

**THE WINSTON CHURCHILL MEMORIAL TRUST OF AUSTRALIA**

**THE JOHN SWIRE CHURCHILL FELLOW to study**

**Agricultural Environmental Management**

**Systems in Europe**

**Report by**

**PETA SLACK-SMITH**

**2000 Churchill Fellow**

<b>1.0 EXECUTIVE SUMMARY</b>	<b>3</b>
<b>2.0 INTRODUCTION</b>	<b>4</b>
<b>3.0 AEMS PROGRAMS</b>	<b>6</b>
<b>3.1 LEAF – Linking Environment And Farming (LEAF)</b>	<b>7</b>
<i>Introduction</i>	7
<i>Development</i>	8
<i>Implementation</i>	8
<i>Compliance</i>	9
<i>Content</i>	9
<b>3.2 WHITSOME HILL</b>	<b>10</b>
<i>Introduction</i>	10
<i>Development</i>	10
<i>Implementation</i>	11
<i>Compliance</i>	13
<i>Content</i>	13
<b>3.3 CERTERRA</b>	<b>13</b>
<i>Introduction</i>	13
<i>Development</i>	14
<i>Implementation</i>	14
<i>Compliance</i>	15
<i>Content</i>	16
<b>3.4 FINNISH AGRI-ENVIRONMENTAL PROGRAM (FAEP)</b>	<b>16</b>
<i>Introduction</i>	16
<i>Development</i>	17
<i>Implementation</i>	18
<i>Compliance</i>	20
<i>Content</i>	20
<b>3.5 PITKANEN FARM</b>	<b>22</b>
<i>Introduction</i>	22
<i>Development</i>	23
<i>Implementation</i>	23
<i>Compliance</i>	23
<i>Content</i>	23
<b>4.0 ADDITIONAL VISITS</b>	<b>24</b>
<b>4.1 COUNTRYSIDE PROGRAM</b>	<b>24</b>
<b>4.2 WAU - KRIS VAN KOPPEN</b>	<b>24</b>
<b>4.3 CLM - HENK VAN RELJTS</b>	<b>26</b>
<b>4.4 FINNISH LCA PROJECT</b>	<b>27</b>
<b>5.0 RECOMMENDATIONS FOR AUSTRALIAN AGRICULTURE</b>	<b>30</b>
5.1 <i>Incentives for the responsible management of natural resources</i>	30
5.2 <i>Supportive/ Interactive Role of government</i>	30
5.3 <i>Communication</i>	31
5.4 <i>Development of objective benchmarking tools and indicators</i>	32
5.5 <i>Integration of QA and EMS systems</i>	33
<b>6.0 ACKNOWLEDGMENTS</b>	<b>34</b>
<b>7.0 REFERENCES</b>	<b>35</b>

## **1.0 EXECUTIVE SUMMARY**

Consumers, government policy makers and the community are becoming more definitive in how they expect farming groups and industries to manage natural resources.

Access to farming inputs is currently being discussed on both state and national levels in Australia. Access to water, agricultural chemicals, and use of specific land types all come with particular expectations which are coupled with the responsible use and management of natural resources. Australian governments have in some states, tied the production of certain crops with codes of practice, and specific regulatory or legislative requirements. This trend appears to be common in many other nations.

The challenges faced by farmers are common in many countries, particularly when related to natural resource management and environmental stewardship. There are several options available for primary producers to deal with these growing environmental pressures; however the focus of this Churchill Fellowship was to investigate one in particular – environmental management systems (EMS).

One of the continual themes emerging throughout the study was the issue of subsidies to farmers for adopting EMS, or implementing environmental practices on farm. In most cases it was perceived that farmers and EMS practitioners were more concerned with securing farm income, or the ability to report on high membership levels in EMS programs, rather than positive natural resource management (NRM) outcomes and farm improvement.

## **2.0 INTRODUCTION**

The focus of the Churchill Fellowship was to visit and exchange information and experience with several agricultural based farm management systems: the majority of these were environmental management systems.

The primary objectives of the study were;

- 1) To investigate the three key features of EMS in regards to their development and program management
  - a) Reasons and issues associated with the development of the program
  - b) Implementation and support farmers receive when adopting the program
    - i) Associated incentives for farmers implementing the program
  - c) Investigation of compliance with the program; farm assessments, audits etc
- 2) Investigate the management system used to coordinate the program
- 3) Assess the compatibility and possible integration of leading environmental programs and measures for Australian agricultural systems

The secondary objectives was;

- 1) to assess the content of the actual programs

It is significant to comment on the secondary objective at this stage. The issue of EMS in agriculture is a vast and complicated field of study. Individual studies could have been conducted on each objective listed above. Consequently the assessment was made prior to departure, and often during the study, that whilst some aspects, programs and information was very topical and interesting, the initial project focus was a more holistic and 'big-picture' study of agricultural environmental management systems (AEMS). For this reason, the content of individual programs in many respects was not reviewed to any great extent.

An additional assessment has been made of each of the programs visited. Whilst difficult in some respects to quantify, the commitment and integrity of the program is often able to be assessed by spending time with the coordinators, managers, and/ or practitioners and having access to review internal documents and by investigating the robustness of facets of the programs' management system. In many respects this final assessment may be in stark contrast to comments or literature circulating in the public forum.

Throughout the review of each program, comment has been made on this issue. It should be noted that these beliefs and views are my own personal views formed by spending a significant amount of time with the various programs and their associated personnel. In addition to having access to internal documents which in many cases are not distributed externally.

Writing this report took longer to complete than the actual study! The primary problem associated with writing the report was the large degree of detailed information collated during the Fellowship. Initially all of this information was incorporated into the one report. However upon its review, and editing by a third party, it was decided that despite being a comprehensive document, it would not reach a wide audience.

One of the responsibilities of Churchill Fellows returning from their study is to ensure the information is distributed widely to relevant groups. In order to satisfy this requirement I elected to omit some of the detailed and technical information to ensure the report was received by a wider audience.

### **3.0 AEMS PROGRAMS**

In the past ten years there has been an explosion of farm-based management systems. Initially quality assurance (QA) systems were more widely adopted. However in recent years the growing demands, pressures and requirements of agricultural production, tied closely to consumer expectations, and policy in relation to the responsible management of natural resources - has required agricultural producers to address these concerns.

