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Selling Australia as ‘Clean and Green’*

Hui-Shung (Christie) Chang and Paul Kristiansen**

Abstract

‘Green and clean’ has been used as a key marketing tool to promote Australian products overseas. The rationale is that consumers are generally concerned about personal health and the environment and will choose, and pay price premiums, for products that are, or perceived to be, clean (good for them) and green (good for the environment) over alternative products. But is Australia seen as clean and green? Is it really why people buy Australian products? And how effective is it as a marketing tool? This paper attempts to answer some of these questions. The study found that Australia may have a clean green image at present in some of her overseas markets, but to maintain such an image over time, concrete proof of environmental and quality credentials need to be provided to satisfy increasingly more educated and better-informed consumers. Wide adoption of integrated EMS and QA systems by Australian producers and food companies appears to be a means to establish such credentials and substantiate any ‘clean and green’ claim. Therefore, government policies should focus more on developing a range of tools to encourage good environmental and quality management practices, rather than on promoting the ‘clean and green’ image. Such campaigns may be counter-productive in the long run as it leads to complacency, rather than raising environmental and quality awareness.

Key Words: export marketing, clean and green, EMS, QA.

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Introduction

Major trends in the food industry include an increasing demand for convenience and growing concerns over personal health and the environment, particularly among the more affluent consumers (Mech and Young 2001). Demand for convenience is a result of changing social and demographic trends, e.g. urbanisation, women in the work force and dual income families, where people have busier lifestyles and less time for food preparation at home. The consequence has been a rapid growth in the demand for processed products, pre-prepared foods, take-away, eating-out, fast foods, and 'one stop' shopping. Unfortunately, the demand for convenience has produced some undesirable side effects. That is, as more services and processing are provided by the food industry, consumers have little knowledge of, as well as control over, what is in the food they eat. In the past, consumers had trusted the food industry and government to do the right things by them. However, in recent years numerous food scares around the world, and extensive media coverage on them, have caused alarm among the general public about food safety and the trustworthiness of the food system. Well-publicised food scares include harmful chemical residues in plants and animals, disorders such as mad cow disease (BSE) and foot and mouth disease (FMD)¹, and microbiological contamination from salmonella and *E. Coli*. The issue of genetically modified organisms (GMOs) in food production in recent years also adds to the long list of food safety concerns.

Increasing environmental awareness is another important development in the agri-food sector. Issues of concern include soil degradation, pollution of drinking water and rivers, the greenhouse effect, depletion of the ozone layer, and the loss of biodiversity. Industrialised mainstream agriculture in particular has a major impact on the environment, especially land, water and biodiversity (OECD 2001). These issues raise doubt about the mainstream food systems and their impacts on people's health and the environment. Consumers have become less confident in, and less trusting of, agricultural production systems and the governments that were supposed to provide safeguards. The restoration of consumer confidence in food safety is therefore a major challenge for the agro-food industry.

Considerable policy changes have been implemented by the agro-food industry and government in response to these pressures (Ridley 2001). For example, governments have banned or imposed tighter restrictions on the use of toxic chemicals and farm practices, introduced regulations on consumer protection and product labelling, and encouraged the adoption of new technologies and farming techniques that reduce the use of chemicals and other inputs such as water. Producers, food

¹ Intensive livestock production has been blamed for the outbreak and the spread of BSE and FMD in Europe.

manufacturers and marketers alike have put in place quality assurance programs to guarantee traceability and food safety and quality. Many producers and traders are also promoting and marketing products as natural, clean, or green, targeting groups of consumers who are health and environmentally conscious. The rapid growth in organic food sales worldwide, particularly in the industrialised countries such as the United States, Western Europe and Japan, reflects the increasing demand for clean and green products (OECD 2003a).² An increased demand for organic and environmentally friendly products has also been evident in Australia (RIRDC 2003). Suppliers of organic and other ‘clean and green’ products are often motivated by price premiums and the market access afforded by such products, and, in some cases, by subsidies and tax breaks from the government.

Over the past decade, issues concerning the impact of agriculture on human health has been reasonably well addressed by organizations in Australia such as **Australian Plant and Veterinary Medicine** Authority, Environmental Protection Agency, Food Standards Australia and New Zealand and Australian Quarantine and Inspection Service (AQIS), as well as international organizations such as Food and Agriculture Organisation (FAO) and World Health Organisation. Many aspects of animal and plant health and quarantine have also been addressed. Consequently, oversight on claims about “clean” food being safe and hygienic are well covered by regulations (e.g. Food Standards Code, Health Act, Import and Export Control Act in Australia and Sanitary and Phytosanitary Guidelines at the international level), by industry-led Quality Assurance (QA) systems (e.g. Cattlecare, Flockcare, Livestock Production Assurance, Freshcare, Graincare, Farmcare, Cotton BMP, and SQF1000 and 2000 (Safe Quality Food by Agriculture Western Australia), and by approved supplier programs such as Woolworths Vendor Quality Management Standards and Nature’s Choice (by Field Fresh) (Geno 2001).

By comparison, environmental regulations and verification processes for “green” claims are less well developed. This is due to their more recent history and the perception that environmental issues are less of a direct threats to people’s health than food safety and quality (Ridley *et al.* 2003). However, the situation is changing. In Western Europe especially, the requirements for improved environmental performances and accountability are high. In Australia, there are legislations aiming at protecting the environment such as the Environment Protection and Biodiversity Conservation Act 1999 and the national Environmental Protection Measures. In addition, several government

² Market analysis conducted by the Western Australian Department of Agriculture also indicated that environmental issues were also emerging as a point of differentiation in the Middle East and Asia (including Indonesia, China, India, Malaysia, Singapore and Taiwan) (cited in EMS Working Group (2001)).

agencies and national programs are promoting environmental sustainability, such as the Natural Heritage Trust, the National Action Plan for Salinity and Water Quality, the National Food Industry Strategy, and the National Framework for Environmental Management Systems (EMS) in Agriculture (Troeth 2002, NRMMC 2002, Commonwealth of Australia 2004). There have been several certification systems in operation, but there is no broadly adopted, science-based method for verifying the environmental performance of farming systems, and certainly not one that is also widely recognised and accepted by consumers (NLWRA 2001, Bishop 2002, Ridley *et al.* 2003). Troeth (2002) has summed up the need for further development of EMS with the following statement:

“Given the growing sophistication of the international market place, it is no longer enough for us to simply claim to be ‘clean and green’. Consumers are demanding credible evidence to support our claims. And it is here that EMS can play a role because it is a management system that substantiates them”.

