CARING DAIRY: A SUSTAINABLE DAIRY FARMING INITIATIVE IN EUROPE

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ABSTRACT

Interest in the concept of sustainability in dairy farming has grown as a result of the continuous pressure on farm incomes, occurrence of animal diseases with a major impact on the image of dairy farming, concerns about animal welfare, and environmental problems caused by agriculture. There are, however, still many gaps in the knowledge regarding sustainable dairy farming. Respecting the earth and the environment and 'giving back to community' is a fully integrated part of the Mission Statement of ice cream maker Ben & Jerry's. Following this mission, they have initiated a sustainable dairy farming project, 'Caring Dairy', for the European production based in the Netherlands. The aim of Caring Dairy is to secure dairy production in a more sustainable way and to develop guidelines for Sustainable Dairy Farming Practices (SDFP). The approach of Caring Dairy is based on Unilever's sustainable agriculture approach. At this moment 11 dairy farmers participate in Caring Dairy and a baseline measurement for all 11 indicators (soil fertility and health, soil loss, nutrients, pest management, biodiversity, energy, water, farm economics, social human capital, local economy and animal welfare) has been done from where improvement plans, both on a strategic and indicator specific level, have been developed tailored to the specific situation and priorities of the individual farmers. An iterative process of implementation of the improvement plans, measurement, analysis and re-adjusting the plans will lead ultimately to the guidelines for SDFP. Caring Dairy shows the innovation power of supply chains by the bottom-up development of good dairy farming practices in co-operation with all relevant supply chain partners, which goes beyond existing initiatives related to sustainability in the dairy sector.

Key words: Sustainability, Dairy farming, Strategic management, Bottom-up approach, Chain partners

INTRODUCTION

Interest in the concept of "sustainable" farming systems has grown as a result of the continuous pressure of farm incomes, occurrence of animal diseases (e.g. foot-and-mouth diseases and BSE) with a major impact on the image of dairy farming , concerns about animal welfare, and environmental problems caused by agriculture (Van Calker et al., 2005a). Therefore, it is important to determine the extent to which certain farming practices and farming systems

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can be considered sustainable or not. In general, sustainability of agricultural practices and agricultural systems deals with economic, social and ecological sustainability (Hansen, 1996, Heinen, 1994, Shearman, 1990). By measuring indicators per aspect of sustainability, i.e. economic, social and ecological sustainability, effects of farming practices and farming systems on sustainability can be determined. In this way farmers can be supported to make a transition towards more sustainable farming.

Sustainable farming is often equated with organic farming (Rigby and Caceres, 2001) Sustainable dairy farming is, however, not synonymous with organic dairy farming, as sustainable dairy farming has a more holistic approach than organic dairy farming; in other words sustainable dairy farming includes more aspects and allows for trade-offs between them, Moreover, sustainable dairy farming can have a bigger impact on the whole dairy sector as it is a mainstream approach focusing on conventional dairy farming which accounts for over 95% of the Dutch dairy farms (Fresco et al., 2005) and organic dairy is struggling with creating sufficient demand.

Although in the Netherlands the quality standards are high and care for the environment is increasing there are insufficient incentives for Dutch dairy farmers to produce their products in a more sustainable way. Moreover, there are still many gaps in the knowledge regarding sustainable dairy farming. Ice cream maker Ben & Jerry's has a Mission Statement in which respecting the earth and the environment and 'giving back to community' is a fully integrated. Following this mission, they have initiated a sustainable dairy farming project, 'Caring Dairy', for the European production based in the Netherlands. The aim of Caring Dairy is to secure more sustainable dairy production that eventually leads to the development of guidelines for Sustainable Dairy Farming Practices (SDFP).

Main objectives of Caring Dairy are: (1) making sustainability operational for commercial dairy farms, (2) improving the sustainability performance for the participating commercial farms, and (3) to develop guidelines for Sustainable Dairy Farming Practices (SDFP) and allowing the full dairy sector to learn from the achieved insights. Caring Dairy is based on Unilever's sustainable agriculture approach and is supported among others by Interactive Strategic Management (Smit et al., 2002) and the Farm Sustainability Index (Van Calker et al., 2004, Van Calker et al., 2005b), a method to asses sustainability in Dutch dairy farming.

The paper is structured as follows. First the participating supply chain partners and stakeholders involved in Caring Dairy are presented. Second, the Caring Dairy approach to develop the Sustainable Dairy Farming Practices is presented. Finally, conclusions are drawn and an outlook is given for future developments of the project.

Supply chain partners

All supply chain partners are involved in Caring Dairy (see Figure 1): the dairy farmers as primary producers, the buyer of milk as trader, the Hellendoorn ice cream factory as producers of Ben & Jerry's ice cream, the Ben & Jerry's marketing organisation and scoop shops responsible for the communication towards the consumers, and the consumers as final users who are educated on the origin of the product they consume.