Whilst the focus of this study is on EMS in agriculture, in many respects the principles of both EMS and QA management systems are identical. It is interesting to note that the issues associated with the development of farm management systems - either consumer demands for specific product criteria or community and government expectations of resource management - more often than not dictates to producers and industry groups, which focus (EMS or QA) is adopted.

This scenario is characteristic of the Australian agricultural industry. Currently there is a plethora of farm-based QA schemes – in some cases several within the one commodity groups – for farmers to adopt in order to satisfy the producer to consumer chain in relation to food safety. However there are very few systems focusing on the environment and natural resource management.

In truth many industries and farming organisations would be prudent to incorporate all relevant aspects (ie food safety, quality assurance, environmental management and occupational health and safety) within farm management systems to provide an all-encompassing package for farmers. To date this has not been addressed effectively in Australia: commodity groups seem to be focussed more on working in isolation from each other, resulting in duplication of important work, poor if any

coordination among programs, and significant waste of the resources available to industry through federal or state funding.

This report focuses on EMS (or AEMS for this purpose). However it is important to note that many of the programs reviewed in fact contained elements of all critical aspects of agricultural production, referred to above. One program in particular – the Finnish Agri-Environmental Program (FAEP) – has incorporated these elements in a very sophisticated and simple fashion.

### ***3.1 LEAF – Linking Environment And Farming (LEAF)***

#### *Introduction*

Linking Environment And Farming (LEAF) focuses on integrated crop management. The program has in general received favourable and highly positive comments from a range of people and organisations.

The objectives of LEAF are quite different from many AEMS. The primary objective is to improve knowledge and understanding – both within and outside the agricultural industries. In many respects this focus outweighs the objective to facilitate improvements to farm practices and environmental stewardship.

It should be noted that the author's opinion of this program has changed significantly over the past eighteen months. Probably like other Australian AEMS practitioners, I was initially impressed by the extension material and information gathered about LEAF on the internet. A subsequent visit of the program's coordinator to Australia in 1999, indicated that the substance and robustness of the program was not as presented in the program's 'literature'.

The subsequent visit with LEAF during the Fellowship confirmed this view of the program. During the Fellowship I had the opportunity to discuss in detail specific components of the program both with the program coordinator, LEAF farmers, and other sectors of the agricultural industry in the UK involved in the agri-environmental field.

### *Development*

The program commenced in 1991 with the primary objective of improving the knowledge and understanding of Integrated Crop Management (ICM) amongst farmers, government and community groups. Since its initial development, the foundations of LEAF have expanded to incorporate all farm enterprises rather than cropping only – Integrated Farm Management (IFM).

### *Implementation*

Considering the nature and objectives of the LEAF program in contrast to the others reviewed, it is not surprising that the implementation component is not as thorough or comprehensive. The key tool used to assist farmers implement the LEAF program, are demonstration farms.

These farms are spread throughout the UK and produce a wide range of crops and livestock. The demonstration farms are some of the initial 'champions' for the LEAF program. Interested farmers or community groups are encouraged to visit these farms to see what it means to implement LEAF. The demonstration farms are used for local or regional launches and publicity days. The demonstration farms attend training each year to ensure they are familiar with all the current issues.

## *Compliance*

An audit component does exist for LEAF. However the objectivity of the audit component lends little robustness and rigour to the process. Farmers are required to complete questionnaires where they are asked to consider specific issues, or to address particular practices. Farmers are not required to provide proof or evidence to verify their comments. Nor are farm audits conducted. This type of 'audit' is common in many farm-based management systems, including several in Australia.

The audit component relies on a self-assessment or checklist type questionnaire which LEAF farmers complete each year. The completed questionnaire is returned to the LEAF office for processing. In return farmers receive a certificate and a report which allows them to monitor their performance over time.

The nature of this audit program is entirely subjective, and in many respects, results cannot be substantiated for accuracy. However the reporting mechanism does provide the farmer with an excellent summary of progress over time.

## *Content*

LEAF assumes an over-arching or 'umbrella program' role in regard to the specific content of the program. LEAF focuses more on extension and process rather than ensuring appropriate farm practices underpin the program. In many ways this approach has been fortuitous for LEAF farmers; rather than re-inventing 'another' program, LEAF taps into many existing programs (eg Countryside Program). Rather than providing recommendations or guidelines for farmers to follow, LEAF encourages farmers to consider certain issues. A common issue that was raised amongst the LEAF farmers during the visit was that they felt that more consideration should be given to providing LEAF farmers with firmer or improved guidelines.

## **3.2 WHITSOME HILL**

### *Introduction*

Whitsome Hill is a mixed farming enterprise on the Scottish border. Its focus in recent years has changed towards providing farming contracting services in the district. The Board of MAMCO believed the provision of such services should, given the growing focus of consumers and government, be underpinned by a certified management system which demonstrated responsible management of the environment.

The commitment of MAMCO and Whitsome Hill towards environmental stewardship is reflected in the company's certification to both ISO 14001 and 9002. In order to satisfy requirements of various markets, Whitsome Hill is also a LEAF demonstration farm, a member of Scottish Quality Assured Cereal Program, Tesco's Nature's Choice, and committed to precision farming technologies.

### Development

The Whitsome Hill farm has been certified to ISO 14001, ISO 9002, and BS 8800 – the Occupational Health & Safety Standard - since the mid-1990's.