However, there is widespread consumer confusion over the proliferation of marketing claims and labels. What do “clean” and “green” really mean? What does certification mean? What do eco-labels stand for? What is the potential for “free-riding” (OECD 2003b) or “greenwashing” (Mech and Young 2001) with ambiguous labels? As such, there is a trend across all markets for objective proof to support claims of cleanliness, safety, environmental benefits and other specified attributes (Underwood 1997). The objectives of this paper are to review on-farm EMS in Australia and to identify the strengths and weaknesses of EMS in meeting the demand for clean and green products. The paper begins with the definitions of clean and green and other related descriptors and the rationale behind their use. It is followed by a description of various environmental certification schemes and an assessment of the validity of green claims under different schemes. On-farm environmental management systems in Australia are then discussed, with a focus on their current status and constraints to their wider adoption. The paper ends with the future prospects for the EMS in supporting ‘clean and green’ claims at the farm/firm and state/national levels and some concluding remarks.

Clean, green and other descriptors

A range of marketing terms and claims have been used by producers and marketers to promote their products. Some of them are legally defined, for example, organic. However, most, including “clean” and “green”, are not. According to McCoy and Parlevliet (2000), “clean” is usually used to mean “freedom from physical, chemical or microbial contamination”. However, it is seldom that a

food item is 100 per cent “pure” or free of any contamination since it is either physically impossible or economically impractical to reduce the risk of any type of contamination to zero.³ Therefore, food products that meet some sort of maximum residue limits or maximum permitted concentrations based on well-documented and well-recognised food standards (e.g. the Food Standards Code in Australia and the Codex Alimentarius Guidelines of FAO are considered by law as “clean” and, hence, safe to eat.⁴

“Green”, on the other hand, is often applied to products and production systems that are perceived to be friendly to, or have low impact on, the environment (McCoy and Parlevliet 2000, Burch et al. 2001). Therefore, “green” is generally synonymous with “environmentally friendly” or “eco-friendly”. Note that unlike “clean”, “green” is not as clearly defined and there is no clear commonly acceptable standard or agreement on what constitutes environmental impacts and how to measure them.

“Natural” is another related term that is frequently seen on labels and advertising. It was originally defined by USDA, only in reference to meat and poultry, to mean “minimally processed without containing synthetic or artificial ingredients” where minimally processed means “a process that does not fundamentally alter the raw product” (FISI 2001). Since then, “natural” has been applied to a wide range of products without adhering to its original definition, as can be seen in the majority of the products (e.g. grains and dried fruit) found in the specialty health/natural food shops or in the health food section of the supermarket. In daily use, “natural” may be understood to mean “pertaining to nature or the created universe”, “no interference” or “not artificial”. Again, there is no commonly acceptable standard for minimal processing, additive-free, or free-range.

Since some of the descriptors are yet to be legally or more meaningfully defined and since these (credence good) attributes cannot be easily verified upon inspection or consumption by consumers, they have been used extensively as marketing slogans. This is particularly true for products with environmental and functional qualities. Often, those claims are either not lawful or truthful. Indeed, Consumer Union (2003) has found that most of the marketing claims that we see in the market are

³ For example, based on the Food Standards Code in Australia, food is not required to be labelled if it contains less than one per cent of GMO.

⁴ In addition to being applied to food safety aspects, clean is often used loosely in daily language in conjunction with water, air, ocean, environment, energy, etc. to mean “free of pollution”, “low level of pollution” or “not pollution causing”.

rather dubious. In their Label Report Card, eco-labels and many other claims were evaluated based on seven criteria:

- How meaningful is the label?
- Does an organization verify that the label standards are met?
- Is meaning of the label consistent?
- Are the label standards publicly available?
- Is information about the organization publicly available?
- Is the organization behind the label free from conflict of interest?
- Was the label developed with broad public and industry input?

How well do products claims such as “green” and “environmentally friendly” measure up to these criteria? Not that well, unfortunately, concluded the Consumer Union.

It was found that both “green” and “environmentally friendly” fail in all categories. The failure of the labels to measure up is mainly because currently there is no standard definition for either “green” or “environmentally friendly”. Without adequate control on the use of the words, it is difficult for consumers to determine whether products labelled as “green” or “environmentally friendly” are in any way better for the environment or caused less harm than other products. Both the US Federation Trade Commission and the International Standards Organisation (ISO) consider these claims to be too vague to be meaningful to consumers (Consumers Union 2003) and companies are advised by both organizations to either avoid making such claims or substantiate and qualify them to avoid misleading consumers.

In contrast, the “USDA organic” label has passed the Consumer Union’s test without difficulty because the meaning of the label is clearly defined and compliance with the national standards is ensured by independent, third party certification and backed up by USDA accreditation process. The same argument can be applied to “certified organic” in Australia, with AQIS being the competent government authority that accredits commercial and other organisations to provide organic certification services to farmers. However, one can argue that in both cases of “USDA organic” and Australia’s “certified organic”, there may still be a conflict of interest between the certifying body and the manufacturer or marketer of the product being certified, despite the fact that all the certifying bodies in Australia and the US are accredited by government. The credibility of the system, therefore, depends on how stringent and transparent the certification and accreditation processes are in terms of standard setting, enforcement and the level of auditing in the system. In any case, certification, either voluntary or mandatory, is an effective way by which consumers can be assured of the authenticity of the marketing claims and labels.