Eleven dairy farmers participate in the project. These dairy farmers supply the amount of dairy used for the production of Ben & Jerry's in Europe. A project team in which all the supply chain partners are represented including two farmers, is responsible for the shaping and implementation of the project. The eleven dairy farmers have been selected based on their willingness to participate, to convert towards more sustainable dairy farm practices, and the application of grazing for dairy cows and/or young stock. Main reason for dairy farmers to participate is increasing their understanding of their own business enabling them to work more

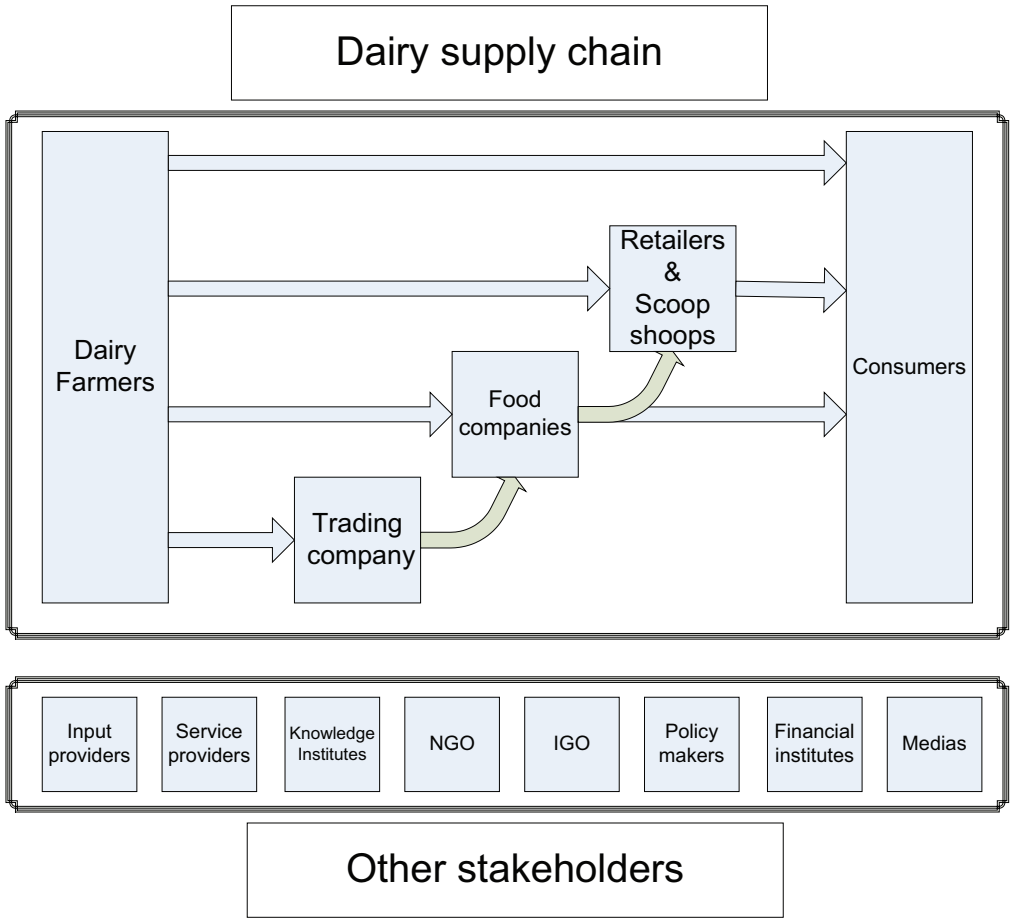

Figure 1 Chain partners and other stakeholders within the CARING DAIRY-project

efficient, which also helps them to anticipate on changing EU legislation from volume based income support to sustainability based income support. Moreover, Caring Dairy will help to positively expose and improve the image of dairy farming.

The participating dairy farmers supply their milk to the trading company (Hoogwegt milk B.V.) which supplies the ice cream factory. Hoogwegt's role was to select and to enthuse farmers for Caring Dairy participation and being the first point of contact for the participating farmers.

Ben & Jerry's is founded on and dedicated to a sustainable corporate concept of linked prosperity. The company tripartite Mission Statement consists of a Product-Quality, Economic and Social Mission, of which respect for the earth and the environment and the belief that business plays a central role in society by initiating innovative ways to improve the quality of life locally, nationally & internationally, are an integrated part. Therefore, securing a sustainable supply of dairy and helping farmers to do this is a natural way of working for Ben & Jerry's, following from this Mission Statement.

For consumers, the story around sustainable dairy matches their growing interest in: the origin of the food they are consuming, animal welfare, caring for the environment and taking

social responsibility. As the project is brand driven, Ben & Jerry's marketing and communications functions are directly involved in steering and advising the project, constantly making the direct translation of decisions made to the impact on communication towards consumers.