Management of Whitsome Hill identified the key reasons for implementing EMS on farm as;

- reduction of energy use
- waste management
- pollution control
- environmental benefits
- corporate responsibility as contracting farm service provider

### *Implementation*

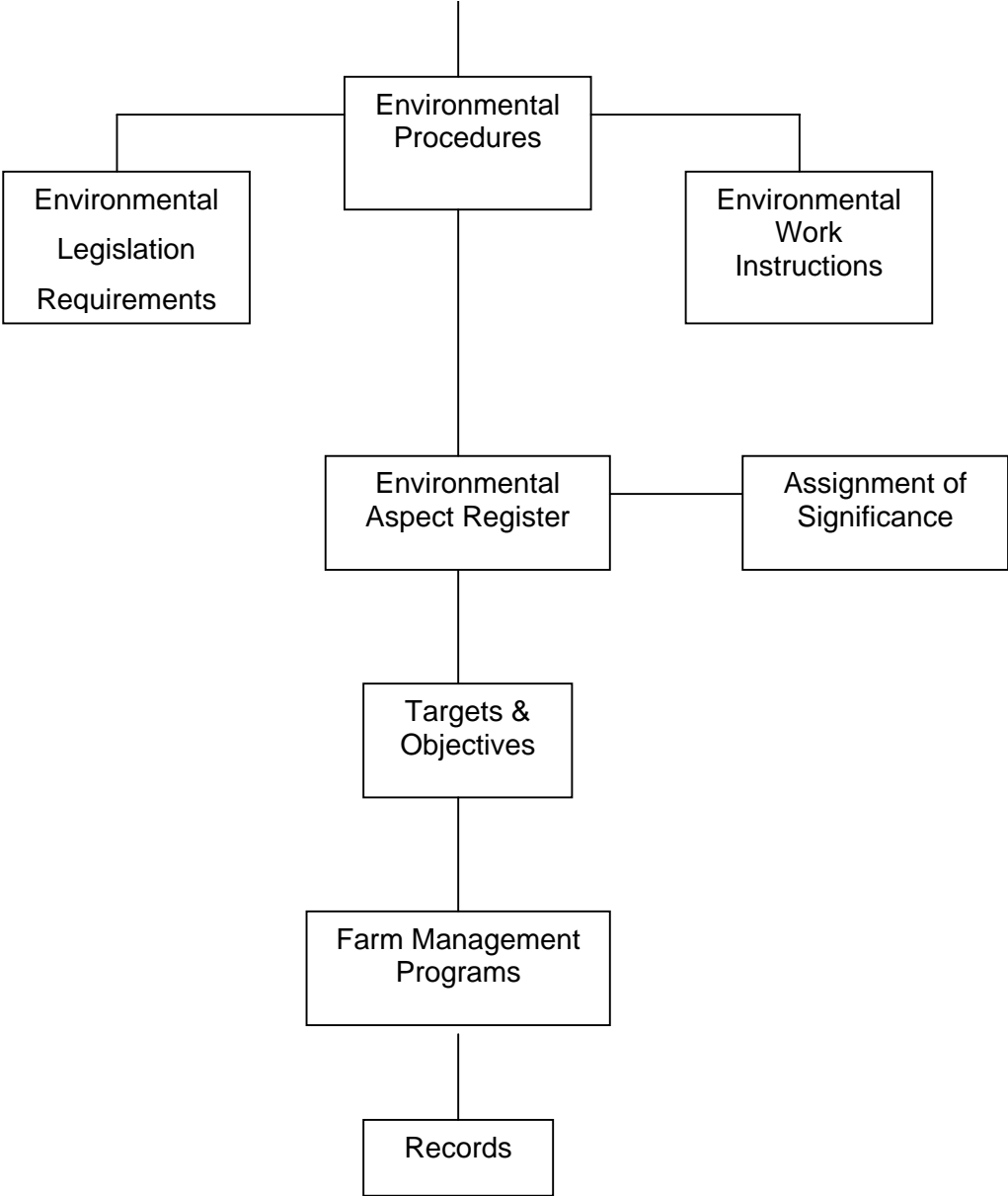
Whitsome Hill has a dedicated staff member who is responsible for the daily management of all programs operating on farm. Interestingly, MAMCO have embraced the numerous farm management systems available and incorporated their requirements into the overall farm management system.

In doing so management have efficiently incorporated the requirements of each program and standard, within a single management system for the farm. Consequently, whilst individual audits are still required for the majority of the programs, the farm has facilitated the auditing requirements of the various programs and standards by incorporating all within the management system and associated records kept.

Farm staff are involved in the development and implementation of the farm management system. Individuals work with the environmental officer to identify aspects and to determine their significance. Staff also have responsibility for reporting and documenting problems associated with non-conformances of the system, in addition to advising farm management of the most practical and appropriate work instructions or procedures.

The following flow chart illustrates the components of the EMS for the farm, and how it incorporates individual farm management programs into the over-arching farm system.

**EMS MANUAL**



## Compliance

As mentioned above, the development of a farm specific management system which satisfies the requirements of all programs and standards implemented on farm, has avoided many of the problems associated with the integration of farm-based EMS and QA schemes. This management manual contains all relevant documentation and records required to provide objective evidence of improvement in farm practices.

The farm is audited in line with ISO requirements for ISO 14001 and ISO 9002, at three yearly intervals. Other QA programs adopted on farm are audited every twelve to twenty-four months depending on individual requirements and farm performance in previous audit.

## *Content*

The starting point for the content of the farm EMS is a combination of LEAF and the various environmental programs Whitsome Hill adopts (eg Countryside Program) in order to receive farm subsidies. In the case where several programs refer to the same farm practice, the highest common denominator is adopted for farm practice. However in some cases, farm management has elected to set farm practices above the requirements of all programs.

## **3.3 CERTERRA**

### *Introduction*

Certerra is one of the most advanced and superior EMS I have been fortunate to visit. This was reflected in all components of the program investigated during the study (ie development, implementation, compliance and content). In 1999 Certerra had 4500 members producing various horticultural crops. Approximately 80% of greenhouse production in the Netherlands, are members of the program.

Throughout the travels for the Fellowship, The Netherlands was continually referred to as the 'garbage tip' of Europe. One of the strongest memories of the study throughout Holland, was the intense nature of production. Production is almost comparable to industrial production.

Unlike many AEMS, Certerra is targeted at the retailer not the consumer. This reflects the current trend in Europe where individual supermarket chains have their own individual logo or branding for product differentiation. Thereby in targeting the retailer and not the consumer, Certerra has saved considerable resources. Essentially the promotion of the program becomes defunct once the produce enters the supermarket – Certerra/ MBT does not exist within the supermarket, but rather the supermarket specific branding for 'green/ safe' produce.

### *Development*

The critical issue prompting the development of Certerra is the bad image of Dutch fruit and vegetable production. Farmers prompted the development of the programs and worked closely with the joint auction houses in the initial stages.