Selling the ‘clean and green’ image

Australia has been promoting its “clean green” image overseas, particularly since its 1993 export drive to sell “pure Australian food” to its Asian Pacific customers (Short 1997). It takes advantage of the fact that consumers are generally concerned about their health and the environment and that, as discussed earlier, green, clean and natural are not being legally or meaningfully defined. The Australian Government has justified its use of the ‘clean and green’ claim for domestic agricultural produce based on “its commitment to strict quarantine practices and excellent chemical residue status” (AFFA 2002)⁵. In recent years, ‘clean and green’ is applied especially to freedom from exotic diseases and pests such as BSE or FMD⁶. State governments also keen to use such a marketing strategy. For example, the “Naturally Victorian Initiative” aimed at promoting Victoria’s safe quality food from environmentally responsible agriculture (Victorian DPI 2002). It is claimed that Victoria has a competitive advantage in producing such clean, green and safe food because of its plentiful supply of natural clean rivers and water resources, extensive low input farming systems and skilled, efficient and environmentally responsible farmers. Tasmania also promotes itself as ‘clean and green’ citing its “Natural Advantage” in terms of maritime temperate climate and four distinct seasons, freedom from major pests and diseases, the seven-year moratorium on GMOs⁷, and the ban on the use of hormonal growth promoters in cattle, as well as “many checks and balances throughout the production systems” (DPIWE 1996).⁸ Similarly, New Zealand is also ‘clean and green’, attributed largely to a low population density and limited industrial development (and hence relatively benign pressures on the environment) and unspoiled natural beauties such as pristine beaches, crystal-clear unpolluted lakes and rivers, lush green pastures and abundant wildlife

⁵ Unfortunately, strict restrictions may be seen as a way to impose technical restrictions on imports, which, without a scientific basis, may be violations of WTO rules and seen as protectionist (AgriWorld 2003).

⁶ In a speech delivered by Senator the Hon Judith Troeth to the Pig Research and Development Corporation, it was said, “Maintaining Australia’s relative freedom from exotic diseases is the basis for our “clean green” image and a key element in helping to open up new market opportunities” (Troeth 1999).

⁷ Indeed, “GM-free” was used as a strong argument by Tasmania and the Victorian dairy industry to ban GMOs in their states. It was argued that GM-contaminated products may destroy their “clean green image”. In a media release, the headline reads “Dairy exporters hope to maintain “clean green” image” with its strict “GM free” contracts with farmers. It is argued that a GM-free status will give it a clean green image and receive a premium for it (ABC 2003).

⁸ Bishop (2002) contends that although the meaning of ‘clean and green’ is not easily defined, substantiated programs that can demonstrate shifts towards low environmental impact, high quality and safe food production can be considered reasonable measures of ‘clean and green’.

(Ministry for the Environment 2001). Clearly, the clean green image stems primarily from having inherited, by default, a relatively clean and green environment.

The general rationale behind promoting the ‘clean green image’ as a marketing strategy is that if a state or country has a natural environment that appears visually to be ‘clean and green’, then what it produces can be perceived to be clean and green, and consumers, those overseas in particular, would want to eat, and pay a premium, for what it produces. More importantly, it is banking on the fact that such a claim cannot and will not be challenged, regardless of whether it is true or not. But to what extent is this true? Is Australian agriculture clean and green? Does Australia’s clean and green image really motivate consumers? How effective is a “clean and green image” as a marketing tool?

A study commissioned by New Zealand Ministry for the Environment (2001) has attempted to answer these questions for New Zealand. The study found that New Zealand’s clean and green image did exist and had a significant export value. It also found the image existed despite the fact that there were environmental problems that were serious enough to potentially tarnish such an image and undermine the sustainability of the export value attributable to that image. In other words, the image was not based on the reality of the state of the environment. However, the study warned that as consumers worldwide are increasingly more aware and better informed about environmental issues, such an image would eventually need to be backed up by reality, as well as product quality, if New Zealand were to continue to use it as a marketing tool. This is consistent with the view of Fitzsimons (2002) that the image existed more by good luck than by good management and that New Zealand risks losing its economically valuable “clean green” image unless it moves towards more sustainable development, echoing a comment from 1993 (Hughes) that “New Zealand’s clean green image is entirely dependent on how successful the country manages its environmental responsibilities”.

In Australia, some analysts are also critical of the ‘clean and green’ claim made by governments because “the reality belies the rhetoric” (Miller 2000) and “most farming systems are a long way off being acceptably ‘green’ at present” (Ridley 2001). It was argued that while exotic diseases and chemical residues are important aspects of ‘clean and green’, major indicators of environmental health – water, soil and biodiversity – continue to decline in Australia despite having some of the best environmental protection laws in the world, along with strong community awareness and support for Clean-up, Greening Australia and Landcare programs and the like (Miller 2000). One key reason is that the environment remains a low priority on the political agenda. Like New

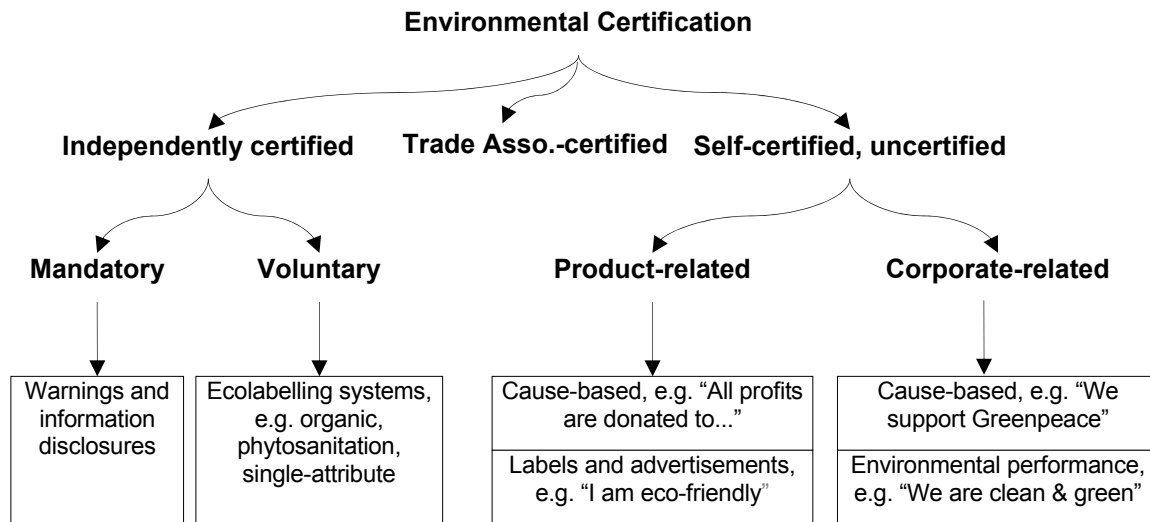
Zealand, Australia may not be as clean and green as it claims and Australia's ability to maintain and build our access to export markets is going to be increasingly based on our treatment of the environment (Hodge 2001).

