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AN EVALUATION OF THE ENVIRONMENTAL CARE ORIENTATION OF DECIDUOUS FRUIT PRODUCERS IN THE WESTERN CAPE

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Abstract

A classification system developed to evaluate the environmental care orientation of companies and, more specifically, their strategies to deal with the environmental care requirements prescribed by the market was applied to the deciduous fruit sector in the Western Cape. A survey was done to determine the attitude towards and status of, environmental care activities amongst deciduous fruit producers who have already obtained Eurepgap certification or who are busy preparing for the certification audit. A questionnaire was used and the responses were judged in terms of the guidelines of the classification system. The nature of the typical South African – European deciduous fruit export supply chain is that South African producers desire to supply the retail market at higher prices than that of the wholesale market. The producers are then confronted with the stringent environmental care requirements of the retail chains, who use the environmental care product image aggressively as a selling point in the retail market, acting like typical Class III market oriented institutions. The classification shows that the majority of producers try to comply with these requirements with minimum effort (Class I). The more progressive producers accept them as good agricultural practices to increase their production efficiency. (Class II). Some farmers participate in a comprehensive Integrated Crop Management (ICM) system to establish a culture of environmental care at farm level in a more efficient way. ICM implementation also helps to prepare proactively for possible changes in the environmental care requirements of individual retail chains. This seems to be the more effective strategy for the primary producer.

1. INTRODUCTION

Due to the fact that the increase in the production of deciduous fruit in both the northern and southern hemispheres has put pressure on prices, producers try to sell their fruit to the retail chains in the northern hemisphere. The higher prices paid by the retail chains give them bargaining power to insist on stringent quality and eco care requirements (Klompshouwer & Kleynhans, 1999). Two

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examples of eco care requirements set by European retail chains are Eurepgap certification and Tesco's Nature's Choice Code of Practice. Since the deregulation of agricultural marketing in South Africa, deciduous fruit producers are directly exposed to the requirements and procedures of European retail chains, inter alia, eco auditing. While this position implies more opportunities for individual deciduous fruit producers to excel via effective production and marketing strategies, it also implies additional cost. Producers respond in different ways to the eco care demands of the retail chains, ranging from regarding these as a nuisance justifying only a minimum input or as a marketing opportunity to be exploited aggressively and pro-actively. A classification system developed to distinguish various attitudes towards environmental care and the resultant *modus operandi* of institutions in various sectors (Van Koppen & Hagelaar, 1998) was used to assess the environmental management orientation of deciduous fruit producers in the Western Cape producing for the export market.

2. ENVIRONMENTAL CARE CERTIFICATION

A number of environmental care certification systems have been developed recently to provide assurance to consumers about the environmental friendliness of production practices of agricultural producers, inter alia, of South African deciduous fruit producers.

2.1 Eurepgap

Eurepgap is an example of a sectoral code (Pearson & Seyfang, 2001) developed by representatives of all links in fruit and vegetable supply chains within the European Union with the support from producer organisations outside the EU. Eurepgap was initiated in 1997 by retailers belonging to the Euro-retailer Produce Working Group (Eurepgap) who developed good agricultural production guidelines (GAP) and minimum acceptable guidelines for delivery. Eurepgap is accepted by most important certification bodies in the participating countries in Europe. Eurep currently consists of 22 important European supermarket chainsⁱ (Kruysse, 2001). It is expected that German supermarket chains will join Eurepgap in the near future. Eurepgap certification guarantees that products imported into the EU comply with quality standards, worker safety and environmental care requirements (www.eurep.org). The Eurepgap audit covers record keeping, site history and site management, water supply and irrigation, waste and pollution management, recycling and re-use, employee health, safety and welfare, fruit varieties and rootstocks, soil and substrate management, fertilizer usage, crop protection, harvesting and post harvest treatment.