The joint auction houses appear to be similar to grower cooperatives in Australia where farmers pay membership fees. Farmers pay Certerra NGL1300/pa to be involved in the Certerra program. This fee includes advice for auction, but also covers the operating costs of the Certerra program.

### *Implementation*

Certerra and the Joint Auction House have farm advisors available to assist farmers with the implementation of the program. Other farm advisors are available for

technical guidance, for example for the initial use of the pesticide yardsticks. Farmers must pay for the services of all advisors.

### *Compliance*

The audit program of Certerra is the most robust of all I have investigated. Audits are conducted annually on farms by SGS International; thorough audit documentation has been developed; auditors with appropriate knowledge and experience in agriculture are used; farmers are required to provide objective evidence of verification, including crop sampling. Certerra is the only AEMS I have visited which uses third party auditors, to conduct second party audits.

Key issues or areas of farm operations are identified to be verified each audit. Consequently a more thorough audit is conducted in fewer areas. Consequently not all operations and practices are necessarily audited each year.

Audit findings are forwarded to Certerra, who determines if the farm is able to use the Certerra/ MBT logo. If too many non-conformances are identified during the audit, the logo will be withdrawn from the farm for a twelve month period.

Certerra requires members to conduct crop samples to test for various pesticides. Pesticide limits and standards have been set within the EU for both specific crops and pesticides. These limits are followed to ensure adequate levels. The purpose of conducting these crop samples is to determine if the program guidelines are working. This type of monitoring of the system guidelines is highly commendable and demonstrates a real commitment to improve practices which result in NRM outcomes.

## *Content*

All links in the production chain were involved in the development process; farmers, researchers, farm advisors, joint auction houses, and retailers. Growers work together with researchers to set the guidelines or standards for the program. Processors and retailers are not involved in this process but they are represented on the Board which have input into this process.

CLM are also involved in the development and review process. The use of the CLM pesticide yardsticks has been incorporated into the program.

The guidelines are broken into areas of Compulsory Measures and Optional Measures: compulsory measures are all legislative requirements plus those practices which are identified as critical to address. Optional measures on the other hand, farmers have the flexibility of adopting as time and resources permit over time. Farmers must sign-off on all non-conformances arising from audits before the logo is able to be used.

### **3.4 FINNISH AGRI-ENVIRONMENTAL PROGRAM (FAEP)**

#### *Introduction*

The Finnish Agri-Environmental Program (FAEP), in conjunction with the Thema software, provides farmers with a 'one stop shop' for several management systems used by farmers in Finland. The Thema software, which is a core component of FAEP, incorporates the requirements of, ISO14001, ISO 9002, and BS 8800, FAEP, the Finnish Quality Program, Hazard Analysis Critical Control Point (HACCP), and national legislative requirements and codes of practice.

The Finnish approach is to encourage farms to adopt all components of the Thema software ie Quality Assurance (QA), Environmental Management Systems (EMS), Occupational Health and Safety (OHS), HACCP. Whilst there are several key deficiencies in the FAEP program as a whole, the Thema software represents an ideal template for the integration of farm management systems.

Whilst Finland, and most of Scandanavia, is often associated with clean pristine environments, the truth is much further from this perception. In truth Scandanavian nations are often associated to be leaders in the field of environmental management, as they have such significant environmental problems – most often associated with their fiord and lake systems. In fact many commented to me during the fortnight in Finland, that much of the Finnish environmental work has only commenced with their membership to the EU.

### *Development*

The development of the FAEP program preceded Finland joining the EU in 1995. However until this time, levels adoption by farmers was not positive. Finland joined the EU in 1995. The provision of EU funds was very closely associated with the improvement in environmental performance and natural resource management.

Upon joining the EU Finnish farm incomes dropped by as much as 50%, as prices crashed. Farm income had been eroded by opening the market to the EU, therefore farmers believed the EU and Finnish government should be responsible for ensuring the level of farm income.

Interestingly, the attitude that pervades all the countries visited during the Churchill Fellowship can be summarised by the sentiment captured in the previous sentence: forfeiting responsibility for future security and independence to government.

Consequently in the mid-1990's Finland's commitment to FAEP evolved to a new level. Farmers would be required to demonstrate improvements in environmental performance through the implementation of FAEP. In turn the Finnish government could demonstrate their national commitment to improving the management of natural resources, particularly in the farming sector.

This close association of EU provisional funding for environmental programs, may in fact also explain the astonishingly high levels of adoption of FAEP amongst the Finnish agricultural industry, as discussed in detail in the following section.

The FAEP/ Thema is a very interesting case study for a number of reasons. The high adoption levels of the program may appear to indicate that the program is providing real benefits to farmers. However one of the key reasons why adoption levels were so low prior to joining the EU, is that the development of the program had not involved consultation with farmers. However as the security of farm income is now closely tied with the adoption of the program, explaining the high levels of adoption.

### *Implementation*

Currently 7000 farmers have had FAEP audits. While there are 80,000 farms with environmental plans in Finland. In the past three years the number of farmers adopting the program has doubled each year;

1998 – 1500 farmers

1999 – 3000 farmers

2000 – 7000 farmers

This significant rise in adoption levels reflects the provisional funding from the EU for the adoption of environmental programs. Finnish farmers receive between approximately 40-70% of their farm income from subsidy support – either the national government or EU.

Training is available to farmers to implement FAEP, and more generally the Thema software. Training costs FM3000, 50% paid by the farmer and the remainder paid by the Finnish government. The training involves a total of ten days, broken in two-day delivery units, with an average of two months between units. Currently there are 680 farm advisors available to conduct this training. In addition farmers pay FM1000 for a copy of the Thema software, designed to assist farmers with the implementation of FAEP and document the environmental plans.

Training is provided by the rural advisory centre advisors (RACA). In stark contrast with traditional extension theory (ie there to assist or facilitate progress for the farmer), the RACAs takes an active role in helping the farmer complete the plan. While this implementation model has been very successful in getting high adoption levels, it raises significant doubts as to the level of commitment farmers will have for the plans. It also begs the question of whether Finnish Agri-Environmental Program is all about “getting the numbers” and not the results.

