespread adoption of environmental management.

In this particular industry the breadth of environmental management incorporated into scheme specifications ranges from basic compliance with regulation to dynamic and proactive environmental management. However, environmental commitments at least ensure that a baseline of environmental management is maintained and as such the assurance of 'environmental care' represents at the minimum level: good agricultural practice and regulatory compliance.

In response to the criticism that generic EMS fail to deliver sustained environmental improvement, and in order to determine the extent to which QAS overcome this limitation, further research is required to verify the extent of environmental implementation that follows on from the commitments made in QAS and thus establish the extent of environmental improvement.

Fundamentally, this research has demonstrated that the tailored approach to environmental management, in the form of QAS offer enterprises the opportunity to: engage in environmental management; achieve compliance with regulation and proactively address their environmental responsibilities. Tailored systems in this capacity at least, appear capable of establishing an environmental baseline and ensuring that environmental management is diffused widely throughout the industry.

Further Research

An in-depth qualitative research plan has been designed to assess the operation of all three types of environmental QAS from the perspective of farmers, inspectors and scheme administrator's. Research will focus upon: the organisational implications for farmers of employing QAS; the motivation and disposition of participants that influences participation; and the extent of environmental management implementation in each QAS category. As well as contributing to the development and understanding of QAS in the Agro-Food industry, it is envisaged that this extended research will further the debate regarding the use of tailored management systems in overcoming to overcome the difficulties posed by generic environmental management systems.

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Box 1: A Summary of Formal EMS Adoption Across Europe

The Eco-Management and Auditing Scheme (EMAS) was launched in April 1995, and is open to any company operating in the EU, to date EMAS has attracted over 3900 participants (EMAS Helpdesk, February 2002). ISO 14001 the international standard for environmental management was launched in the EU in 1996 and enables firms to demonstrate proactive environmental management. As Table 1 depicts, Germany is the undisputed leader of EMS registrations (Steger *et al*, 2002) in both EMAS and ISO 14001, however, participation in EMS in the UK is relatively poor considering that only 3% of firms eligible to adopt ISO 14001 have proceeded with registration.

Table 1. EMS registrations in Europe

	No. of potential participants	EMAS		ISO14001	
		No. of registered companies	% of potential participants	No. of registered companies	% of potential participants
France	24 671	36	0.15	550	2.23
Germany	37 413	2432	6.50	1950	5.21
NL	6404	26	0.41	606	9.46
UK	29 608	73	0.25	1014	3.42
All member states	-	3325	-	7140	-

Source: Watzold *et al* (2001) EMAS and regulatory relief in Europe: Lessons from national experience. *European*