ABSTRACT
There are many reasons why organisations implement quality systems. For many it is because the customer requires it. This situation is no different within the horticultural industry. The customers of fruit and vegetable producers - major chain supermarkets, market agents and packers are required to implement quality systems which protect the consumer.

The choice of quality system is not easy and when different customers have differing requirements, the way ahead for the horticulturalist, particularly the small, family based fruit and vegetable grower, is somewhat unclear. In many ways they are caught between a rock and a hard place.

Keywords: Quality Systems, Horticulture, Hazard Analysis Critical Control Point (HACCP), SQF 2000™, Approved Supplier Program

1.0 Introduction

Consider the case of someone that grows fruit or vegetables for a living. They are a small, family based business which has been growing and packing the same line of produce for over twenty years on a 3 hectare block just out of Melbourne. Business has been good over the years and that has been the result of the hard work the family has put in. They can sell just about everything that they can grow and have regular customers such as a major chain supermarket, market agents in Sydney and Brisbane, and they have a stall in the Melbourne Market.

Within the space of a few weeks the business is invited to join the supermarket chain quality system and the market agents are saying that they are having increasing difficulty selling their produce because it is not quality assured. What are they going to do?

1.1 Caught Between a Rock and a Hard Place

In many ways they are caught between a rock and a hard place and they begin to ask a number of questions:
• Why do you need a quality system in the first place when you have been producing top quality produce for years?
• If you have to implement a quality system, what system should you choose?
• Will the quality system work?
• How much will it cost?
• Why won't one system satisfy everyone's requirements?
• Will it be worth the investment and the effort involved?

They cannot afford to lose their current markets and the way ahead is unclear.

1.2 The Paper

This paper reviews some of the lessons learnt by a number of family based fruit and vegetable grower and packer businesses and their consultant whilst working together during what turned out to be an action research project.

2.0 Why Do You Need a Quality System?

There are a number of reasons why fruit and vegetable growers and packers need and are implementing quality systems:
• Food safety concerns are causing retailers, processors, market agents, exporters and other customers handling fresh fruit and vegetables to implement HACCP based quality systems. This is having a flow-on effect with an increasing number of principal customers strongly suggesting, if not demanding, that growing and packing operations have a quality system in place.
• In some cases quality systems are determining market access. No quality system - no access (or future access) to a particular market. Quality systems are enabling growers and packers to win and keep profitable markets.
• Quality systems are offering better control of the business throughout the scope of operations resulting in a more consistent quality of produce.
• The customer-supplier relationship is being seen as more important. Suppliers and customers are looking for longer term relationships and see the link that quality systems can provide as being a positive step towards this particularly when they work together to determine produce specifications and delivery schedules.
• Growers and packers are better able to define work roles and responsibilities within their workplaces and delegate them more effectively. Dependence on key individuals is decreasing as more appropriate training is being provided for others working within critical parts of the operation. Workers are empowered and able to take on greater responsibilities regarding the way they manage their part of the process. This has led to improved workplace relations that are based on increasing mutual respect and trust. Labour turnover for casuals has also reduced in many businesses.
There have been a number of improvements in the way organisations function. Deeper understanding of all work processes have resulted in process improvements. Documentation and better record keeping have ensured that work is done in a more consistent, productive way, that is, until a better method is identified and implemented.

More often than not the prime reason for developing and implementing a quality system is because the principal customer requires it, and businesses would be lost otherwise. The other benefits flow on and become more apparent some way down the path of maintaining the quality system. The reasons for implementing a quality system and even aspiring to formal certification are not unlike those in other sectors involving small businesses in Australia and overseas (Boon & Ram, 1998, p. 21; Brown et al., 1998, p. 273; Bryde & Slocock, 1998, p. 468; Jones et al., 1997, pp. 651-52).

3.0 Finding a Workable Solution

Choosing a quality system is not an easy task when there are so many options for horticulture. These range from the informal, non-documented custom and practice type quality system to formal documented systems. Many growers and packers have informal systems in place and manage them on a day-to-day basis. The strength of this type of system lies with the applied knowledge and expertise of the grower/packer themselves. This also underpins the inherent weakness - what happens when someone else is required to do the work? How can knowledge transfer occur so that the job gets done the appropriate way?

When it comes to formal, documented quality systems there are a number of different models to choose from. Whilst some of the more basic systems aim only to improve production processes they can be further developed to include more detailed requirements which satisfy external certification and carry Australian and / or international recognition.

Growers have expressed two concerns. Firstly, about being locked into one particular quality system. They do not want to tie themselves into one system when they are operating in a number of different markets which potentially require other systems. Secondly, and at the other extreme, having to manage a number of different or separate systems because of customer requirements. In most circumstances the different quality systems are complementary and can be used as stepping-stones during the developing and implementation phases if one works from the lowest to the highest level of complexity.