I suspect the plan for implementation will most probably result in Finland achieving the targets set for the European Union, but the actual changes and improvements to the environment will leave much to be desired. This theme was a common thread between most of the programs visited, excluding Certerra and Whitsome Hill.

The primary indicator the EU adopts to monitor the improvement in Finnish environmental performance is the adoption level of the FAEP. Consequently high adoption levels, as witnessed over the past three years, *apparently* indicate to the

EU that adoption is resulting in improved farm practices and positive environmental outcomes. This indicator does not relate to the effectiveness of adoption and practices.

It was noted earlier that the FAEP/ Thema is an interesting case study. The second reason for this is the interface between implementation and compliance. A senior advisor at the Ministry of Agriculture in Helsinki reported that approximately 60% of the work involved in FAEP is paperwork or “bureaucratic requirements for EU”.

In stark contrast to some Australian farmers (eg cotton growers), Finnish farmers are completing the required paperwork of the FAEP, but are not following through by implementing improved practices on farm.

### *Compliance*

Audits are conducted on the environmental plans produced by the Thema software. The audit is largely restricted to a desktop audit; whilst the auditor will look around the farm, they focus more on the environmental plans developed than farm practices. The records and documentation are almost exclusively relied on to verify compliance.

One hundred and sixty people are available to conduct audits. These auditors largely are employed by the rural advisory centres.

### *Content*

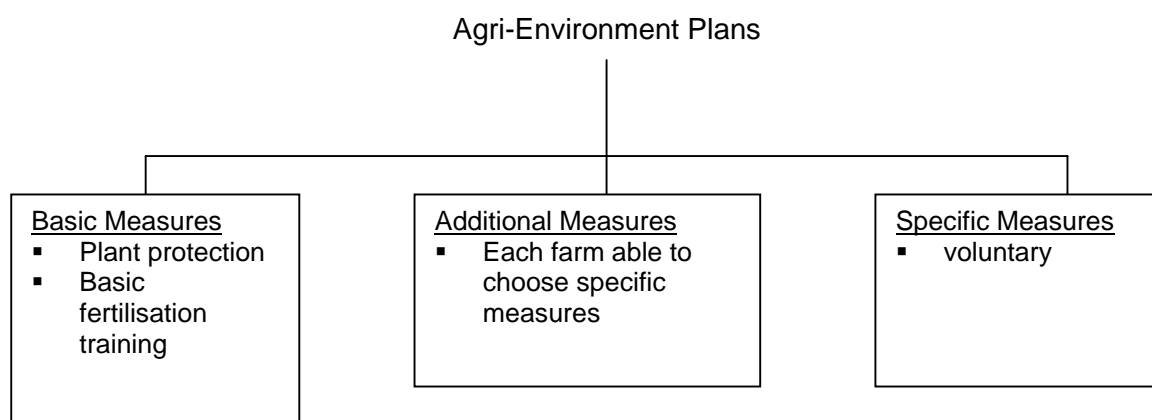
The Thema software is state of the art. It is simple to use and very easily guides farmers towards the various requirements of individual programs. It incorporates the requirements of relevant international standards for EMS, QA, OHS, and HACCP in a fashion that is easily understood and simple to adopt. In addition it provides links via

the internet to relevant information farmers may require when completing their environmental plans.

Farmers are encouraged to set goals for specific issues, where possible on a quantitative basis. Once these targets are set, work instructions or procedures are entered which will ensure the farmer achieves this target.

Data generated through the Life Cycle Analysis project is incorporated into the Thema software, enabling farmers to report and monitor performance on a numerical basis.

There are three levels of measures in the FAEP as illustrated in the digram below.



Farms implement the basic measures for five years before progressing onto the next category of measures.

After visiting nearly a dozen farms in Finland, it became clearly apparent that the focus in Finnish agriculture at the moment is to get as many farms as possible adopting FAEP, rather than implementing – ie getting the numbers and not the results. There is a very real distinction between adoption of the program and

implementation of the practices to improve both farm and environmental performance.

Coupled with this, is the frustration experienced with the FAEP/ Thema program. It is potentially the most superior in content and implementation, I have come across. However during the visit I continually got the impression from farmers that they viewed the program as a means to an end. While they understand it is the vehicle which will deliver a significant proportion of their income, it is viewed with much scepticism and hesitancy in real terms (ie the implementation of practices), as it has been developed in isolation from those who will be using it on a daily basis. Coupled with this is the practical experience of those developers: in many instances the critical issue for farm practice has been superseded by a more esoteric and irrelevant landscape issue which individual farmers often do not have influence over.

The following case study is an example of the results which can be achieved when the Thema software is used to its full extent.

### **3.5 PITKANEN FARM**

#### *Introduction*

The Pitkanen farm is located on the King's Road in south eastern Finland. The farm is approximately 80 hectares and produces cereal crops. The farm is certified to ISO 14001, ISO 9002, and recently was certified to BS8800 (the British Standard for Occupational Health & Safety).

The farm management coordinate the various certifications through the use of the Thema software developed by the Finnish Department of Agriculture. The Pitkanen family have risen to almost celebrity status within Finland as a result of their implementation and certification to international standards.

### *Development*

Unlike other ISO 14001 farming operations reviewed, the Pitkanen's primary motivation for developing ISO14001 on farm, was to be the first in Finland. Whilst this may be an admirable goal, the level of commitment to improving environmental performance was unclear and almost disregarded by farm management.

The initial development of the ISO systems on Pitkanen preceded the development of either the FAEP or the Quality Program and associated Thema software. Consequently the initial system was quite different to the current operating ISO system. Currently the Pitkanen ISO system, and the BS 8800, is documented through the Thema software.

### *Implementation*

The Pitkanen's report that the management, implementation, and review of the certified management systems operating on farm (ISO 14001 and BS8800) has been significantly assisted through the incorporation of the Thema software.

### *Compliance*

Compliance of the farm management systems is verified as per the requirements of ISO 14001, ISO 9002, and BS8800 standards. Individual audits are conducted for each standard.

Content

Refer to FAEP.

## **4.0 ADDITIONAL VISITS**

In addition to visiting specific programs, I also spent a significant amount of time with individual researchers. The majority of this research relates to environmental reporting – through the use of various tools.