Besides all supply chain partners, the Animal Science Group and the Agricultural Economic Institute of Wageningen University and Research Centre participate in the project as content partners. Societal organizations (NGO's) and other stakeholders (see Figure 1) are involved as external advisors.

The Caring Dairy approach

Caring Dairy is based on Unilever's sustainable agriculture approach (Unilever, 2005), which builds upon 7 years' experience of developing sustainable agriculture practices for specific crops such as tea, palm oil, spinach, peas and tomatoes (Unilever, 2003a; Unilever, 2003b; Unilever, 2004). The program is based on a triple bottom line approach in which the right balance between economic growth, social progress, and environmental protection is searched for. In five steps good agricultural practice guidelines are developed: definition, principles, indicators, parameters, guidelines for good agricultural practices.

Definition of sustainable dairy farming (step 1)

Together with all the key stakeholders the following definition of Sustainable Dairy Farming was agreed upon: Sustainable dairy farming is protecting and improving the natural environment, animal welfare, and conditions of the local communities, while at the same time being productive and efficient.

Principles: general statements of purpose and intent (step 2)

In our approach to sustainable development of dairy farming we support the following principles:

- Producing milk with a high nutritional quality to meet existing and future needs, while keeping resource inputs as low as possible.
- Ensuring that any adverse effects on soil fertility, water and air quality, landscape and biodiversity from dairy farming activities are minimised and positive contributions are made where possible.
- Optimising the use of renewable resources while minimising the use of non-renewable resources.
- Sustainable dairy farming should enable local communities to protect and improve their well-being and environments.
- Sustainable dairy farming should ensure an optimal well-being of the animals (cows).

To be able to successfully support these principles, a set of indicators and parameters have been developed to measure and subsequently improve the sustainability performance.

Indicators: specific areas on which to focus work (step 3)

In this research we made a gap-analysis of existing standards/initiatives regarding sustainable (dairy) farming to secure full coverage of the three sustainability aspects (i.e. economic, social and ecological sustainability), resulting in eleven indicators: soil fertility/health, soil loss, nutrients, pest management, biodiversity, farm economics, energy, water, social/human capital, local economy, and animal welfare.

Parameters: data points that quantify sustainability (step 4)

Defining parameters for measuring the sustainability of the selected indicators is a two-step process (De Boer and Cornelissen, 2002). The first step identifies all possible sustainability parameters. The second step selects relevant sustainability parameters based on 5 criteria:

1. Relevant to the indicator of concern and comprehensible to all stakeholders
2. Objectively quantifiable and possible to influence at farm level (i.e. sensitive)
3. Proven validity
4. A target value can be determined for the parameter
5. Simplicity and technical and financial feasibility to measure the parameter

The parameters were selected based on a wide variety of sources: studies (Van Calker et al., 2004, Van Calker et al., 2005b) that selected parameters for measuring the sustainability of Dutch dairy farming systems, insights from other crops in Unilever's sustainable agriculture programme (Unilever, 2003/2004), knowledge from other sustainable dairy projects (e.g. Bylin et al., 2004, Oenema et al., 2001), and further literature research. Appendix A gives an overview of the most important parameters per indicator for sustainability.

Sustainable Dairy Farming Guidelines: practices that lead to measurable improvements (step 5)

The Guidelines for SDFP will be the result of the continuous process of improvement (see Figure 2). This process itself is the main part of the project and is based on a bottom-up approach, i.e. tailored to the specific situation and priorities of the individual farmer. The most sustainable solution is dependent on the context an individual farmer works in, - e.g. soil type, farm type, weather conditions, and land division -which implies sometimes a trade-off between the various sustainability aspects.

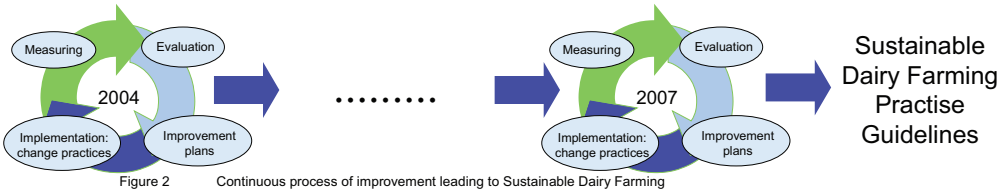

Figure 2 Continuous process of improvement leading to Sustainable Dairy Farming Guidelines

In the first year (2004), the project started with a base-line measurement on the participating dairy farms. The dairy farms were visited and general and historical data of the farm, the farmer and his family was collected. Furthermore, most data for measuring the parameters per indicator was collected. Subsequently the collected data was analysed and evaluated, both internally and externally, forming the base of the improvement plans. A subdivision is made between a strategic improvement plan and indicator specific improvement plans. The strategic improvement plan focuses on strategic and tactical management, whereas the indicator specific improvement plans focus more on tactical and operational management.

