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"GREEN CARE IN AGRICULTURE: HEALTH EFFECTS, ECONOMICS AND POLICIES"

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THE DIVERSITY OF CARE FARMS AND THEIR MULTIFUNCTIONALITY CONTRIBUTIONS AND PERSPECTIVES FOR NATURE AND LANDSCAPE DEVELOPMENT

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Abstract

Today cultural landscape no longer arises as a by-product of farming, not even in the organic sector, but only when people work actively in shaping and developing it. This calls for many helping hands – an obvious contrast to increasing tendencies to specialisation and rationalisation in agriculture. Is 'social farming' capable of uniting sustainable agriculture with the requirements of nature conservation?

Within the EU So Far project (Social services in multifunctional farms) the Research Institute of Organic Agriculture (FiBL) is focusing on the components 'social farming – development of nature and the cultural landscape' and in particular addressing the questions of how to combine sustainable land use with social and 'healing' roles, and what practical experience is available on the successful interaction of the development of nature and landscape with 'social' farming.

From a survey of example enterprises that was carried out it was found that in Germany, where they are largely organised as 'workshops for the disabled' (WfbM), scope for landscape work has often yet to be achieved. The carers' involvement in agricultural production limits what they can undertake outside the daily routine. Planting, managing and harvesting woodland; processing its products; sawing

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firewood and gathering foliage fodder; building and looking after nesting sites for birds and insects; mowing meadows; maintaining ponds and watercourses are examples of opportunities for work in which carers may become involved depending on their capacities. Landscape management services could conceivably be offered to other agricultural enterprises which because of time and manpower are unable to adequately look after their cultural landscape.

Agriculture, quo vadis?

Within the EU-concerted action The Landscape and Nature Production Capacity of Organic/Sustainable Types of Agriculture (1993-1997) several excursions to interesting cases and examples of farms were organized by participants of the action (van Mansvelt and Stobbelaar 1997). One of the farm tours was organized by Dr Margaret Colquhoun who works for the Life Science Trust in Scotland. The scientists visited Loch Arthur, a Camphill community close to the border with England. The landscape of this region is characterized by grassland divided by stone walls and hedgerows dominated by old hawthorn shrubs. Many of the stone walls are broken, and the hedges consist of old tree-like examples that have almost come to the end of their life. Within this landscape the Loch Arthur farm looked different. The stone walls looked properly maintained, there were young trees and shrubs in the hedgerows that had been recently planted, and a pond for wildlife had been built some years ago (Picture 1). Being asked for their reason, one of the two farmers there said that the landscape looked different because of the many helping hands of the disabled people living and working on the farm and also because of low economic pressure



compared to traditional family farms that usually do not have the time and ability to care for the landscape in such a way. It was quite obvious that this farm contributed not only to the care of handicapped people, but also was engaged in the care of biotopes and wildlife on the farmed land.

Five years later a research project in Germany focused on investigating practical approaches and the nature conservation potential of farms in developing cultural landscape. Case studies were carried out on 16 selected organic farms that try to improve their impact on nature and landscape in a bottom up way (van Elsen et al. 2003). Within the project the traditional family farm was the exception, whereas farms that also pursued social aims were in the majority. A wide range of different landscape activities was implemented on the 16 farms, including care for biotopes (Picture 2), but also care for diversity within the fields and grasslands.

When in 2004 the first Farming for Health meeting took place in the Netherlands, an impressive diversity of examples and cases of green care and social farming came together. Almost all cases were based on the beneficial effects that living and working in a "green" surrounding can have on different client groups. Nature, the daily rhythms and the seasons of farmwork and working in the garden or with animals on the farms are being used for human health. The question as to whether this "use" is a of benefit only to the clients, or whether "using nature and farm work for purposes of human health" also may con-



tribute to the "health of nature", to a sound landscape and its components, was a new aspect for most of the participants of the community of practice.

