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**Green care in Agriculture:
Health effects,
Economics and Policies**

Proceedings

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**“GREEN CARE IN AGRICULTURE:
HEALTH EFFECTS, ECONOMICS AND POLICIES”
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**COST ACTION 866 “GREEN CARE IN AGRICULTURE”
– A MULTI-DISCIPLINARY SCIENTIFIC NETWORK**

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Abstract

‘Green care’ is the utilisation of agricultural farms - the animals, the plants, the garden, the forest, and the landscape - as a base for promoting human mental and physical health, as well as quality of life, for a variety of client groups. The main objective of the Action is to increase the scientific knowledge on the best practices for implementing green care in agriculture with the aim of improving human mental and physical health and the quality of life. A multidisciplinary scientific effort is essential to develop green services as part of a multifunctional agriculture, as well as providing documentation of its effects on client groups to increase confidence in the health, social and educational sectors. The Action comprises three Working Groups. Working Group 1 (Health effects) coordinates research and develops new research on green care in biological, medical and health sciences, including conceptual, theoretical, and

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methodological developments. Working Group 2 (Economics) coordinates research and develops new research on economics of green care services at micro, mezzo and macro levels. Working Group 3 (Policy) coordinates research and develops new research on management of green care farming, and also develops policies and discusses how green care can fit current and future national health and social care systems, and affect rural development positively. The Action, which runs from 2006 to 2010, involves 19 countries and about 150 scientists and other academic staff of research institutions and organisations. In order to achieve its aims, the Action organises workshops, conferences and Working Group meetings. Presentations at meetings are published on the Action website: www.umb.no/greencare.

The background for this Action

What is Green care?

‘Green care’ is the utilisation of agricultural farms as a base for promoting human mental and physical health. The health sector and social services need alternatives to traditional medical treatment, therapy, rehabilitation, and work training. In the countryside and on farms, the animals, the plants, the garden, the forest, and the landscape are used in recreational or work-related activities, for psychiatric patients, mentally disabled persons, people with learning disabilities, people with burnout problems, people with drug problems, young people, elderly people, and clients of social service. Such activities may not be pure therapy but extensive experience suggests they may have therapeutic value. The numbers of such *multifunctional farms* offering green care services are increasing rapidly (figures for 2004: Norway: 600, The Netherlands: 430, Italy: 300-350, Germany: 300, Austria: 250, Belgium: 140, Slovenia: 15). Many countries do not have good estimates and numbers are best estimates and depend on how green care is defined. In the UK ‘care farming’ is a new concept, but the number of farms which offer such services is growing. A recent survey (NCFI 2007) counted 43 such farms but this may be an underestimate. Social and therapeutic horticulture, in particular, has a long history there, and 836 active projects with 20,000 clients were recorded in 2003 (Sempik et al. 2005). Pure ‘City Farms’ and farms offering services to schools and the general public are not included in the context of this COST Action. The present status of green care services in 11 European countries and the USA is presented in the book “Farming for Health across Europe” (Hassink and van Dijk 2005), which will be published during autumn of 2005. The book has articles by the majority of the listed experts who have expressed interest to participate in this COST Action.

Multifunctionality is regarded as one of the future goals of agriculture that could be an alternative source of revenue for rural communities. For example,:

they can combine the production of cash crops or animal production with social functions, such as providing space for recreation, the care for landscapes, or the care for disabled people.

Although there is much practical experience in utilisation of farms, farm animals, plants, gardens and the landscape for rehabilitation and therapy, there has not been much scientific research investigating the effects on the various target groups and next to nothing for farm animal research.

There is a growing interest among European scientists in starting or extending such research. This multidisciplinary effort must be coordinated through a scientific network to improve efficiency, to establish best practice and to increase the scientifically validated output. This is a major reason for starting this COST Action.

Farm studies

In the Netherlands, several pilot studies have been performed that describe different aspects of green care farms. Different types were distinguished. The economic potential of these different types of farms has been compared (Hassink and Trip 2000). The major limitations for green care farms have also been described (Ketelaars et al. 2002). A recent study has made it clear that a commercial setting of the farm with a farmer and production goals is generally a better environment for people with learning disabilities than an activity centre (Elings 2004). In a Norwegian research project this was evident as well (Fjeldavli and Meistad 2004).