2.2 Tesco's Nature's Choice

Nature's Choice Code of Practice was developed as the UK based retail chain Tesco's own set of standards. The Nature's Choice audit focuses on strict environmental care regulations and standards with regard to the production and handling of the produce to enhance ecologically sustainable production (Tesco, 2002). Nature's Choice accreditation implies even more stringent measures and restrictions than Eurepgap accreditation. Tesco has the largest share in the deciduous fruit market in the UK. Access to Tesco allows sales of large volumes by the larger scale South African fruit producers, but the Tesco prices are not significantly higher over the longer term than those of the other retail chains.

2.3 The ICM (Integrated Crop Management) programme of Capespan

The Integrated Crop Management programme is a voluntary environmental audit system managed by Capespan, the export company responsible for 30% of the South African deciduous and citrus fruit export, to develop environmental care capacity on farms marketing their produce via Capespan. The ICM programme was developed by researchers, production managers and fruit marketing experts. The first version as described by Klompenhouwer and Kleynhans (1999) was implemented by Capespan in 2000. The ICM system is being upgraded continuously. Capespan initiated the ICM program in order to gain a competitive edge over other supply chains in South Africa and abroad.

ICM consists of a comprehensive management system which was designed to create understanding of the impact of various farming practices on the environment to direct environmental care activities and enable efficient control. The ICM management system is based on Integrated Crop Management principles and spans much wider than the Eurepgap and Nature's Choice environmental care audits. A farmer succeeding in terms of ICM requirements is also ready to meet Eurepgap certification requirements and existing additional requirements of some of the European retail chains. It has led to the system being widely accepted as a suitable vehicle for training selected Capespan suppliers to meet the Eurepgap standard. More than 30 of Capespan's key suppliers have already qualified for Eurepgap certification.

3. THEORETICAL FRAMEWORK

3.1 Definition of an environmental care system

An environmental care system aims to implement the ecological way of thinking within everyday business (farming practices) by structuring environmental issues (Moore, 2002). It is an instrument with which companies can plan, perform, control/check and eventually improve their environmental performance by setting measurable objectives, implementing programs to achieve them, measuring performance and verifying implementation. The system tries to get insight into the environmental effects of farming operations and, where possible, tries to find ways to prevent these environmental pressures.

An environmental care system provides a standardised framework for a farm to establish its own specific environmental goals (defined within the environmental care strategy) and then measure its performance in achieving those goals. It is a tool to apply the “plan, do, check, act” quality principles to environmental issues (also called the Deming cycle).

- **Plan:**

Identify the key environmental issues and establish what the farm wants to do (in an environmental policy and by setting objectives). The first step can be the formulation of an environmental statement.

- **Do**

Determine how the farm wants to do it. What kind of programs, procedures and instructions are used? This results in adjustments to current processes. Through communication and training, farm employees must be told what the farm owner wants them to do.

- **Check**

Make sure people on the farm do it via implementation, measurement and auditing. Control whether there are regular measurements of environmental impact, registration and auditing.

- **Act**

Periodically review the entire process to identify opportunities for improvement. Communication via internal and external reporting and via the use of an environmental guidebook is very important at this stage.

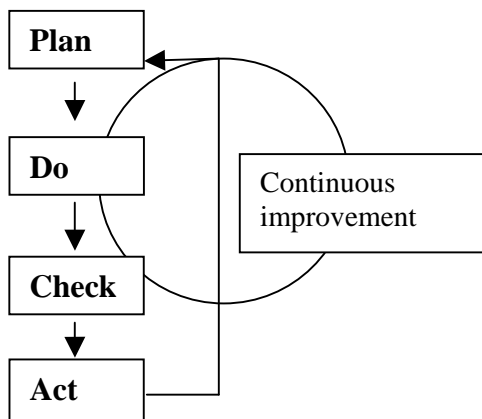


Figure 1: Deming cycle www.deq.state.va.us/ems/emsintro.pdf

3.2 Classification of environmental care systems

The classification system developed by Van Koppen and Hagelaar (1998) distinguishes the following three types of environmental care strategies:

3.2.1 *Compliance oriented environmental care strategy*

This is the most basic environmental care strategy and is typical of a business trying to comply with external regulations and restrictions with the help of end-of-pipe techniques. This strategy tries to reorganize the organization after clearing up environmental damage due to environmentally unsafe production practices. One of the possible examples of such a measure is a water clearance installation (Hagelaar & Van der Vorst, 2002).