Care for landscape and nature development on care farms for former drug addicts

Based on these results an investigation in 2004/2005 was set up to get an overview of German farms which integrated former drug addicts and their therapy and of the engagement of such farms in landscape development and nature conservation (van Elsen et al. 2006). The benefit of such farms for society is quite obvious: on the one hand, working on a farm can offer new perspectives for addicts and is able to support therapy, so that the integration of these clients into society becomes easier. The hypothesis of the investigation was that, on the other hand, such care farms can contribute to landscape development and nature conservation too.

Ninety-seven questionnaires were sent to care farms with former drug addicts all over Germany. Fifty-two percent of these could be used for the survey, 28 % of the institutions did not answer, and 16 % answered that the amount of their farming activities was not comparable to a full-size farm.

Table 1 shows the size of the farms that integrate clients. The smallest one has 200 m^2 of therapeutic garden with a glasshouse, the biggest has 230 ha and the average is 36 ha. Forty percent of the farms are organic farms and 44% conventional farms.

Almost all of these farms belong to a hospital or an institution for rehabi-

Table 1. Size of the farms that integrate clients (n = 48)

Size of the farmland		< 1 ha < 10 ha	≥ 1 und < 50 ha	≥10 und	≥ 50 ha
Number of farms		7	18	10	13
Proportion of total surveyed [%]		14,0	36,0	20,0	26,0
Av. area of farmland [ha]		0,52	4,30	20,64	102,48
Av. area of arable land [ha]		0,31	1,43	9,25	46,93
Av. area of grassland [ha]		0,07	2,80	11,01	53,32
Structure	Parcels united	5	11	2	5
	Parcels partly united	0	1	6	5
	Parcels spread	0	4	1	3
Method	Organic	3	5	3	9
	Conventional	1	12	6	3
	Other	2	1	2	1

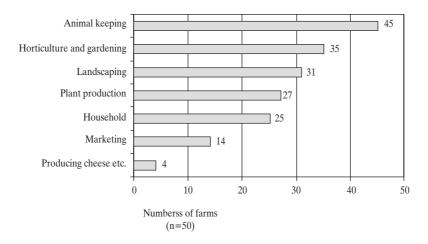
litation or social therapy. They receive an important amount of their income for these therapeutic activities; the income from agricultural products is mainly used to finance the farm. Most of the farms grow labour-intensive crops, like vegetables and potatoes. Only farms with a size of more than 10 ha grow cereals.

The farms keep a great variety of different animals. Often small animals like hens, geese, ducks and rabbits are kept but also pigs. Dairy cows seem to be less suited to the clients, as there are high standards and the whole dairy system is rather sophisticated and requires precise work. Many of the products are used for home consumption, but especially on the organic farms direct selling to consumers and the use of the products for manufacturing (bakery, cheese production, etc.) also plays an important role.

Most farms integrate 5-10 or 11-20 clients. Only a few farms integrate clients into traditional family farms. In most cases the clients stay several months on the farms, often up to one year.

The main aim of integrating former drug addicts into the farms is to offer them economically relevant work and a meaningful occupation with therapeutic effects. There is also support for the clients' capabilities in dealing with their life independently. Almost all of the questionnaires report that the nature of work on farms is especially suited for achieving that goal, such as the transparency of the meaning of handwork, a great variety of different tasks, the natural rhythms of growth, the connection to nature and the contact with animals.

In general the institutions surveyed show a great interest in landscape care as a field of activity for the clients (Figure 1). More than 70 % of the farms deal



with such measures, especially planting hedgerows or taking care of orchards and different biotopes. Furthermore, clients work in the woodland and care for the surroundings of the institutional buildings and public places. As regards these activities there are only small differences between organic and conventional farms.

Half of the institutions surveyed think that farms with clients are especially suited for activities related to nature conservation and landscape care. More than 60% of the farms are also involved in protection and management of biodiversity. Specific measures are the conservation of species-rich grassland, care of orchards with rare or local varieties and also the keeping of rare and endangered domestic animal breeds. Eighty-five percent of the organic and 50% of the conventional farms integrate such activities into their system.