Clearly, promoting on clean and green is not enough and over time is going to become more difficult (Kennedy 2002). What is needed are systems of documentation and certification that back up the product claim. Indeed, the answer may lie in the integration of QA and EMS whereby QA (based on ISO9000 series) provides guarantee on the quality and safety of the food product (the "clean" component) while EMS (based on ISO14000 series) addresses concerns over the impact of food production on the environment (the "green" component) (Ridley et al. 2003).

Environmental certification

With the increasing demand for authenticity in environmental claims, many EMS have become popular in primary industries, including agriculture, fisheries, forestry and mining, as well as industries in paper manufacturing, photocopier construction and cleaning products. Different stakeholders have used different approaches to encourage environmental sustainability (Figure 1). Basically, environmental claims and ecolabels can be grouped according to their method of evaluation and certification (if any), whether voluntary or not, and whether audited or not and by whom. The mandatory claims commonly relate to warnings and disclosures required by government, such as applications and disposal of chemicals on farms. Among the voluntary schemes, there are three categories, including (1) self-declaration by individual companies (first-party certification); (2) programs developed by industry associations for their members' products (second-party certification); and (3) programs established and run by independent certification bodies (third-party certification).

Figure 1. Classification of environmental certification and claims



Source: Adapted from the US Environmental Protection Agency (1998).

The mandatory labelling systems are science-based and their adoption rate is very high, though presumably not 100%. However, the ability of government to achieve change is limited because of the tendency to stifle the private sector's attempts to develop innovative approaches to environmental management. Public regulation can be expensive to administer, and governments may face political difficulties in checking compliance and enforcing penalties to internalise environmental costs (Douglas 1999, Mech and Young 2001). Gloan et al. (2001) conclude that mandatory labelling is best suited to alleviating problems of asymmetric information and often not effective in achieving environmental or other social objectives.

Voluntary, independently certified schemes have received the most interest from farmers and other land managers, processors, sellers and final consumers. In this case, the aim is to achieve environmental improvement by facilitating the trade of "environmentally sustainable" goods or "environmentally preferred" products. Firms that supply environmentally preferred products must conform to a set of standards and consumers of such products rely on the certification system to assure them that the goods conform to expectations. These schemes appear to have some commercial potential, hence their rapid proliferation, although their net benefit to farm management skills and the environment will take some time to determine and the voluntary nature of these schemes tends to limit their ability to produce broad, industry-wide change in management practices or environmental outcomes (Mech and Young 2001).

On-farm Environmental Management Systems in Australia

The evolution of EMS began to take shape in the 1990s with the release of ISO14000, the International Standard for Environmental Management. Since then, several voluntary EMS or related schemes have been created in Australia and overseas. Environmental Management Systems provide a framework to help farmers, processors and others understand what environmental impacts they might be having and to look at management changes that could minimise those impacts. An EMS implementation commonly involves a cyclical process of review, planning and action based on commonly agreed standards of environmental performance. The environmental performance of the enterprise is monitored over time and the results may be used to support 'clean and green' claims. An EMS can be externally audited and may be certified to a known standard, such as the internationally recognised ISO14000.⁹

The recently developed Australian *National Framework for EMS in Agriculture* (NRMMC 2002) uses EMS as a generic term to describe any systematic management approach used by an enterprise or an organisation to manage its impacts on the environment. An on-farm EMS provides a management framework that achieves continuous improvement through a 'plan, do, check, act' cycle. The National Framework for EMS has been designed to:

- provide a national context for existing and emerging industry programs,
- facilitate a consistent national approach, integrated throughout the marketing and supply-chain
- encourage voluntary adoption, and
- promote awareness about environmental priorities.

The *National Framework* notes that an effective on-farm EMS will be industry-driven and simple to use, integrating smoothly with the existing management set-up of individual businesses. Nevertheless, the auditing of compliance must be independent, robust and transparent. An EMS would be expected to provide economic and marketing benefits, though perhaps not in the short term, and a vital criterion for an EMS is that environmental outcomes are meaningful, measurable and preferably compatible with international standards. The importance of more scientific input, especially from environmental science, in the development of indicators and monitoring tools was highlighted in the *National Framework* and by others. The lack of focus on biodiversity and other less immediate environmental issues has been identified in many contemporary on-farm EMS

⁹ There are more than 1000 EMS certifications in Australia, with about 30 within agriculture. By comparison, there are only three agricultural enterprises anywhere in the world that have achieved ISO 14001 EMS certification and they are all in Australia (Rowland, et al. 2003).

(Mech and Young 2001, Ridley *et al.* 2003). Instead, there has been a focus on production and marketing yardsticks such as soil salinity and chemical residue levels. Given the industry origins of on-farm EMS, this is not surprising. However, some EMS are responding to emerging pressures from consumers and competition by including, for example, habitat and biodiversity conservation aspects in their production standards. The operation of on-farm EMS can be expected to evolve as market conditions, scientific knowledge and public policy change, as has happened in the organic industry.

Adoption of on-farm EMS

Indeed, the positive market demand for environmentally friendly products and goods with ‘clean and green’ credentials has resulted in a diverse range of EMS and eco-labels. Worldwide, there are more than 30,300 EMS certifications in all sorts of business sectors; the number is more than 1000 in Australia, with about 30 within agriculture (Rowland *et al.* 2003). However, several factors have prevented wider adoption of eco-labels by farmers and land managers, including credibility, complexity, financial risk and consumer demand. These barriers to technology adoption, of course, are not unique to EMS (Marra *et al.* 2003).