3.2.2 *Process oriented environmental care strategy*

A process oriented environmental care strategy strives for control of the environmental burden caused by the production process by means of production integrated measures that achieve both compliance with governmental rules and regulations and a better return ("*pollution prevention pays*") (Hagelaar & Van der Vorst, 2002). Examples of process oriented measures are the introduction of new technologies to save water or other raw materials, or a process redesign to accomplish less waste during the production process.

3.2.3 *Market oriented environmental care strategy*

Within this strategy, environmental measures in the company are aimed at the prevention of environmental damage, not only by making adaptations within the company, but also by making adaptations to the entire production chain. Attention is given to product and process design and focus is on the marketing of a “green product” to achieve comparative advantage. The environmental policy is incorporated within the business strategy. Environmental care is strongly integrated within the other processes of a company like R&D (Van Koppen & Hagelaar, 1998).

Each of the environmental care strategies requires a different approach to the development of an information system, because the strategy affects the amount and preciseness of the information that has to be provided. In the case of the compliance oriented and the process oriented environmental care strategies, the information systems are more oriented towards efficiency and well-ordered practices. In the case of the market oriented environmental care strategies, the information system is aimed at improving the ability of the organization to anticipate market changes to adapt environmental care structures and procedures on the farm in time in order to exploit market opportunities aggressively (cf Moore, 2002; Herreborg Jørgensen, 2000). The characteristics of the above-mentioned environmental care systems with specific reference to their information requirements are described in Appendix 1.

4. RESEARCH METHODOLOGY

A questionnaire taking approximately one and a half hours to complete was used to interview 19 export-oriented apple, pear and table grape producers in various established deciduous fruit producing areas of the Western Cape. All companies included in the survey were prepared to apply certain basic principles of environmental care in order to stay competitive and sustainable. Some of them were already Eurepgap and/or Nature’s Choice accredited, or busy preparing for accreditation and/or exposed to Capespan’s ICM programme. Either farm owners, general farm managers or managers specifically responsible for environmental management acted as respondents. During interviews respondents explained their attitude towards environmental care and actions in this regard. The environmental care orientation of the participating farms was classified as either compliance, process or market oriented by comparing their responses with the distinguishing characteristics shown in Appendix 1.

5. RESULTS

The classification of the farms in terms of each criterion of environmental care orientation is given in Table 1. In some cases responses revealed characteristics of more than one orientation.

6. DISCUSSION OF RESULTS

6.1 Ambition

Table 1 shows that the need to comply with prescribed environmental care requirements as a minimum acceptable level of environmental care and the efficiency driven process orientation dominate environmental care thinking and practice in the Western Cape. Farmers respond to the eco requirements set by the retail chains lower down the supply chains merely to maintain access to these retail chains. The retail chains use the environmental care product image aggressively in their marketing strategies and have the bargaining power to dictate to primary producers to comply with their requirements.

6.2 Perspective

While many farmers still regard the environmental care requirements primarily as a burden, some have already accepted the inevitability of meeting these requirements and have bought into the efficient establishment of a culture of environmental care in the farm handling processes. Exposure to efforts of South African export agents to establish an environmental awareness, for example Capespan's ICM programme, paved the way to prepare for Eurepgap and Nature's Choice certification.

6.3 Policy

Most farms with mainly a compliance orientation did not have an official environmental policy. The more process oriented farms which did have one, have not yet integrated it in their year planner. Most respondents had an idea of a policy statement in their minds. In the case of process oriented environmental care strategies it was interesting to see how farmers adapted their production processes efficiently, but were slow in formalizing their environmental care orientation via prescribed policy statements and documentation. For them it was easier to do than to say.