Perspectives for landscape activities on social farms

Three farms with mentally disabled people were investigated as case studies. A special focus was put on their multifunctionality. In order to describe the history and the characteristics of the landscapes, features and integration of disabled people in the study farms, several methods were combined such as visiting the farm for one week to experience the daily work, conversations, interviews, reconnaissance walks and observation of the landscape as well as the analysis of aerial photographs for better description of the measures and changes in the landscape (Kalisch 2006).

Community Bingenheim is an anthroposophical institution established in 1950 situated north of Frankfurt with a school and workshops for more than 200 learning disabled people (WfbM). The Demeter - certified farm includes 12 disabled people with a supervision ratio of 1:3. On about 100 ha with 55 ha arable, cereals, forage crops and potatoes are grown. There are 40 milking cows with offspring and 5 sows producing young for fattening to be looked after.

The landscape in Bingenheim is well structured with an average field size of 2 ha and is diverse because it is situated in the transition zone between hillside and valley. The soil around the farm is shallow and dry and pastures with low yields are grazed. In the past there was a strong awareness of landscape work, especially as regards the concept of the farm as an "organism", with planting of two kilometres of hedges and individual trees and care for about 5 ha of apple orchards. Because of a new generation of farmers the future development is unclear at present.

Community Gut Sambach is situated in the former East Germany (Thuringia) and was established in 1991. It is also an anthroposophical venture

but not as big as Bingenheim, is independent of WfbM and integrates 24 disabled people into its agriculture with a supervision ratio between 1:3 and 1:6. The farm is Demeter - certified and has 530 ha of which 380 ha is arable land. Here too cereals, forage crops and potatoes are grown. There are about 150 milking cows and the offspring are raised and fattened. The pig stock consists of 200 fattening pigs and sows.

The landscape in Sambach is composed of fields up to 30 ha, tree-lined ditches and rows of trees - very old coppiced willows provide especially valuable habitat - as well as 12 ha of apple, plum and pear orchards that are grazed. In the nineties many measures like planting of individual trees and two hedges were financed by the city community and nature conservation trust. At present maintenance is in a bad state due to lack of money. There is no concept of landscape care. Sometimes unemployed people are hired for cutting the trees.

Richerode farm belongs to the Church Institution Hephata Hessian Diakonie which is a big institution in the North of Hesse established in 1864 to care for people with social needs. Richerode farm is only one of several farms that have been run by the trust since 1915. About 20 disabled people are employed directly in the daily farm work with a supervision ratio of 1:7. Furthermore, 60 disabled people work in the garden, household and in vegetable processing. The farm is Bioland - certified, organised in the form of a WfbM and cultivates about 90 ha of which 50 ha are arable. Cereals, potatoes and forage crops are grown, 50 bullocks are fattened, 400 laying hens, 60 chickens, 150 ducks, 300 geese and 7 sows are kept whose offspring are raised and fattened. A speciality is the potato peeling equipment that allows wholesale marketing and guarantees many people a job.

The landscape of Richerode (Picture 3) is characterised by surrounding woodland, a stream and a main road that noisily divides the farm from the landscape. There is a lack of structural elements in the fields that are on average 7 ha in size. There is no visible history such as old trees or viewpoints. The animals are kept inside and only some of the poultry is free range. The present farmer is trying to develop identity through landscape work and sees this as a task for the future.

Difference and similarities

The landscape in all three study farms has changed in general since the start of activities. Houses, sheds and stables have been built and the settlement has spread. It is difficult to compare the three farms because the circumstances are quite complex. The farms are differently organised, and differ in their main



production areas, number of employees, area etc. The decisions of the farmer concerning landscape depend on e.g. site factors, help and initiative from outside or financial support. Nevertheless, the farmer and his guiding image have a great impact on the decisions which orientate the enterprise and measures in the landscape as became obvious in the interviews.