What are the options when choosing a quality system? One doesn't have to search deeply in the horticultural sector to realise that there is a myriad of different systems in place. Some systems are organisation, industry or regionally based. Others are independent initiatives. Some are based on formal, documented and well-known systems. The Horticultural Research and Development Corporation (HRDC) publication 'The Competitive Edge' (c. 1998) describes eight of the more popular systems. The author has been actively involved with some of these:

- Approved Supplier Programs.
• The Australian Quarantine and Inspection Service Certification Assurance (AQIS CA).
• SQF 2000™ Quality Code.
• AS/NZS ISO 9001/2.

### 3.1 Approved Supplier Programs

A number of retail, packer and distributor based organisations have introduced supplier focused training programs which address food safety and quality issues. Based on an awareness of HACCP principles rather than the development of verified HACCP Plans, they require their suppliers to have control over their production processes. Suppliers need to identify the significant hazards to food safety and quality of produce and put in controls to prevent, eliminate or reduce the likelihood of those hazards occurring.

A number of packer / distributors have included the following in their approved supplier programs:

- The maintenance of chemical spray diaries and such records that demonstrate that only registered chemicals are used, they are applied in accordance with label instructions and that with-holding periods are adhered to. These can be verified by external audit or chemical analysis.
- Soil testing records that verify that there are no chemical residues or heavy metals which can impact on the food safety of the produce.
- Water testing records that verify that water used for produce development and washing after harvest is contaminant free.
- Produce testing records that verify that there is no microbial or chemical contamination.
- Agreed specifications which clearly define what the produce is, how the produce is packaged and labeled, and what the key criteria for food safety and quality are.

Implementation of these requirements will provide assurance that the produce being supplied is safe for consumption and meets the requirements of the agreed specification. This type of system may lead to a conscious decision by the business to implement a more formal quality system.

An example of a highly developed approved supplier program is the Woolworths Vendor Quality Management Standard (c. 1998) which specifies the minimum controls a vendor must have over the purchasing, production, storage, packaging and handling processes and includes additional requirements such as:

- The development and implementation of a HACCP Plan.
- Documentation of a quality policy and description of how the quality system works.
- Good manufacturing / management / farm practices to ensure produce quality and safety.
- Cleaning procedures.
- Pest control.
- Training of staff in critical areas.
- Calibration of essential measuring and testing equipment.
• Product identification and traceability.
• Corrective action procedures.

3.2 Australian Quarantine and Inspection Service Certification Assurance (AQIS CA)

This is a voluntary arrangement between AQIS and organisations that demonstrate that they have an effective quality management system in place which ensures that only produce meeting export requirements is dispatched. Some of the inclusions in CA arrangements are Phytosanitary Certificates, Quarantine Agreements, Certificates as to Condition and Empty Container Inspection. Under agreed conditions the organisation takes over the inspection functions performed by AQIS. AQIS will however continue to monitor the effectiveness of the quality system by ongoing external audits.

This system has proved suitable for those organisations wanting to participate in the growing export market. It also provides a useful stepping-stone to quality systems with wider-ranging requirements such as SQF 2000™ and AS/NZS ISO 9001/2.

3.3 SQF 2000™ Quality Code

'SQF means 'Safe Quality Food'. The SQF 2000™ Quality Code provides the tools for a food-based enterprise to implement a system which demonstrates compliance with food safety standards and customer quality requirements. SQF 2000™ provides for an on-farm, all-of-farm, quality system' (AGWEST Trade & Development Brochure). The code was launched in 1995 by Agriculture Western Australia as an alternative to AS/NZS ISO 9002 for small horticultural businesses who did not have a requirement for that standard or the resources or the infrastructure to implement and maintain it.

The code includes six elements - commitment, suppliers, control of production, inspection and testing, document control and quality records, and product identification and traceability. The system is underpinned by HACCP. The code is aimed at achieving product safety and customer satisfaction. It relies on the supplier and the customer identifying and documenting critical food quality and safety criteria. By applying the principles of HACCP and good manufacturing practice / good farming practice, the risks to produce safety and poor quality are identified. Strategies can then be put into place to minimise risk (SQF 2000™ Quality Code, 1997, p. 4).

Recognition of SQF 2000™ is achieved through certification by accredited certifying bodies. Over 375 organisations have achieved certification and many more are undertaking the process.

This code is also a useful stepping-stone to other quality systems and often satisfies approved supplier requirements.
3.4 AS/NZS ISO 9001/2

AS/NZS ISO 9001/2 is an internationally recognised quality system that describes how to establish, document and maintain an effective system which will demonstrate commitment to quality and an ability to meet customer requirements. This standard has been used as the foundation for many industry or organisation quality systems like the Australian Horticultural Quality Certification Scheme (AHQCS) and Viticulture's Grape-To-Glass system.

Without industry support many small growers and packers have found these standards difficult to interpret and work with on an ongoing basis. The time and resources required make this type of system work are perceived by many as inappropriate for many small businesses.

3.5 The Choice

The choice is often difficult to make because of the lack of information many growers and packers have about quality systems and their requirements. There is a lot of misinformation in the sector and often an inappropriate choice is made based on the information provided by consultants, customers and others who may not necessarily have a full understanding of the business. In addition to this the business must ascertain what their customer requirements are and which system will best satisfy that need. In many cases the choice has been either an Approved Supplier Programs or SQF 2000™. Often the choice has related to the principal customer's minimum requirement rather than what is best for the business.