Table 1: Responses of deciduous fruit producers in the Western Cape showing their environmental management orientation

Farm no	Main product	Location	Ambition	Perspective	Policy	Knowledge	Information	Technology	Structure	Budget	Risks	Opportunities
1	KF, SF	Villiersdorp	C	C	C	C, P	C	C, P	C	C	C	P
2	KF, TG	Elgin	C	C	C	C	P	C	C	C	C	P
3	KF, TG	Elgin	C	C	C	P	C, P	C	P	P	C	P
4	KF	Grabouw	C	C	P	C	C	C	C, P	C	C	C
5	KF, SF	Hemel-en-aarde	C	C	C	C	C	C	C	C	C	C, P
6	KF	Elgin	C	C	C	C	C	C	C	C	C	C
7	KF	Wolseley	C	C	C	C	C	C	C	C	C	C
8	KF, SF	Ceres	C	P	C	C	C	C	C	C	C	C
9	TG	Worcester	C	C	C	C	C	C	C	C	C	C
10	TG	Worcester	C	C	C	C	C	C	C	C	C, P	C
11	TG	Hexrivier	C	C	C	C	C	C	C, P	C	C	C
12	KF	Stellenbosch	C	C	C	C	C	C	C	C	C	C
13	KF	Grabouw	C	C	C	C	C	C	C	C	C	C
14	KF	Grabouw	C	C	C	C	C	C	C	C	C	C
15	KF	Grabouw	C	C	C	C	C, P	C, P	C, P	C, P	C	C, P
16	KF	Grabouw	C	C	C	C	C	C, P	C	C	C	C
17	KF, SF	Ceres	C	C	C	C	C	C	C	C	C	C
18	KF, SF	Ceres	C	C	C	C	C	C, P	C	C	C	C
19	KF	Grabouw	C	C	C	C	C	C, P	C	C	C	C

Notes: KF = kernel fruit, SF = Stone-fruit, TG = Table grapes.

C = Situation corresponds with a compliance oriented environmental care strategy.

P = Situation corresponds with a process oriented environmental care strategy.

M = Situation corresponds with a market oriented environmental care strategy.

6.4 Knowledge

The greatest barrier inhibiting the implementation of environmental care is the lack knowledge about environmental acts and legislation. Export organisations view the provision of information regarding the relevant legislation as an opportunity to win producer support.

On some farms there were special employees who took a course in eco-friendly production methods and how to use the ICM system properly. These employees informed the other employees during monthly meetings.

6.5 Information

Since most of the farms do not have a written environmental policy to serve as an anchor for the determination of the environmental information needs on the farms, there is limited internal pressure to establish a more formal registration system. However, most farmers admitted that the implementation of the prescribed environmental care requirements did improve the efficiency of environmental management and other production practices.

Several of the table grape producers participating in the survey had informal systems and were still busy acquiring Eurepgap accreditation. They could be classified as compliance oriented. Their problem solving was based on intuition and past experiences. No written procedures existed.

6.6 Technology

Technically almost all farms have adopted new techniques, such as more efficient irrigation and spraying systems. Knowledge about new techniques was mostly provided by the marketing agents. Most of the farmers did not show the motivation to search for knowledge about new environmental care techniques themselves.

6.7 Organisation Structure

Most of the companies have a simple organisational structure. The owner of the farm is mostly the general manager who is also responsible for environmental care management. The size of most of the farms did not justify the employment of an environmental manager. Such a simple organisational structure reveals that the way in which environmental care is implemented in the company is largely dependent on the attitude, motivation and knowledge of the owner.

6.8 Budget

Most farms did not have a special budget for environmental care related cost and income items - these were included in the overall budget. Environmental initiatives are mostly introduced ad hoc. No funds were set aside for environmental care activities. Expenditure on environmental care was directed towards complying with Eurepgap regulations, such as building a new chemical store or buying protective clothes.

A rough estimation by the environmental managers of the total costs of acquiring Eurepgap accreditation was about R300,000 for a medium sized farm. This includes building new or changing chemical stores, changing procedures and developing notice boards and guides for employees. Respondents were not willing to provide more specific guidelines on the percentage of turnover spent on implementing environmental care procedures.

