

## UMWELTMANAGEMENT & MARKTORIENTIERUNG

# Quality and Environmental Management System on Sixty Danish Farms

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## Abstract

*Presentation of a three-year-project (1995-97) including the development, implementation and evaluation of an integrated quality and environmental management system. Sixty Danish farmers, among them pig producers, cattle farmers and arable farmers, showed an interest in the project and were involved in the whole process. A joint quality and environmental manual was developed in 1995, the system was implemented in 1996 whereas certification and evaluation will take place in 1997. The contents of a joint quality and environmental manual are described, the framework of an individual manual is outlined and the principles of the functions are discussed.*

## 1 Introduction

In 1994, the Danish Agricultural Advisory Centre (DAAC) decided to start the so-called *Kvamilla* project. Over a three-year-period sixty farms of varying size and production profiles were to develop, implement and evaluate a system for integrated quality and environmental management.

The project started in 1995 with the education and training of the persons involved and the development of a joint quality manual. In 1996 the system has been implemented on the farms. Until the end of 1997 the system will be evaluated and decisions on the future organisation will be made. In October-November 1996 the first group of farmers was certified and the last certificates was issued in April 1997. This paper describes the project and its contents, the people involved and the processes of developing and implementing the system on the farms.

## 2 Project goals

The object of the project is to develop and try out a model for systematic quality management in farm enterprises. Throughout this project environmental management is a fully integrated part of the quality management system.

The goals are:

- to improve the economic results of the farmers through knowledge on quality and the application of systematic quality management
- to improve management and the utilization of resources like nutrients, chemicals, medicine, energy, water etc.
- to demonstrate how the farmers can plan, produce and prove a certain quality in their products

- to obtain a certification of the whole production or part of it on the farms involved, and to evaluate the possibilities and benefits hereof
- to evaluate the role of the agricultural advisers in this process and to improve the knowledge on quality management among the local advisers.

The project covers all products from cattle farms, pig units as well as crops for feeding and sale. The farms must fulfill the requirements in the standards ISO 9002 and ISO 14001.

### **3 Project partners**

The project is organised and managed by the Danish Agricultural Advisory Centre in Aarhus, the national body for extension and advice to all Danish farmers. The project is financed partly by the Danish Ministry of Agriculture and Fisheries (approx. 40 %), partly by private funds and the main farmers' organisations.

Six local agricultural advisory centres were selected, and a few of their advisers were educated and trained to act as guides in the process of developing and implementing a quality management concept. For each of these local centres 8-14 farmers were interested in participating in the project. After having introduced the objectives and the conditions to the farmers and their local advisers, sixty farmers now participate: 19 pig producers, 22 cattle farmers (including 4 organic farmers) and 19 arable farmers. The participating farms range from 25 to 1,160 hectares.

When going into the project each individual farmer agreed on participating in a number of meetings and training sessions where he were to describe his own enterprise and working processes and to implement the system in all his production units. In the end he will be certified by an official body and stay certified for a period of up to three years.

Education and training, the advice supplied by the local quality adviser and the certification costs are free of charge. But the time which the farmer and his employees spend on the project and the work done on the farm will be his investment in the new management concept.

### **4 Joint quality manual**

The joint quality manual includes all topics which can be defined as common for the farm enterprises involved. The main requirements of the two above standards have been translated into agricultural terms and the requirements are formulated into specific frames for the individual manual. Moreover, the manual contains guidelines related to legislation and *Good Farming Practice*. The actual contents of the manual have been discussed by the farmer groups several times, and the farmers themselves have formulated most of the text. Finally, the total manual has been approved by all sixty farmers at a common conference.

The joint quality manual contains chapters related to common standard requirements such as purchases and sales, education of staff, inspection and measuring equipment, nonconformities and internal audits etc. These topics are common to most enterprises and are described rather detailed in the joint quality manual and only a few specific instructions and forms are included in the individual manual.

However, the joint quality manual also contains chapters related to the production processes on the farms. The *procedure for managing plant production* is valid for all the farms involved whereas the *procedure for managing pig production* is only valid for the pig producers and similarly, the same applies to the *procedure for managing cattle production*.

The joint quality manual outlines a framework which has to be filled in on each individual farm, including individual objectives, goals, organization and plans. The manual states the areas in which the individual farm has to specify and formulate product standards and instructions. This means the joint quality manual and the individual manual form a framework woven together by means of references, the joint quality manual being a guide for the farmer but also for the auditor and other external viewers.

## **5 Individual manual**

By definition, a quality management system has to be unique for individual enterprises. Therefore, the farmer must prepare his own descriptions of goals, organization etc. and he himself must decide on his system for planning and documentation. These requirements will be fulfilled by the individual manual of each farmer.

The contents of the individual manual are analogous to the contents of the joint quality manual and have the same numbering. Each chapter (procedure) in the joint quality manual ends with a summary of the instructions etc. which the individual manual must contain. Each chapter of the individual manual has a reference list, showing all documents and tools related to the topic. Documents are for instance instructions, forms, data programmes and other common tools used for managing specific production processes like feeding, cleaning, fertilizing, spraying etc. The farmer can use *The General Pool* as a template to formulate his own manual. To a great extent, the farmer can put into his quality concept the management tools which he is already using and is familiar with.

When a farmer produces and delivers products on contract to a specific customer, they often have to meet a set of specific requirements. Naturally, these requirements are handled as customer requirements in the quality management system and will be well documented by means of this system. But farmers often produce products where the customer is unknown at the time of production or the farmer himself is the customer. In this case, the farmer must define the product requirements himself.

Part of the system is related to environmental management where there are strict requirements on the individual part. The farmer must describe the specific environmental impacts of the different production processes on the farm. He must decide on his own goals and he must plan the improvements in detail.

## **6 Implementation, audit and certification**

During implementation the farmer can choose among several ways of solution. He can write all the instructions, forms and documentation for the individual manual from scratch. He can select some tools from a pool of common documentation which the farmers, the local quality advisers and the project group have collected and edited. He can use the local quality adviser

as a consultant, a sparring-partner or a secretary, writing everything for him.

But in the end the planning process, the actions, the changes in the environmental and quality attitudes and the education and training of employees must be part of the day-to-day routines on the farm. Therefore, the system will not be effective and show a result until several months of hard work has been performed by all the persons involved. And then some external person must visit the farm, do an audit to evaluate the functioning, effectiveness and results of the system at work.

When the first version of the joint quality manual was ready, the certifying body made a pre-evaluation to check the consistency with the standards, meaning that the common principles and the framework were approved in advance. The farmers who write their individual manuals could then do this in accordance with the guidelines and be sure nothing completely wrong could happen.

The first farmers have now got their certificates and the experience gained is good. So far most deviations and nonconformities have been found in the area of production influence on the environment and related goals, improvements and registrations.

## 7 Conclusions

Although it is far too early to conclude the project, the following few statements can be made about the project and its participants:

- It is possible to develop and apply a joint quality and environmental manual that outlines a framework for several farm enterprises with similar production processes.
- A high degree of involvement of the farmer, his wife and his employees is absolutely necessary right from the beginning of the process because quality and environmental management highly affect the farmer's attitudes.
- A local adviser (known by the farmers) must be well educated and trained in the new disciplines of quality and environmental management.
- The costs of quality advice and certificate must be reasonable if the costs are to be paid by management gains or higher product prices.
- The model based on a joint quality manual is one of the factors reducing the costs of certification to a reasonable level, which is essential for small enterprises.

## 8 References

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