### **4.1 COUNTRYSIDE PROGRAM**

Since 1997 £481 million has been spent in Scotland on subsidy support to farmers, of which 1.9% was directed towards agricultural/ environmental schemes.

A significant proportion of these funds has been directed towards the Countryside Survey 2000 project. Surveys have been conducted in 1978, 1984, 1990, and 2000 of each 1km<sup>2</sup> in Great Britain.

The collection of such information is essential to be able to determine the change in landuse and natural resources over time. In many countries this type of data is not been collected and hence no starting point for a benchmarking tool can be made.

This data collected in the Countryside Survey is used as a baseline over time and is seen as the only valid way in which landowners, policy makers and environmental groups will be able to monitor the progress of agri-environmental programs and determine if they are providing the expected outcomes.

### **4.2 WAU - KRIS VAN KOPPEN**

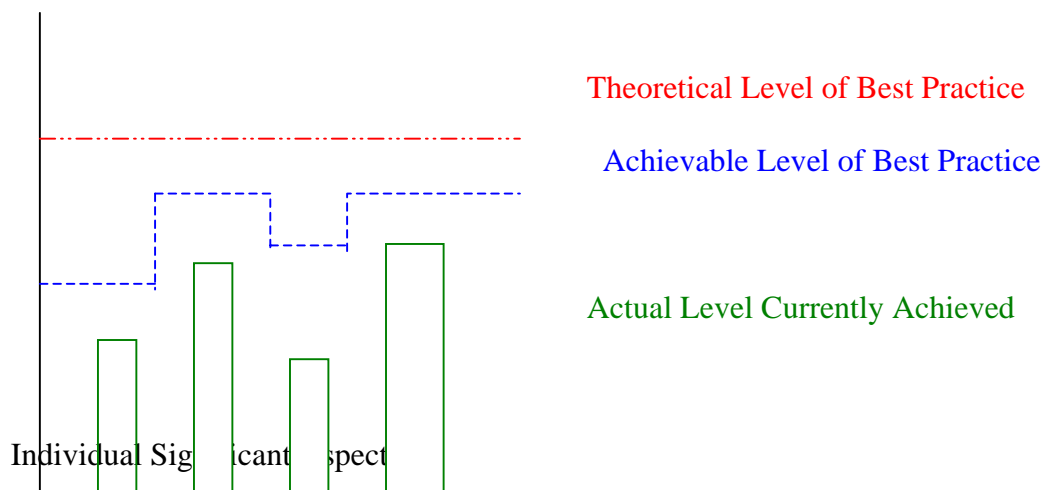
Life Cycle Analysis (LCA) for production is moving away from individuals components of a system, to incorporate the whole production chain. The application of LCA has plateaued: it is difficult for individual firms to calculate and really has meaning on a product basis rather than a production link basis.

The development of a single environmental performance indicator (EPI) is almost impossible to develop as integration of individual measures into one indicator would result in the loss of its meaning and purpose. Indicators are more often than not,

related to perception of consumers of the proceeding link in production chain. The difficulty in using indicators is communicating their meaning to the consumer or market.

In contrast to developing an individual EPI for the production of a specific product, research at Wageningen University has opted to develop a more meaningful measure to compare current performance. This measure, summarised in the diagram below, reports on the current level of practice in comparison to the achievable level of best practice.

The current level of best practice is a determined through monitoring farm practice quantitatively. Achievable level of best practice based on the highest standard available in the world (eg ADI for food intake, EU for ecolabels).



Using such a comparative tool has been well received by all groups. Kris indicated that the tool is not widely used at this stage, as it is still being fine-tuned for ease of application. However it was indicated that the use of comparable performance has suggested that some standards or expectations set by community or government may not be achievable in reality. Consequently the tool may be used when reporting

on performance and used in conjunction with various community groups and policy makers, to ensure targets are realistic and attainable.

The development of this comparison tool, avoids the problems associated with EPIs in the past: production systems are complex by nature – complex systems will not result in a simple answer. This shift in focus away from calculating a single indicator for a whole production system, has in many ways created a more complex reporting mechanism. But on the other hand it has now allowed for individual significant aspects and practices to be monitored and reported on, providing a more realistic and practical tool for EMS practitioners.

#### **4.3 CLM - HENK VAN REIJTS**

CLM has developed risk indicators, or yardsticks for a range of production issues including; pesticides, energy, direct and indirect inputs (eg fertiliser versus greenhouse gases).

The pesticide yardstick can be used by farmers to determine the level of risk to;

- aquaculture
- biodiversity
- soil fauna
- leaching to groundwater (in either spring or winter)

when using a specific chemical.

The data generated by research has been summarised into a wall chart supplied to farmers. Farmers are able to quickly and accurately determine what level of risk that are prepared to endure on any given spray job. Each risk is assigned a numerical rating. The government has the upper limit of 100 to be the maximum risk to be endured by the environment.

The CLM yardsticks have been incorporated into a number of farm management systems including Certerra.

#### ***4.4 FINNISH LCA PROJECT***

Funded by the Finnish MTT, the LCA project has developed a database of quantitative information using data generated from 1700 farms. At this stage the project is largely focused on barley production, however certain elements of the data collected can be incorporated into other production operations.

The software identifies the significant aspects and then quantifies their magnitude. In essence this technique is taking the identification of environmental aspects to the next level. Whilst the majority of ISO14001 operations reviewed, use subjective tools to determine significance of environmental aspects, the use of LCA through the Thema software, not only identifies these aspects, it also quantifies them for operators, allowing them to prioritise their work schedule.

The LCA component of the Thema software allows individual farmers to modify specific data entries, allowing them to make the data and LCA specific for their farming operation, rather than the average generated from the 1700 farms. The information can then be incorporated into environmental plans by the farmer and used to develop environmental goals for production.

It is important to note that positive environmental impacts are also recorded within the LCA report. Quite often these positive impacts are ignored in a bid to identify problematic areas, and how these may be remedied. This allows the farmer to use this data for reporting on the benefits to their operation, in both input and financial terms, for reporting and monitoring purposes.