6.9 Risks

Most of the farmers indicated that their farming practices posed no direct environmental risks to the environment. None of them have specific and significant environmental damage incidents in the past. Wastewater handling and pesticide use were seen as having the greatest potential harmful impact on the environment which justified specific attention.

Solid waste is also a problem for some farms. Ten out of the nineteen farms indicated that they did not separate different solid waste types. Organic waste is mostly composted, while inorganic waste is still burned or dumped. One farmer complained about the lack of solid waste collection services. This was ascribed to high transport costs due to the large distances compared to European countries where such services are more common. Farmers were generally satisfied with complying with the environmental care requirements regarding solid waste management.

6.10 Opportunities

6.10.1 Markets

None of the farmers saw green or complete organic production as an option in the future. In their opinion, the distance from South Africa to the northern hemisphere markets for the organic products is too far, since organically produced fruit had a shorter shelf life. Some farmers did indicate that they are busy experimenting with organic production, implying production without

agro-chemicals. Organic production is mainly aimed at the domestic market as it can only be done on a limited scale due to the highly labor intensive methods required. The particular farmers did not expect a higher price for the organic products on the export markets.

6.10.2 Resources

Almost all farmers indicated that there has been a water use reduction due to the implementation of new water irrigation systems and registration of the water that was used. These measures were made obligatory by the Water Act of 1998.

6.10.3 Culture of efficiency

Respondents regarded higher levels of organisational and environmental awareness as the main positive effects of implementing an environmental management scheme.

7. CONCLUSIONS

The application of the classification system to analyse the environmental care orientation of deciduous fruit farmers producing for the export market highlighted the structural characteristics of the fresh produce export market. South African deciduous fruit producers operating on a relatively large scale in global terms have the option to export large volumes of perishable fruit either to fruit wholesalers or directly to retail chains. Retail chains pay prices significantly higher than wholesalers and therefore dictate the quality, environmental care and other social responsibility requirements that must be met by the product and the production process in order to assure access to the retailer. For the primary producer with much less bargaining power in the supply chain, it is the retail chain's interpretation of consumer preferences translated into environmental care requirements that dominates his/her thinking and actions regarding environmental care. Acceptable environmental care performance evaluated in terms of prescribed formal environmental audits can only maintain access to the retailers and does not result in higher prices per carton. The fresh produce retail market therefore demands at most an efficient process orientation and rewards no premium for an extra effort more typical of a Class III (consumer) market orientation that may reap benefits in other sectors. The evolution of environmental care orientation among the deciduous fruit producers was clearly mainly market driven.

Some farmers participate in a comprehensive Integrated Crop Management (ICM) system to establish a culture of environmental care and worker safety at

farm level. The ICM system plays a useful role in stimulating and guiding producers progressing via a Class I to a Class II environmental care orientation. ICM participation also helps to prepare proactively for possible changes in the environmental care requirements of individual retail chains. This seems to be the more effective strategy for the primary producer.

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APPENDIX 1: Distinguishing characteristics of environmental care strategies used to classify farms