In Germany, the structure and organisation of 167 green care farms has been described (Lenhard et al. 1997). In Austria, a comprehensive study on extramural care in agriculture and horticulture was conducted at the beginning of the nineties (Wiesinger 1991). The results of this research project brought about closer cooperation between different care schemes for disabled persons engaged in agriculture or horticulture (Wiesinger 2003). In Slovenia, the main benefits from green care farms perceived by parents of mentally disabled children are a variety of activities, contacts with nature, an increase in self-reliance and self-confidence, a gain in experiences and acquisition of skills (Vadnal 2003). In the Netherlands, a description of the health promoting qualities of green care farms has been presented and linked with different psychological and pedagogic theories and experiences in rehabilitation projects (Hassink and Ketelaars 2003).

Farm animals

A study in the Netherlands showed the unique qualities of working with farm

animals. The animals can offer safety, challenges and specific bonding (Hassink 2002). The German survey of care farms concluded that working with animals is a meaningful activity and an aid to engage in social interaction (Lenhard et al. 1997). An exploratory study of 80 children at Green Chimneys educational farm outside New York showed that the children utilised the farm animals as if utilising the service of a therapist; they visited the animals to feel better (Mallon 1994). Berget and Braastad (1989) showed in a Norwegian study that working with farm animals helped mentally retarded persons to develop more responsibility and endurance. An Austrian study (Wiesinger 1991) revealed that living and working on small-scaled family farms with social integration in the farm household, sound nature and close contact to farm animals may exert a positive impact on the health of psychically and mentally disabled. A study of **Animal Assisted Therapy** (AAT) with horses showed that riding a horse improved quality of life, self-esteem and social skills (Fitzpatrick and Tebay 1997).

Animal-Assisted Therapy by using companion animals (mainly dogs, cats) for people with mental diseases has been reasonably well documented scientifically (Fine 2000). For example, in schizophrenic patients, psychotherapeutic sessions that involve the presence of a dog can ameliorate their anhedonia, which is not possible with standard treatments (Nathans-Barel et al. 2005).

For AAT with farm animals it is generally recognised, that positive effects on patients must be scientifically documented. There is no scientific documentation on how contact and work with farm animals affect patients with specific diagnoses, what types of interaction have positive or perhaps negative effects, the probability of success, and long-term effects. There is therefore a strong need for multidisciplinary research with farm animals using similar or more refined scientific methods, to provide a scientific platform for the implementation of the most optimal procedures within green care. Aspects of this are covered in ongoing research at Norwegian University of Life Sciences (Berget et al. 2004) and Wageningen University and Research Centre, but this is only a start. At the Norwegian University of Technology and Sciences in Trondheim, master students in health science are engaged in examining the self-evaluated effects of such activities on patients with mental disturbance and patients with senile dementia, using a qualitative methodological approach. The Austrian Council for Agricultural Engineering and Rural Development (ÖKL) initiated a research project on therapeutic benefits connected with the assistance of farm animals on green farms and institutions for the disabled (Scholl 2003). This project started in 2003 with goats and will be extended to other animals (cows, pigs) in the next few years. The farm animals are trained by the Konrad Lorenz Institute for Evolution and Cognition Research.

Plants and gardens

Horticultural therapy (HT) or the use of therapeutic gardens is another topic that has gained some scientific results. Horticultural therapy is a young profession. Traditionally, it has been associated with plant cultivation as a tool of occupational therapy, e.g. defined as “the use of plants by trained professionals as a medium through which certain clinically defined goals may be met” (Sempik et al. 2003, p. 3). Today, a broader range of definitions is recognised, ranging from plant cultivation to the appreciation of landscape. While the term horticultural therapy perhaps should be restricted to involving professional therapists, the term **therapeutic horticulture** may be used for work with plants that may have therapeutic value without involving therapy *per se*, e.g. defined as “the process by which individuals may develop well-being using plants and horticulture. This is achieved by active or passive involvement” (Sempik et al. 2003).

Horticultural therapy offers a range of applications. It can be used with psychiatric patients, people with learning disabilities, victims of abuse, people with drug problems, young people, elderly people, and clients of social service. In the US and UK, horticultural therapy is developing towards a professional organisation and is linked to several universities. The same applies to the use of the forest and the landscape. Relf and Lohr (2003) showed in their overview paper that plants can contribute to healthy communities and urban revitalisation, to individual health, and can be used in health care facilities. Several studies have indicated that plants or vegetation can contribute to better social functioning, better interpersonal relations, reduced verbal aggression and less violence (Kuo et al. 1998) and can support healthy development in children (Taylor et al. 1998). Other studies have focused on individuals’ health and have related contact with plants to improved well-being and reduced stress (Relf et. al. 1992).