- **Credibility**

Credibility is a key aspect for certification and labelling of credence goods. In particular, consumers are not environmental experts and cannot be expected to interpret complex information about environmental claims (Benbrook 2003). Australia currently lacks a system that provides credible information to consumers about the environment impacts of goods (Bishop 2002). If a ‘clean and green’ claim has no verifiable basis, producers may be less certain of getting market access advantages or price premiums, while consumers may hesitate to buy a certified product. As the trend for objective proof to support claims of cleanliness, safety, environmental benefits or other specified attributes continues across all markets (Underwood 1997), both producers and consumers will become more reliant on credible certification systems.

A serious credibility issue for EMS schemes is whether they will provide any real environmental benefits? While a well designed EMS will have an inherent process of measuring and reviewing performance, and modifying management practices based on the review cycle (“plan, do, check, act”), it remains unclear whether the systems really improve environmental performance. A number of international reviews of EMS programs from various industries (not only agriculture) have found little evidence of improved environmental performance and questioned their economic efficiency as

an environmental policy tool. In general, linking farm management practices with environmental outcomes is very difficult due to the dispersed nature of agricultural impacts and often large distances in time and space between agricultural causes and environmental symptoms. Where positive outcomes have been reported, they are usually based on perceptions of stakeholders, rather than measures of actual performance (Coglianese and Nash 2001, Goodlass *et al.* 2003, Kingwell 2003, OECD 2003b).

- **Complexity**

In general, independently certified claims are more reliable than self-certified claims. However, credible EMS and ecolabels require scientifically sound tools to quantify actual environmental performance. A production process-based EMS may only provide “best practice” management guidelines or environmental reference levels, rather than specific environmental targets (OECD 2001). Environmental indicators offer land and resource managers the ability to put a figure on some of the impacts of agriculture. When selected appropriately (i.e. with broad stakeholder input) the indicators can be incorporated into EMS and used to support environmental performance claims. However, selecting the appropriate environmental indicators is a difficult task and there is no clear consensus on which indicators are most useful for measuring agricultural impacts. Different land managers may be interested in monitoring different things - production goals versus conservation goals - and will commonly have widely varying levels of expertise in using the indicators effectively (King *et al.* 2000, Duelli and Obrist 2003).

During the transition period, producers who are implementing an EMS must deal with complex, and often conflicting, information (Carruthers and Tinning 2003, Goodlass *et al.* 2003). The manager needs to quickly acquire new knowledge about the environmental impacts of agriculture and gain new skills in managing the production system to reduce impacts. New administrative and performance monitoring tasks must also be carried out. Further effort is also needed in negotiating new sources of special inputs, equipment and technical support for compliance and in establishing new markets for the certified produce.

Many ‘clean and green’ production systems (e.g. organics, ISO14000) are information-intensive. Therefore, additional information and expertise, as well as record-keeping, required to operate such systems may pose problems for many SME operators intending to use an EMS (NRMMC 2002, Ridley *et al.* 2003). Therefore, the EMS process must be simple to adopt and without too much paper work. Based on the experiences from the EMS pilot programs, there are suggestions that the EMS accreditation be achieved at different levels or tiers to suit individual farmers’ aspirations and

market requirements, beginning with environmental awareness and self-assessment and self-auditing and leading to third party accreditations such as ISO 14001 (Ridley 2002, Banny 2003, Adcock 2003). Experiences from Cattlecare and Flockcare and other QA programs in Australia also suggest a tier approach to EMS would help ease farm producers into the programs (Sudholz 2003, Postlethwaite 2003). Although a tier system can encourage farmer participation, there are concerns that a proliferation of possibly incomparable systems may cause consumer confusion and reduce their credibility (EMS Working Group 2001).¹⁰ Therefore, the market demand for quasi-EMS products need to be considered. Further, there will be a role for specialists to assist farmers and others in areas where they lack expertise and training, e.g. whole-farm planning, environmental assessment, compliance issues, novel crop and stock management methods. However, currently there is a lack of reliable and definitive advice about methods for tackling certain environmental and production issues like weeds, soil health, water use, native habitat conservation and bush regeneration, indicating that further agronomic and environmental research will also be needed to strengthen EMS monitoring and verification processes.

- **Financial risk**

While altruistic interest in good environmental stewardship is a key driver for many EMS users, financial interests also play a major part in determining whether EMS are adopted. For many potential users, the financial risks are high (Vanclay and Lawrence 1994, Khanna *et al.* 2002, NRMCC 2002, Kingwell 2003). Firstly, there are new expenses for certification, training and modifying operations and infrastructure that producers must pay for. The costs of using certification systems are widely reported to be prohibitively high, ranging from \$3000 to \$8000 for certification audit and \$3000 per year for continuing surveillance audit (Francis 2003a).¹¹ In response to concerns about costs and complexity for small producers, some schemes allow for joint certification by collaborating, but independent, producers (Handley 2003). In addition, income is likely to be reduced in the short to medium term because the overall productive capacity of the enterprise will

¹⁰ Organic certification in Australia has basically three tiers. The first tier would be the passing of the initial farm inspection and applicants are allowed to begin the certification process. The second tier is the in-conversion period, applied to at least one-year of compliance. The third tier is the full certification where by the product is “certified organic” after three years of compliance. The experience in the organic market has suggested that consumers are in general will pay premium prices only for fully certified products, and various levels of certification and different labels can lead to consumer confusion.

¹¹ On-farm EMS certification can be more expensive than off-farm programs because of the diversity in the scale of production, farming practices and environmental issues due to geographical and commodity differences and hence higher cost in setting standards and monitoring.

usually be lower as a result of complying with environmental guidelines, e.g. creeks need to be fenced off and water consumption reduced.

The return on investment (e.g. premiums, special access to lucrative markets) is often delayed due to the conversion period prior to full certification and the fluctuations in marketing opportunities. Sometimes premiums may not adequately cover the increased production costs. The relatively small niche market for certified products also is prone to changes in the level of output, resulting in price instability. It is believed by most farm producers that financial incentives are required for widespread adoption and it may come in part from consumers' willingness to pay more for EMS-certified products (Ridley 2002, Francis 2003b).