Criteria	Compliance oriented	Process oriented	Market oriented
Internal factors of the farming organization			
Ambition with regard to environmental care considerations and typical goals	Compliance (to stakeholders requirements and regulation) Typical goal: Finishing before D-date with e.g infrastructural requirements such as new chemical stores in order to comply with regulations	Want to change farming processes in order to increase efficiency in terms of technical and cost parameters, e.g. reduction in Rand and kilogrammes of active ingredient of agro chemicals per hectare	Want to increase competitiveness and greater market share by enhancing the product image and also by exploiting opportunities to reduce production costs where possible
Perspective of environmental care requirements	Burden (high costs of implementation)	Imposed obligation to formalize and expand farming activities to get in line with best practices and to maintain access to existing markets	Challenge to improve eco-friendly product image
Policy statement with regard to environmental care in the farming organization	Generally no clear policy (<i>ad hoc</i> measures)	Policy stand alone	Policy of supply chain
Knowledge of environmental management procedures and tasks	Knowledge to comply with legislation and restrictions	Knowledge to comply with legislation and restrictions Knowledge about latest technology to increase production efficiency and to reduce use of environmentally harmful agrochemicals	Knowledge of legislation and latest environmentally safer production techniques Knowledge about the requirements of the product supply chain and the synergism of cooperation along the supply chain
Information	Limited horizontal and vertical information sharing Information on end-of-pipe emissions such as residue levels on fruit and current regulations and restrictions	Information sharing on operational and tactical levels Information on end-of-pipe emissions such as residue levels on fruit and current regulations and restrictions Information generation aimed at discovering opportunities for cost savings and the links among various material flows within the farming operation. Environmental effects of process steps such as irrigation schemes, transport data, fuel use	Information sharing on operational, tactical and strategic levels Information on end-of-pipe emissions such as residue levels on fruit and current regulations and restrictions Information on the production processes is also obtained beyond farm boundaries like the environmental effects within the product life cycle, such as the nature and quantity of raw materials and disposal data. It is becoming a strategic management issue like marketing and R&D
Technology Type of technology emphasized to improve current practices	End-of-pipe technology (organisational analysis)	Process-integrated technology	Product design technology
Structure Environmental care task description and control	Few and isolated tasks Task description for specific employees to implement environmentally safer production procedures, including control and prevention measures	Explicit tasks on the tactical and operational level Task description for specific employees to implement environmentally safer production procedures, including control and prevention measures, e.g. inspectors evaluating the measurements and registrations of for example fuel. Written procedures for process tasks reviewed regularly	Environmental care tasks integrated on various management levels Responsibility of efficient interaction within the supply chain is acknowledged as a management function in the organization, e.g. get feedback from input suppliers and consumers, cost registration and efficiency monitoring through the whole chain

		Attitude training for employees	
Criteria	Compliance oriented	Process oriented	Market oriented
Budget for environmental care activities	No specific budget	Specific budget for environmental care reflects investments in more efficient production processes	Specific budget for environmental care reflects investments in more efficient production processes and supply chain linking
External factors (e.g increasing demands from regulatory agencies, non-profit organisations and the public)			
Risk assessment	Risk assessment not done	Risk assessment is done and is used for future policy	Risk assessment is done and is used for future policy Risk analysis available to external stakeholders
Opportunities Gains or opportunities due to environmental care measures	No opportunities	Opportunities through cost savings	Market opportunities

Source: Hagelaar & Van der Vorst, 2002; Van Koppen & Hagelaar, 1998.

ⁱ List of European supermarkets requiring Eurepgap certification

1. Ahold Netherlands Hwww.ahold.comH
2. Albert Heijn Netherlands Hwww.ah.nlH
3. Asda UK Hwww.asda.co.ukH
4. Coop Sweden Hwww.coop.seH
5. Coop Italia Italy Hwww.e-coop.itH; H<http://www.coop.se/se/index.html>H
6. Delhaize Belgium Hwww.delhaize.beH
7. DRC / Belgium Auction Market Belgium
8. Eroski Spain Hwww.eroski.esH
9. ICA Sweden Hwww.ica.seH
10. Laurus Netherlands Hwww.laurus.nlH
11. Marks & Spencer UK Hwww.marksandspencer.comH
12. Mc Donald's Europe Germany Hwww.mcdonalds.comH
13. Migros Switzerland Hwww.migros.chH
14. Safeway UK Hwww.safeway.co.ukH
15. Sainsbury's UK Hwww.sainsburys.co.ukH
16. Somerfield UK Hwww.somerfield.co.ukH
17. Spar Österreich Austria Hwww.spar.atH
18. Superquinn Ireland Hwww.superquinn.ieH
19. Superunie Netherlands Hwww.superunie.nlH
20. Tesco UK Hwww.tesco.comH
21. Trade Service Nederland BV Netherlands
22. Waitrose UK Hwww.waitrose.comH