(Relf et. al. 1992). A commonly cited article (Ulrich 1984) showed that patients recovering from surgery complained less, requested less potent analgeics and had slightly shorter hospitalisation if the view from their window contained vegetation than if they were looking at a brick wall. That plants can contribute to healthy communities and individual health is in line with the outcome of an analysis of projects on horticulture and gardening in the UK. This analysis showed that there is clear evidence that the outcomes of social and therapeutic horticulture can be positive and multifaceted, for example, in promoting health gain, general well-being, social cohesion, and skills development (Sempik et. al. 2005). A study on 15 adults with moderate and severe mental disability, participating in horticultural therapy, revealed considerable improvements in their endurance, ability of team working and decision making, as well as in their self-reliance (Borštnik 2003).

Nature and forests

In Germany, as part of a project called “Optimising nature conservation on organic farms”, farms that implement aspects of nature conservation in their daily work were studied (van Elsen et al. 2002). One interesting result to emerge was that traditional family farms usually have less time and financial support to integrate such aims than farms that work together with people in their farming system. The relationship between forests and human health and well-being is a specific task for COST Action E39 “Forests, trees and human health and wellbeing”. Therefore these topics are not covered in depth in Action 866, but are included as part of agricultural based services. Forests also provide a certain overlap and serve as a contact point for collaboration between these two COST Actions. This collaboration was manifested by the joint COST Strategic Workshop “Health and the Natural Outdoors - Research needs to promote human health”, held on Cyprus (17-19 April 2007).

Multidisciplinary research

Green care is traditionally more directed to rehabilitation and work training on the farm, whereas animal assisted therapy and horticultural therapy are more directed to treatment and therapy, often not in a farm environment. However, in all cases the health promoting qualities of working with plants and animals are used. Nowadays, green care, AAT and HT are almost completely separated networks. Green care could benefit considerably from the experiences and lessons from, and theories related to, animal assisted and horticultural therapy, and vice versa.

There is a growing interest in scientific research in the area of green care in Europe. This area is inherently multidisciplinary. The reasons for launching this COST Action were the needs for extending and strengthening a multidisciplinary scientific network across Europe and stimulating the coordination of programme and project development in this area.

The number of ongoing research projects in this field is low, yet all countries have the potential of improved mental health and quality of life in their populations if they can gain scientific knowledge on the most efficient manner of implementing green care. This is also important for the teaching and training of health personnel. The topic is beneficial to most countries, of particular interest to bodies that are responsible for mental health services, and it stimulates cooperation on a new emerging and multidisciplinary scientific topic. It strengthens urban-rural relationships, emphasizes new values for agriculture (the multifunctional agriculture concept and green care as amenity goods) and

provides a perspective for farmers in need of new directions and ways of maintaining a farm faced with reduced direct payments under the reformed CAP.

Objectives and Benefits

The main objective of the Action is to increase the scientific knowledge on the best practices for implementing green care in agriculture with the aim of improving human mental and physical health and the quality of life.

There is a need to improve knowledge on how specific aspects of nature and the farm environment and the way they interact, can affect specific features of the human mental, physical and social health. Themes that will be covered are:

- *Effects:* The quality of life and health promoting effects of green care for people, related to such elements as animals, plants, and gardens.
- *Services:* The nature of services offered: small scale or normal farm enterprises; the entrepreneurship and innovations of farmers in local communities.
- *Professional attitudes:* The views and hypotheses on green care held by professionals in the agricultural and health/social care sectors.
- *Economics:* The cost-benefit effectiveness of green care across the entire scale of economic activity.
- *Organisation:* How green care fits into current and future health and social care systems, including the organisation of partnership between the general public, the target communities and farmers

The Action aims at reaching the following secondary objectives:

1. Establish a well-functioning *multidisciplinary scientific network* of scientists working on, or interested in working on, scientific topics of relevance to green care in agriculture.
2. Develop an *international research agenda within green care* that will be proposed to EU institutions and to national research councils.
3. Increase the *scientific knowledge* on topics of relevance to green care, gain experience and knowledge on green care and discern how various scientific disciplines can cooperate to achieve this objective.
4. Improve the *relevance, efficiency and quality of current and new research* within green care in Europe.

Scientific programme

This COST Action consists of scientists from a number of disciplines and professions, including psychiatry, psychology, ethology, sociology, social economics, nursing, ergo therapy, as well as from the agricultural sciences: animal science, horticulture, forestry, landscape architecture, landscape ecology, and agricultural economics.

Working Groups

Three Working Groups (WGs) have been formed to discuss and produce output for objectives 2-4, shown above. In all WGs, use is made of experience gained in animal-assisted activities or therapy, horticultural therapy or therapeutic horticulture, landscape architecture or landscape ecology, and to a limited extent forestry or nature in general. This experience will come partly from scientists and partly from practitioners. The latter will be of importance when debating relevant research questions and discussing the practicability of research methods. The WGs will be based on discussions and competences across several scientific disciplines and professions. On the following pages, the WGs are described by presenting major works representing the state of the art of several scientific disciplines, examples of present research projects, topics for work in the WGs, and milestones for this work. The presentation of the state of the art also reveals the urgent need for conceptual development and development of new research with improved methods.