- **Consumer demand**

Ridley (2001) has suggested that premium prices are generally not likely, except in some niche markets, because the market signals to reward good environmental performance are still weak. Most consumers will not pay extra for goods with unfamiliar 'clean and green' claims and unproven environmental outcomes. There are signals from Denmark (a country eagerly embracing the 'clean and green' ethic) and elsewhere in Europe, that consumers are reluctant to recognise "Integrated Production" labels (systems with reduced chemical inputs and other environmental benefits) to the same degree as organic labels. Low-input branding has been unsuccessful so far because conventional produce is cheaper for consumers and it is expected that similar difficulties to be experienced by EMS-certified products (Bishop 2002). Consumers are in general not willing to pay more for in-conversion organic products and, as such, many of such products are sold in the conventional markets without price premiums. In Australia, it was found that although marketing opportunities exist for environmentally friendly (meat) products, consumers are in general not aware of environmental problems and, even they are, not willing to pay premium prices for such products (Twyford-Jones et al. 2003).

The gap that exists between consumer purchasing decisions of green products and community expectations and public support for environmental protection seems to be a worldwide phenomenon (Canadian Commission for Environmental Co-operation cited in Francis 2003a). The reason for the gap is that the public either expect strong regulatory intervention by governments or the producers taking responsibility to protect the environment and do not draw strong links between their individual purchasing decisions and the overall state of the environment. Hence, despite strong public concern for the environment, green markets have not grown as expected. The public good nature of the environment is also attributable to farmers' reluctance to carry the duty of care and

bear the whole costs of implementing environmental stewardship beyond their own management plans, and hence the call for government involvement and assistance (Francis 2003b).

In general, for environmental certification and labelling to be effective, it must meet a number of conditions. First, product evaluation must be known and accurate. Second, product standards must be associated with significant environmental differences among products. Third, product information must be disseminated to consumers. Fourth, consumers must understand environmental issues and product-specific information well enough to make informed purchasing decisions. Finally, the label must have substantial market penetration in order to affect a significant number of producers. Meeting all these requirements will remain an on-going challenge for EMS development, implementation and adoption. Without the support from the majority of the consumers and producers, EMS products, certified or not, are likely to remain a niche sector with minimum impacts on the overall improvement of the environment.

Policy Implications

Environmental certification and labelling can be an effective means for promoting individual firms' environmental credentials. Combined with compatible QA schemes, individual firms can help substantiate their claims of 'clean and green'. But, how does it work at a state or national level? That is, how can Australia or the Victorian state prove itself as 'clean and green' as individual firms can? And should they? What are the risks of making such a blanket statement of being "clean and green"? Harris and Cole (2003) contends that firms would generally invest in reputation or third party certification on their own initiatives to back up their claims if such actions are deemed to be profitable. Therefore, government should not be involved in promoting exports particularly as having a superior quality or environmental attributes. It is also argued that some type of government intervention could cause problems because of reputation spillovers. That is, a false claim by an individual firm or product may implicate many other firms, leading to a cascade of lost sales and market access. Harris and Cole (2003) concludes, "although it may be better if government do not focus on claiming that all exports deliver environmental or animal welfare benefits above basic standards in export markets, there are other ways to provide a strong foundation for Victoria (and Australia) exporters who want to promote credence attributes such as 'clean and green'. These include developing metrics to facilitate quality substantiation, rigorously enforcing truth in labelling laws and encouraging monitoring of these labels by consumers and green groups". Similar argument can be applied to regional branding.

So, how effective has it been using a clean and green image as a marketing tool for Australia? In a story on the FMD outbreak in Japan, the headline reads “Clean image may not save Australia’s beef industry” (Stewart 2000). It says “While the Australian government is trying to play down the scare and rely on Australia’s “clean green” image to overcome any backlash against beef exports, the former Australian trade commissioner representing food exports to Japan, Sean Limbery, warns Japanese consumers will be difficult to console”. When asked, “so you don’t think that Australia’s “clean green” image can just overcome a general concern about beef?”, the answer from Limbery was “No. It has not happened in the past”. The BSE incident in Japan in September 2001 has also seen beef demand in Japan and Australian beef export to Japan being reduced drastically, despite the strong campaign from Meat and Livestock Australia to guarantee the safety of Australian beef.¹² The BSE incident in Canada in May 2003 also prompted bans on Canadian beef and the mandatory testing of BSE of all beef, despite her alleged clean and green image. These examples show that a clean green image, as any other image or reputation, may be something nice to have, but it is quite vulnerable as it could be built on perceptions, rather than facts, and often not enough in times of crisis when verifiable “product quality” is the only guarantee that consumers can rely on.¹³

Conclusion

As consumers around the world become more concerned about food quality and safety and the environmental impacts due to agriculture, demand for clean and green products has increased. The strong growth in the demand for organic food is a case in point. Government and business organisations have responded to consumer preferences for such products by marketing their products as ‘clean and green’ based mainly on perceptions and image of fresh air and unspoilt nature. Closer examination of most ‘clean and green’ claims indicated that they are without a solid basis in reality. Flying the ‘clean and green’ flag may have worked in the past in terms of selling products especially overseas. However, as consumers become more sophisticated and demanding and as global competition intensifies (who is cleaner and greener?), it is no longer enough to simply claim to be ‘clean and green’. Rather, consumers will demand credible evidence to substantiate such claims. Various QA systems and eco-labelling schemes have emerged as a result.

¹² MLA spent an extra \$5.5 million on promotion in the Japanese market, following the reported case of BSE (Stewart 2002).

¹³ Furthermore, it appears that an image is vulnerable to threats from many quarters, such as a disease outbreak, a GMO contamination, an environmental disaster, or even “rotten” bananas imports from the Philippines, as often argued by oppositions to imports (O’Loughlin 2002).

In the past, legislation have been used to encourage improved environmental performance by offering incentives, like funding for Landcare programs and the EMS Incentive Program, or by imposing disincentives, e.g. fines for unauthorised tree clearing. In recent years, voluntary EMS are becoming the option of choice for more and more players in agricultural production and a suite of tools are being developed to help monitor the environmental performance of agriculture. However, there are uncertainties about farmer adoption and consumer confidence. Despite the positive market demand for goods with verifiable claims about production methods, several factors have prevented wider adoption by producers, including credibility, complexity, financial risk and consumer demand. Important questions for EMS are whether the schemes will provide any real environmental benefits and whether they are effective instruments for improving the environmental performance of agriculture.