The incorporation of the LCA into the Thema software is good example of an important tool of any EMS: the ability of practitioners to individually monitor the improvement in 'real' terms, since the implementation of EMS. This aspect of the LCA and Thema software, are in many ways the missing link of many AEMS. It addresses the concerns of many practitioners, in promoting the benefits of adopting such programs. The data provides hard data on the changer in the farming operation since changing practices and/ or implementing EMS.

Whilst LCA is not the only tool available to achieve this objective, the level of simplicity and sophistication of this tool is unique in all programs reviewed. In truth however it is probably the most impractical for many reasons;

- the difficulty of generating accurate data required to represent the operation and production systems
- financial considerations in developing the data will in most cases rule it out as an option for individual practitioners, except big business
- many individual operators and multi-site practitioners of AEMS have indicated that the development and maintenance of such data is an on-going process which many believe to be either too expensive, or complicated for agricultural production systems

The points outlined above are reflected in the level of use of LCA in the FAEP. Whilst the tool is available to all practitioners of EMS through the FAEP/ Thema, very few farmers are actually using the tool.

It is the author's belief that this tool may become more widespread in the future, however until that time, managers of multi-site EMS would be more successful in using such information on an industry basis for reporting and monitoring on a trends basis. This information could in fact be used through the collation of information

during the on farm audits. This suggestion was made to the managers of FAEP, the Quality Program and the LCA project. They are currently considering the feasibility of using the tool in this manner.

## **5.0 RECOMMENDATIONS FOR AUSTRALIAN AGRICULTURE**

### *5.1 Incentives for the responsible management of natural resources*

Real short-term financial incentives rarely exist for the adoption of EMS in agriculture, however medium and long-term benefits are often experienced. In all cases examined during the Fellowship, significant financial incentive, often through subsidies, were provided to farmers for implementing EMS or environmental practices.

The nature of farming operations is that new practices and systems are rarely adopted unless there is some demonstrated return to the farmer. Policy makers and environmental groups should keep this issue in mind when suggesting changes in farm practices in return for better NRM.

Banks have demonstrated time and again that they are irresponsible corporate citizens, so any expectation that they would offer better services to farmers in recognition of their environmental stewardship, is unrealistic. More realistic options may include the criteria for federal programs such as FarmBis or Natural Heritage Trust be broadened to include EMS and NRM initiatives by farmers.

#### ***Recommendation:***

Options of potential benefits to Australian farmers should be explored on a national level, to encourage farmers to adopt EMS or environmental practices. This may include the broadening of NHT and FarmBis criteria.

### *5.2 Supportive/ Interactive Role of government*

The Australian agricultural industry is currently characterised by numerous committees and organisations whose objective is to coordinate or address the work being conducted in relation to natural resource management, often through farm management systems operating in rural Australia. Not only is this situation

unproductive and uncoordinated, but time has demonstrated that these committees are ineffective.

In addition the uncoordinated fashion of these committees is highlighted by several government departments, and NGOs, establishing duplicate committees in isolation. This has resulted in duplication of work and research, poor communication and confusion.

### ***Recommendation***

That AFFA act as a clearing house or in a coordination capacity to streamline these committees. The short-term objective should be to assimilate the committees where possible. Medium objectives should include clear communication – to relevant state, federal and industry organisations - of the purpose of these groups to ensure open and clear communication channels and information flows.

### ***5.3 Communication***

The Churchill fellowship is the third time I have travelled overseas to investigate this particular area of farming systems. Each time I have returned, reinforced with the view that Australian farmers are among the best in the world. Many agree with this view, yet the truth is often kept like a sacred secret, perhaps in for fear of the 'Tall Poppy' syndrome. This message has never effectively been communicated either to rural Australia, government departments, community and environmental groups, and consumers.

### ***Recommendation:***

Industry and Farming organisations, should promote this truth to community and environmental groups, government policy makers and international trade partners.

#### *5.4 Development of objective benchmarking tools and indicators*

In the past six to twelve months, various federal government departments have been investigating how best they can be involved in the EMS /NRM in Australian agriculture. Within the next five years farmers and industry organisations will be required by consumers or government, (but more importantly) trading partners, to *quantitatively* demonstrate their assertions of responsible management of natural resources. However the tools are not yet readily available to do so.

The adoption of an EMS does not *necessarily* equate with positive NRM outcomes. It *does* however if appropriate monitoring, review and management of the system is conducted over time.

#### ***Recommendation:***

Federal (RDCs) and State government departments should be encouraged to invest in the development of benchmarking tools, objective performance indicators – based on effectiveness - and reporting and monitoring procedures. The coordination of this data could be facilitated through committees and groups already operating such as SCARM, Rural R&D

Corporation Chair of Chairs etc. National or state databases should be developed to avoid duplication of work and ensure all data is captured.

### *5.5 Integration of QA and EMS systems*

The proliferation of farm management systems is counter-productive. As noted clearly in the report, it is possible to integrate QA, EMS, OHS, and HACCP systems within the one farm management system. It is naïve and ignorant of industry to expect that all these elements will not be required of farmers in the near future.

One of the key issues relating to this integration will be the use of suitable auditors, will appropriate skills, knowledge and experience, not only of the various management systems, but also across commodity groups in the case of mixed farming enterprises currently adopting several farm management systems.

#### ***Recommendation:***

1. RDCs and other relevant federal and state organisations should ensure that duplicate work, research and development of programs should not continue.
2. Consideration should be given, following from recommendation 5.2, to supporting the integration of the various farm management systems.
3. Consideration be given by the relevant group (eg SCARM) as to the use of appropriate auditors, and development if deemed necessary of a stand alone certification body for Australian agricultural produce.

## **6.0 ACKNOWLEDGMENTS**

1. John Swire Group for providing sponsorship of the Winston Churchill Memorial Trust
2. Winston Churchill Memorial Trust for this once in a life time opportunity
3. Cotton Research & Development Corporation for allowing me to take extended leave to embark on this exciting study
4. Elvie Munday, Assistant Executive Officer, Winston Churchill Trust. For her kind support following surgery prior to departure for the study
5. Overwhelming hospitality of Mirja and Sirja Pitkanen
6. Seppo Salo for kindly driving all over Finland for ten days
7. Dick Legger for assisting in the organisation of my study in Holland
8. Tarja Haaranen of Ministry of Agriculture and Forestry Finland, for kindly posting copious reports and studies following my return to Australia
9. David Anthony of Auscott Ltd, for assisting in the initial Churchill application
10. Julie Buckley of TAFE NSW, for kindly acting as a sounding-board for ideas in drafting this report
11. Numerous others who went out of their way to assist in my travels and studies, and also for making me feel so welcome.