Strategic improvement plans have been developed using Interactive Strategic Management (Smit et al., 2002), which is based on the principle that the farmer has a central role in developing his own strategy that matches his own farm-situation and personal ambitions and competences. The strategy development starts from long-term goals to insure the incorporation of the sustainability indicators. For the application in this project Interactive Strategic Management

consists of two parts (Ondersteijn et al., 2002, Beldman et al., 2002): (1) Strategic Management Report (SMR), and (2) Game Simulation Dairy. For the SMR the farmer is asked for his vision on his environment, his farm and on his role as craftsman and entrepreneur. Subsequently, the farmer is asked to make a SWOT (Strengths, Weaknesses, Opportunities, and Threats; Strengths and Weaknesses are internal factors and Weaknesses and Threats are external factors) analysis. Finally, the farmer is asked to formulate the goals for the sustainable development of his dairy farm. These goals are used as input for the Game Simulation Dairy (Hennen, 1995). This model, based upon linear regression, calculates the effects of changed management on technical, economic, and ecological results. In several iterations the farmer can adjust his strategic and tactical farm management to achieve his goals, which results in a strategic improvement plan. Given the Dutch situation of a changing EU subsidy regime and decreasing milk prices, most improvement plans developed by the participating dairy farmers are based upon growth in milk quota and land area. Furthermore, the farmers indicated to adapt their fertilizer, feeding and/or grassland management.

The indicator specific improvement plans have been assessed during indicator specific meetings. The focus of the meeting with respect to the specific indicator was determined in deliberation with the dairy farmers. In general, the indicator specific meetings consisted of three parts: (1) an expert presentation on the latest developments and management measures to improve the performance of the specific indicator, (2) presentation of the results of the base line measurements of the specific indicator in the context of the complete group of participating farmers, (3) development of individual improvement plans for the specific indicator based on a SWOT analysis. These meetings were organized on the farms of the participating farmers. In this way, trust and a relationship between the farmers was built, an important part of the learning objectives of the whole process.

Success factors

Caring Dairy has three main factors that makes the project distinctive from other sustainable dairy related projects: the participation of the full supply chain, the integration of the broad scope of the various sustainability aspects (the 11 indicators), and the bottom-up approach.

By the participation of the whole supply chain in Caring Dairy, it is closely listened to and anticipated on societal trends and consumer wishes. This enables Caring Dairy to become appealing and interesting for consumers, to rectify common misperceptions about dairy farming or ingredients and positively influence the image of dairy farming

The triple bottom line approach in which the optimal balance between the various economic, environmental and social indicators is sought for, and in which a trade off between the indicators is allowed, represents a holistic and therefore realistic approach of sustainable development, directly related and with the third factor, together explaining the added value for the participating farmers.

The bottom-up approach is based on listening to the dairy farmers' problems, priorities, insights and letting them guide the project. Moreover, 2 farmers are actively involved in the shaping and steering of the project by their project team membership. This bottom-up approach has proven to be successful; the participating farmers where quite expectantly and cynical at the start though open minded enough to participate, and became full supporters of the project along the way. Caring Dairy really helps them to better understand their own business and work more efficiently, and learn a lot from each other.

Outlook and conclusions

End 2005, the first phase of the project will be finished. By then, base line measurements

have been done and first improvement plans at all participating farms have been implemented. After implementation of the improvement plans the whole cycle of measuring, evaluating and adjusting improvement plans and actual implementation starts over again. This iterative process of implementation, measuring, evaluating, and re-adjusting has to lead (2008) to guidelines for Sustainable Dairy Farming Practices. Finally, participating dairy farmers have implemented a substantial number of management measures tailored to their specific situation and priorities by which they sustain the milk production on their farms. Communication on the learnings (content) and experiences (process) are an important part of the project. This transparency in the supply chain will help to bring consumers closer to the dairy chain. Eventually, it is aimed to hand over the SDFP guidelines to the dairy sector.

Caring Dairy shows the innovation power of supply chains of Sustainable Dairy Farming Practices in co-operation with all relevant supply chain partners and stakeholders, going beyond existing initiatives related to sustainability in the dairy sector by the holistic, bottom-up approach. This system of cooperation and mutual learning between supply chain partners is unique in the Dutch dairy sector. In addition, Caring Dairy uses new principles by given farm strategy and profitability a fully integrated position and by allowing the farmers individual flexibility in their search for an optimal sustainability performance. Furthermore, Caring Dairy makes the source of the main ingredient of ice cream (i.e. milk) personal and tangible, which is an emotional added value for both consumers and farmers and in the longer term an economic added value for the farmers.

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