Regardless of eventual choice, HACCP is essential if food producers require their quality system to prevent, rather than address after the fact, quality and safety problems. HACCP principles and application meld well with good management / farm practices and can underpin the requirements of any formal, documented quality system.

4.0 Will the Quality System Work?

This is a difficult question to answer and a lot will depend on those factors that many businesses face with any form of quality system (Brown et al. 1998, pp. 282-284, Brown & van der Wiele, 1995). These include:

- Commitment / involvement.
- Allocation of sufficient resources.
- Training.
- Control of essential processes etc.
- Interpretation of the quality system requirements.

Obviously, the less complex the operation and the more simplistic the quality system, the greater the opportunity for success. In the small businesses the author has worked with it was found that where there is management (family) commitment, the success rate of development and
implementation of an Approved Supplier or SQF 2000™ system is extremely high. Those businesses which have aspired to external recognition e.g. certification to SQF 2000™, have achieved their aim.

5.0 How Much will the System Cost?

Horror stories abound which suggest that quality systems can cost the earth itself, no doubt, and some have. It is the same with the horticultural industry. Often sums of the order of $50,000 plus for ISO 9000 based systems in larger fruit and vegetable operations are quoted. Small or family grower or packer based businesses cannot afford this level of investment in infrastructure.

In the author's experience, approved supplier training can be conducted and applied by the business for less than $500 and SQF 2000™ certification achieved for less than $3500. However, this is reliant on the management team taking on the post quality system training, development and implementation quality system responsibilities.

6.0 Why Won't One System Satisfy Everyone's Requirements?

This is the hardest question the author has had to face and still doesn't have the answer. Common sense doesn't seem to be prevailing. The industry as a whole - growers, packers, distributors, market agents, retailers alike, need to work together to solve the problem. It is interesting to note that some of the quality systems that the individual major retailers have developed parallel or have lesser requirements than SQF 2000™ or a HACCP based ISO 9000 quality system.

6.1 Certification Issues

Many small growers are deciding to develop and implement their quality system but not seek certification at this time. This relates mostly to the cost of registration for the certification process and the ongoing audits. One set of certification audit and registration fees seems reasonable enough however the additional costs associated with multiple system external auditing needs to be avoided. It is not unusual for some operations to be audited twice a year for each of an approved supplier system, AQIS CA and SQF 2000™. The ongoing audit costs for small businesses become prohibitive.

7.0 Will it be Worth the Investment and Effort?

The answer to this question is unquestionably yes, but with a proviso. The business itself must take control of its operations and quality system and continue to manage them appropriately. Organisations that have had quality systems in place for some time perceive greater benefits than
those considering implementation or who have recently achieved certification. This is consistent with research conducted by Jones et al. (1997).

7.1 The Customer-Supplier Relationship

One of the benefits of implementing quality systems is the opportunity of working closely with customers to determine what needs to be done to satisfy the contractual relationship. This can be the co-development of produce specifications including such things as general appearance criteria, accepted defect levels and consignment criteria. Regional and adverse seasonal impacts on quality can also be built in. The end result is improved understanding of the growing, packing, storage and distribution processes for both the customer and the supplier.

Many changes have been made as a result of these joint arrangements and these include:
- More realistic and achievable produce specifications.
- Consistent quality produce delivered on time.
- A better appreciation of harvest and potential delivery schedules.
- Improved on-farm and post harvest management practices resulting in longer shelf life for produce.

Improved understanding of each other's needs and expectations has contributed to the development of longer-term business relationships between customer and supplier.

7.2 Empowering Members of Staff

One of the important lessons learnt by management in growing and packing operations is that they can no longer depend on key individuals alone (often themselves) to manage and work the whole process. They have had to give up some of the traditional tasks and decision-making and place such responsibilities with other members of the full-time and casual staff. This has been a positive stimulant for the training of members of staff, particularly when they work in critical areas of the operation. Direct supervision is giving way to up-skilling, coaching and counselling, and empowerment. This is resulting in improved work performance and workplace relationships, improvements in the way work is done and improvements in the quality of produce.

The prospects for sharing business responsibilities with other members is enhanced with documented quality systems.

7.3 Looking Through New Eyes

Growers and packers have found that HACCP provides them with the wherewithal to look at current operations afresh - to see things from a different perspective. HACCP has prompted questioning as to why certain things are done or not done. It certainly promotes a deeper understanding of the operations and an appreciation of the risks to food safety and quality of produce.
This questioning and the subsequent problem-solving activities has given growers and packers a
new understanding of what they do and the stimulus to improve their methods. This is resulting in
safer and consistently higher quality produce. Importantly, the food safety and quality risks are
being addressed prior to potential incidents rather than after the fact.

8.0 Conclusion

The first few steps are difficult for the grower and packer. They tend to be operating in an
environment of confusion regarding how they should respond to the different customer quality
system requests. Industry advice is often lacking and the small, family business tends to rely on
the experience (often bad) of others in their decision-making process. Above all, there is a
continuing desire to do the right thing, and if that means developing and implementing a quality
system, so be it.

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