WG1: Health effects of green care

The main aim of this Working Group is to coordinate research and develop new research in biological, medical and health sciences for the purpose of gaining new insight into the effects of various types of green care on several aspects of physical and mental health and the quality of life of people. The work must include conceptual and theoretical discussions and developments, as well as discussions on research methodologies.

The need for developing new research

Previous research on horticultural therapy (HT) and animal-assisted therapy (AAT) suffers from a number of shortcomings in methodology and cross-disciplinary cooperation. Frumkin (Rollins School of Public Health of Emory University, Atlanta, USA) states this point in the following way:

“There is evidence that some kinds of environmental exposures, including contact with plants, contact with animals, views of landscapes, and wilderness experiences, may have positive health effects. Indeed, this link is the basis for such clinical practices as horticultural therapy. However, the available evidence falls short of what is routinely required of a new medication or surgical procedure. Physicians, health policy experts, and regulators require rigorous evidence of the efficacy and safety of clinical practices” (Frumkin 2004).

Based on 35 years of work in HT and related fields in the USA, Diane Relf concludes that “not only is there a significant lack of the rigorous research but

indeed the theoretical models on which to base both research and practice have not been clearly and concisely defined and utilized for testing and implementation' (Relf 2005). Exemplifying HT, with relevance also for AAT, Relf (2005) suggests to develop research on 'Demographic and census data on the application of HT', including data on programmes, data on professional development, and criteria for evaluating success of programmes. Furthermore, research is needed on 'Quantified and qualified research data to support HT as an effective tool in evidence-based medicine', including health-related outcomes measures for quality of life, social functioning, cognitive functioning, psychological functioning, and physical functioning. There is a need to develop theoretical models for research and implementation, by modeling the definition of HT, the benefits of HT, the mechanisms of HT, and the mechanisms of well-being or quality of life, and also by adapting models from other disciplines.

Milestones

1. Develop a conceptual framework and theoretical models for the health promoting mechanisms of green care.
2. Comparison and discussion of ongoing research projects related to health effects on people.
3. Establishment of a set of good research methodologies.
4. Joint research project between participating countries.
5. Development of a research agenda – health effects for clients of green care.

WG2: Economics of green care

The main aim of this Working Group is to coordinate research and develop new research on economics and management of green care farming. This includes the cost-benefit effectiveness of green care across the economic spectrum (micro, mezzo and macro levels) within the framework of multifunctional agriculture, market based versus governmental based economics, marketability of public goods and positive agricultural externalities, as well as measurements of the positive externalities of Animal Assisted Therapy and Horticultural Therapy.

Milestones

1. Development of a methodology to determine the economic benefits of green care services for farmers, for other parts of the agricultural sector and for the health and social care sectors, and also the social returns of such services.
2. Development of systems to support green care regionally and nationally.
3. Development of a research programme – economics of green care.

WG3: Policies related to Green care

The main aim of this Working Group is to investigate how green care fits into current and future national health and social care systems. This includes the organisation of the green care system and the development of the network behind the health and social care systems. A further aim is to define how rural development is affected; creation of new jobs and strengthening of the economic viability of rural communities, especially those of less-favoured and remote rural areas.

Concepts and terms for the services

Agricultural welfare services are a constructed description of the activities launched by farmers offering supplies and services on farms for people as a resource for healthy lifestyle, social coping, empowering and learning activities. There are several different concepts and terms in use for the different services: *green care, green co-operation, green farms, into the courtyard, farming for health, social farms, holiday on farms, relieved farms, city farms, the farm as a pedagogical resource, the real schoolyard*. The 'green' colour in the description of these kinds of activities should not be mistaken as pure ecological or other "amenity-producing" landscape activities. Agreement on the proper term for the different service concepts is needed.

These examples of terms highlight the problems and challenges with respect to definitions of the services and the sectors and organisations that purchase these services and pay for them. Three main issues will be mentioned: The first one is the challenges of care farms outside or within the scope of (health) institutions. The second is the overlap with and link to the business of agrotourism and country life in general. The third is the overlap of green care with other social services and activities, for example, foster homes and childcare (Fjeldavli and Meistad 2004).

Milestones

1. Definition of terms and concepts for the different services of green care.
2. Evaluation of the contribution of green care not only to rural and agricultural policies, but also to policies in health care and social care.
3. Development of a research agenda on the policies of green care.

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