The limitations on EMS adoption will remain for some time. Given the short history of EMS in Australia and overseas, and the long timeframes needed to change people's behaviour and the ecosystem, perhaps a decade or two of development and refining might produce a more effective tool for promoting good agricultural practices. However, an integrated EMS and QA scheme does appear to be a means to support a 'clean and green' claim. To achieve that, data collection and documentation of the extent of adoption and actual environmental performance and quality improvement must be put in place as solid proof of claimed environmental and quality credentials. Further, to create an enabling environment more conducive to better environmental management, governments should focus more on developing a range of economic rewards for good agricultural management and penalties for non-compliance, funding the research and extension of practical but rigorous sustainability indicators, and ensuring integration and harmony between the various certification systems. To continue promoting a 'clean and green' image may be counter-productive as it leads to complacency rather than raising environmental and quality awareness.

References

- ABC. 2003. Dairy exporters hopes to maintain 'clean green' image (28 July 2003). Australian Broadcasting Corporation. <http://www.abc.net.au/rural/news/stories/s911679.htm>.
- Adcock, L. 2003. Rice industry deals with environmental change. *Farm Journal*. September 2003, 20-22.
- AFFA. 2002. Innovating Rural Australia. Research and Development Corporation Outcomes 2002. Agriculture, Fisheries And Forestry Australia, Canberra.
- AgriWorld. 2003. EU challenges Australia's quarantine rules. *AgroWorld Weekly*. September 1, 2003.
- Banny, S. 2003. Four tier EMS preferred. *Farm Journal*. 1 September 2003. <http://agriworld.nl/pages/>.
- Benbrook, C.M. 2003. Why pesticide risks matter and pose tough challenges for ecolabel programs. In: Lockeretz, W., ed. *Ecolabels and the Greening of the Food Market*. Proceedings of a Conference. Boston, Massachusetts, November 7-9, 2002. Tufts University, Boston. pp. 183-195.
- Bishop, A. 2002. Study Tour Report. "An Investigation into Advanced Integrated Pest Management Techniques, Systems, and Adoption in Denmark, Sweden, Finland, Holland, and the United Kingdom with Potential Application in Australian Horticulture". The Winston Churchill Memorial Trust of Australia, Canberra.
- Burch, D., Lyons, K. and Lawrence, G. 2001. What do we mean by green? consumers, agriculture and the food industry. S. Lockie and W. Pritchard (eds). *Consuming Foods, Sustaining Environments*. Australian Academic Press. Brisbane.
- Carruthers, G. and Tinning, G. 2003. Where, and how, do monitoring and sustainability indicators fit into environmental management systems? *Australian Journal of Experimental Agriculture*. 43(3): 307 - 323.
- Coglianesi, C. and Nash, J. 2001. *Regulating from the Inside. Can Environmental Management Systems Achieve Policy Goals? Resources for the Future Press*, Washington DC.
- Commonwealth of Australia. 2004. Overview of the Australian Government's natural resource management initiatives: protecting, conserving, repairing. <http://www.nrm.gov.au/publications/nrm-overview/index.html>.
- Consumers Union. 2003. *Consumers Union Guide to Environmental Labels*. Consumers Union, Yonkers. <http://www.eco-labels.org>.
- Douglas, B. 1999. Penalties, incentives, taxes and EMS. In: Carruthers, G. and Tinning, G., eds. *Environmental Management Systems in Agriculture*. Proceedings of a National Workshop May 26 – 28, 1999. Rural Industries Research and Development Corporation, Ballina. pp. 177-179.
- DPIWE. 1996. Tasmania's Natural Advantage. Department of Primary Industry, Water and Environment, Hobart. [http://www.dpiwe.tas.gov.au/inter.nsf/Attachments/TTAR-5VW2Q4/\\$FILE/Tasmanias%20Natural%20Advantage.pdf](http://www.dpiwe.tas.gov.au/inter.nsf/Attachments/TTAR-5VW2Q4/$FILE/Tasmanias%20Natural%20Advantage.pdf).
- Duelli, P. and Obrist, M.K. 2003. Biodiversity indicators: the choice of values and measures. *Agriculture, Ecosystems and Environment*. 98(1-3): 87-98.
- EMS (Environmental Management Systems) Working Group. 2001. *Towards a National Framework for Environmental Management Systems in Agriculture*. Natural Resource Management Standing Committee Discussion Paper. November 2001.
- FISI. 2001. Meat and poultry labelling terms. United States Department of Agriculture. <http://www.fisi.usda.gov/oa/pubs/labterm.htm>.
- Fitzsimons, J. 2002. Business, Government fail to grasp clean, green opportunity. *Green Party of Aotearoa New Zealand*, Wellington. <http://www.abc.net.au/rural/news/stories/s911679.htm>.
- Francis, P. 2003a. EMS a valuable tool if producers are in control. *Farm Journal*. September 2003, 31-35.
- Francis, P. 2003b. EcoRange uncovers consumer environmental perceptions. *Farm Journal*. April 2003, 39-44.