## **7.0 REFERENCES**

- Doug Niven, personal communication
- Whitsome Hill EMS Manual
- Caroline Drummond, personal communication
- Geraldine McGowan, personal communication
- Kris van Koppen, personal communication
- Dick Legger, personal communication
- Henk van Zeijts, personal communication
- Caroline Roman, personal communication
- Jaap Frouws, personal communication
- Gea Bouwman, personal communication
- Floor Brouwer, personal communication
- Sirpa Karjalainen, personal communication
- Seppo Salo, personal communication
- Tarja Haarnen, personal communication
- Eero Juntunen, personal communication
- Jouko Tammio, personal communication
- Pirjo Jokipii, personal communication
- Jouko Uolo, personal communication
- Sakari & Mirja Pitkanen, personal communication
- Viljatila Pitkanen EMS/ ISO 14001 systems
- Antero Parkkonen, personal communication
- Juha Salopelto, personal communication
- Helena Sipakko, personal communication
- Agriculture, Environment & Fisheries Department, 1999. Countryside Premium Scheme. The Scottish Office
- Certerra, 2000. ECC guidelines 2000 vegetables under glass. MBT, Zoetermeer

- CLM, October 1999. European Union Agricultural Policy after 2000: Has the environment been integrated? A report for the European Environmental Bureau. In press CLM, Utrecht
- Berg, N.W, van den, 1994. Beginning LCA. A Guide into environmental Life Cycle Assessment. Unilever & CML.
- CLM, 1992. EC Agricultural Policy and the Environment. In press CLM, Utrecht.
- CLM, 1996. Centre for Agriculture and Environment. In press CLM, Utrecht
- CLM, 1993. Nature Conservation on the farm. Report of a European workshop for extension officers. In press CLM, Utrecht
- Frouws, J. 2000. Greening the Dutch countryside: ecological modernisation in the rural arena. Paper presented at the international Colloquium at Strasbourg.
- Richmond, M.1998. Environmental Performance Indicators and Food: Measuring a concept of environmentally friendly pork. In press WAU, Wageningen
- Frouws, J. 1999. Environmental Regulation of Hog Farming in the Netherlands and other European Union Member States: Conflicts, Interests and Policies. Paper presented at GIN – Conference at Chapel Hill
- CLM, 1999. Environmental Yardsticks for pesticides. In press CLM, Utrecht
- OECD, 2000. The effects of support measures on the profitability of organic farming relative to conventional farming: a case study for The Netherlands. In press OECD
- Vorley, W., Hamilton, H., Gilje, K., Zee, V. van, et al. 1998. Marketing Sustainable Agriculture: Case Studies and Analysis from Europe. In press IATP, Minneapolis.
- Rijswick, C.W.J.van, Silvis, H.J. 2000. Alternative instruments for agricultural support. A survey of measures applied by competitors of the European Union. In press LEI, The Hague.
- Brouwer, F., et al. 2000. Comparison of environmental and health-related standards influencing the relative competitiveness of European Union agriculture vis-à-vis main competitors in the world market. In press LEI, The Hague

- Reus, J. et al. 2000. Comparing Environmental Risk indicators for pesticides: results of the European CAPER Project. In press CLM, Utrecht
- Ministry of Agriculture & Forestry, 1998. Agri-Environmental Programme in Finland 1995-1999. memorandum 1998:5 Ministry of Agriculture & Forestry.
- Pirttijarvi, R., Aakkula, J., Miettinen, A., Sumelius, J. 1995. Agro-Environmental Prospects of Environmental Support. In press Agricultural economics Research Institute, Helsinki
- Luostarinen., 1996. Agriculture-Environment Interaction. In Press, Agricultural Research Centre of Finland, Jokioinen
- Aakkula, J. 1997. Sustainable development in agriculture: indicators, administrative programmes and demonstrations: SUSAGRI 1997-2000.
- MTT. 1998. Loimijoki. In press MTT, Jokioinen
- Seppala, V. 2000. Integration of environmental priorities with agricultural policies in order to minimise the nutrient load on inland waters and the Baltic Sea. EU Life for Lakes
- Seppanen, H. 1999. Farm Environmental Management Programmes for good agricultural practices. Unpublished.
- Jokipii. P. 1999. The quality system on Finnish Farms. Unpublished
- Finfood. 1999. Agrifacts 1999. In press Finfood.
- Ministry of Agriculture & Forestry. 2000. This is how Finnish Quality is made. The Finnish national quality strategy for the food sector. Pamphlet in press Ministry of Agriculture & Forestry, Helsinki.
- Ministry of Agriculture & Forestry. 1999. Development of the Finnish Rural Policy. Pamphlet in press Ministry of Agriculture & Forestry, Helsinki.
- Ministry of Agriculture & Forestry. 1999. Vitality from the north: Agriculture in Finland.
- Aakkula, J., et al. 1999. Agriculture in Finland. In press Ministry of Agriculture & Forestry, Helsinki.

- Konttinen, L. 1999. The adoption of quality management in Finnish dairy farms and its consequent effects. University of Joensuu Press.
- Merilainen, P. 1999. A quality Programme for farms. Published by Rural Advisory Centre North Karelia.
- Maaseutukeskus. 1998. Thema TQM Operation Management System: anew way to draw up and maintain a quality system.
- Ministry of Agriculture & Forestry. 1999. Foodstuffs Production in Finland: Quaslity strategies and goals.
- Katajajuuri, J.M., Loikkanen, T. 1999. Towards transparent information of environmental quality of foodstuffs. Industrial Environmental Economics.
- Lahti, J., Nikkola, E. 1999. The use of renewable natural resources in Finland. In press Ministry of Agriculture & Forestry, Helsinki.
- Finpro. 1999. Pure pleasure throughout the Finnish Food Chain: from the field to the table. In press FINPRO, Helsinki
- Agra Europe. May 26 2000, No. 1902. Fortnighly newsletter. In press Agra Europe, Paris