- Geno, B.J. 2001. Integrating organic certification with food safety certification systems - a brief paper. RIRDC Publication No. 01/171.
- Golan, E., Kuchler, F. and Litchell, L. 2000, *Economics of Food Labelling*, AER-793, ERS, USDA.
- Goodlass, G., Halberg, N. and Verschuur, G. 2003. Input output accounting systems in the European community--an appraisal of their usefulness in raising awareness of environmental problems. *European Journal of Agronomy*. 20(1-2): 17-24.
- Handley, J. 2003. Ecolabelling - The Case for a National Environmental Labelling Program. Australian Environmental Labelling Association, Tuggeranong, ACT.
<http://www.aela.org.au/publications/Johnsydney.pdf>.
- Harris, J. and Cole, A. 2003. The role for government in eco-labelling - on the scenes or behind the scenes? Paper presented to the Conference on the Future of ecolabelling in Australia. Canberra. 9-10 October 2003.
- Hodge, A. 2001. Flying the flag for clean 'n' green. *The Australian*. 21 February 2001.
- Hughes, H. 1993. New Zealand's clean green image - fact or fiction? Cawthron Institute, Nelson, New Zealand.
- Kennedy, J. 2002. Marketing Australia's produce: is 'clean and green' brandable? In: Proceedings for Avcare Summit: Building Australia's Food Chain - Link by Link. 14 October 2002, Sydney.
- Khanna, M., Isik, M. and Zilberman, D. 2002. Cost-effectiveness of alternative green payment policies for conservation technology adoption with heterogeneous land quality. *Agricultural Economics*. 27(2): 157-174.
- King, C., Gunton, J., Freebairn, D., Coutts, J. and Webb, I. 2000. The sustainability indicator industry: where to from here? A focus group study to explore the potential of farmer participation in the development of indicators. *Australian Journal of Experimental Agriculture*. 40(4): 631-642.
- Kingwell, R. 2003. Quality assurance certification and implementation: growers' costs and perceived benefits. *Agribusiness Review*. 11.
- Marra, M., Pannell, D.J. and Ghadim, A.A. 2003. The economics of risk, uncertainty and learning in the adoption of new agricultural technologies: where are we on the learning curve? *Agricultural Systems*. 75(2-3): 215-234.
- McCoy, S. and Parlevliet, G., eds. 2000. Export Market Potential for Clean & Organic Agricultural Products. Rural Industries Research and Development Corporation, Barton.
- Mech, T. and Young, M.D. 2001. VEMAs - Designing Voluntary Environmental Management Arrangements to Improve Natural Resource Management in Agriculture and Allied Rural Industries. Rural Industries Research and Development Corporation, Barton.
- Miller, C. 2000. Not so green, less than clean. Schools For a Sustainable Future, Oakleigh South, Victoria. http://www.sfsf.com.au/econews/econews_story_green.htm.
- Ministry for the Environment. 2001. Valuing New Zealand's clean green image. New Zealand Ministry for the Environment, Wellington.
- NLWRA. 2001. Methods Papers Index. National Land and Water Resources Audit, Turner, ACT.
- NRMMC. 2002. Australia's National Framework for Environmental Management Systems in Agriculture. Natural Resource Management Ministerial Council, Agriculture, Fisheries, Forestry - Australia, Canberra.
- OECD. 2001. Improving the Environmental Performance of Agriculture. Policy Options and Market Approaches. Organisation of Economic Cooperation and Development, Paris.
- OECD. 2003a. Organic Agriculture Sustainability, Markets and Policies. Organisation of Economic Cooperation and Development, Paris.
- OECD. 2003b. Voluntary Approaches for Environmental Policy. Effectiveness, Efficiency and Usage in Policy Mixes. Organisation of Economic Cooperation and Development, Paris.
- O'Loughlin, T. 2002. Clean, green marketing machine bogged by rotten bananas. *Sydney Morning Herald*, Sydney. <http://www.smh.com.au/articles/2002/09/01/1030508161870.html>.
- Postlethwaite, J. 2003. Lucerne growers take 'small step' towards QA. *Farm Journal*. September 2003, 26-27.

- Ridley, A.M., Paramore, T. and Seymour, E. 2003. Towards 'clean and green' farming systems using group learning to implement Environmental Management Systems. *Australian Journal of Botany*. 51: 637-645.
- Ridley, A.M. 2002. Environmental best practice for sustainable grain production. GRDC Project DAV 412.
- Ridley, A.M. 2001. Towards environmental management systems in broad-acre agriculture: rhetoric, reality and future possibilities. In: Rowe, B., Mendham, N. and Donaghy, D., eds. 10th Australian Agronomy Conference. Science and Technology: Delivering Results for Agriculture. 28 January - 1 February 2001, Hobart, Tasmania. Australian Society of Agronomy, Hobart.
- RIRDC. 2003. Organic Produce Research Program. Rural Industries Research and Development Corporation, Barton. <http://www.rirdc.gov.au/programs/org.html>.
- Rowland, P., Carruthers, G., Baker, D. and Hancock, E. 2003. *Farm Journal*. October 2003: 51-52.
- Short, K. 1997. The Australian clean-green marketing push: fact or fiction? In: Oliver, C.J., ed. *Proceedings of the AIAS Conference 'Clean Green Agriculture: Fact or Fiction? 19-21 March 1997*. Ulverstone, Tasmania. Australian Institute for Agricultural Science, Hawthorn.
- Stewart, J. 2000. Clean image may not save Australia's beef industry. Australian Broadcasting Corporation. <http://www.abc.net.au/am/s114236.htm>.
- Stewart, J. 2002. Clean green image key to success. AgForce Queensland, Brisbane. <http://www.agforceqld.org.au/public/mediareleases/2002/may/020523cleangreenimagekeytosuccess.html>.
- Sudholz, C. 2003. Livestock production assurance - the new on-farm QA scheme. *Farm Journal*. September 2003, 36-38.
- Troeth, J. 1999. Address to the Pig R&D Corporation. Canberra, 18 October 1999. <http://www.affa.gov.au/ministers/troeth/speeches/prdctalk.html>.
- Troeth, J. 2002. Official Opening. In: *Proceedings for Avcare Summit: Building Australia's Food Chain - Link by Link*. 14 October 2002, Sydney.
- Twyford-Jones, P., Miles, K., Newell, G., MacNamara, K. and Pahl, L. 2003. Environmental assurance in food and fibre markets: an analysis of market requirements and marketing strategies for meat and wool supply chain. Research project in progress, Queensland Department of Primary Industries.
- Underwood, A.J. 1997. Environmental decision-making and the precautionary principle: what does this principle mean in environmental sampling practice? *Landscape and Urban Planning*. 37: 137-146.
- US Environmental Protection Agency. 1998. *Environmental Labelling Issues, Policies, and Practices Worldwide*. US Environmental Protection Agency, Washington DC.
- Vanclay, F. and Lawrence, G. 1994. Farmer rationality and the adoption of environmentally sound practices: A critique of the assumptions of traditional agricultural extension. *European Journal of Agricultural Education and Extension*. 1(1): 59-90.
- Victorian DPI. 2002. *Naturally Victorian: the World's Best Recipe for Natural Foods*. Victorian Department of Primary industry, East Melbourne.