The three farmers were interviewed about their attitudes towards landscape, agriculture and work with disabled clients. They have worked on their farms for at least 15 years, were raised in the country, ompleted secondary education and have an agricultural training and additional qualifications. Only some had any training in education. All have an anthroposophical background that shows in terms like "farm organism" or "farm individuality". They attempt to run their farms economically, socially and in view of working methods "soundly" and reliably.

The three farmers rank landscape issues differently. One of them spent much of his enthusiasm, time, energy and money on organising the farmyard to create beauty and harmony and thus realise his ideals. Another farmer sees landscape as something which is a given. The care and maintenance needs support from workers and finance from outside the farm. The third farmer intends to take up landscape work in the future. Although he has lived on his farm for 15 years, his interest in the topic seems to be new and to result from the unsatisfactory state of the landscape. Because his disabled co-workers are

able to operate the farm machinery he makes a particular effort to include measures for landscape development that ease their work and make it more efficient. As an example he aims to make the fields rectangular. So far there is no concept of landscape design on the farm as a whole, except for individual plans for house-building.

The farmers emphasise that agricultural production, practicability and utilisation have priority over all considerations for landscape measures. The financing from outside enables or at least accelerates these measures. Biotopes are seen as lost area that cannot be used. Agricultural production and landscape work compete for area, time and labour. There are no sufficiently qualified workers who would also be necessary for guiding disabled co-workers in landscape work. The farmers mention the rising pressure of economical issues that make "investments without use" more difficult.

The farmers feel a lack of support from politicians, nature conservation trusts and national institutions. Even co-workers are often not interested in activities besides their area of responsibility and their normal working time. Often their appreciation of the farm environment is lacking. The farmers also report vandalism, such as theft in the orchards by passers-by. On two farms the hunters support landscape measures. If the farmers were to receive financial aid for landscape work, they would be willing to use it.

The farmers value the suitability of landscape work for disabled clients differently. One of them asked if landscape work could be "eventually more suitable than farming" for them. Another farmer expressed doubts concerning the capabilities of the clients as regards orientation in an unstructured environment and the changing places and jobs in landscape work.

Conclusions: Opportunities for landscape work on farms with disabled people

From a theoretical point of view landscape work on farms with disabled people can be synergetic. It provides plenty of diverse manual work that can be combined with the daily routine work especially in winter or other times when there is not much agricultural work to do. The strong communities supporting the farms are not so dependent on profit in comparison to the ordinary family farm. Through integration of disabled people the need to produce high yields is lower. Landscape work could be used as an advertisement for the institution and to promote the farm. The philosophy of the community and identification with the location can thus be supported. Disadvantages lie in the additional need for resources that are barely sufficient: There is competition for time, space, workers

and a shortage of professional staff. Financial issues - you cannot sell landscape - might not be solved by the community alone. Another problem might be the capabilities of the disabled people. The potential of landscape work depends on the following issues.

Initiatives for landscape work on social farms

So Far is a multi-country specific support action for research policy, funded by the European Commission (Sixth Framework Programme for research, innovation and technological development). The project has a duration of 30 months and has the aim of supporting social farming as a new chance for widening the scope of European rural development. The overall aim of this project is to support the building of a new institutional environment for social farming, providing linkage of research to practitioners/rural players and bringing diverse European experiences closer, in order to compare, exchange and coordinate experiences and efforts. It aims at creating a platform around the topic - bringing together key stakeholders and rural development researchers - which can support the designing of future policies at regional and European levels.

Within SoFar the Research Institute of Organic Agriculture (FiBL) is focusing on the components 'social farming – development of nature and the cultural landscape' and in particular addressing the questions of how to combine sustainable land use with social and 'healing' roles, and what practical experience is available on the successful interaction of the development of nature and landscape with 'social' farming. Case studies of social farms in Germany were visited to investigate their impact on the landscape (Schlüter Farm, Hollergraben Farm, Dannwisch Farm, Löstrup Farm, Lorenzen Farm and Weide-Hardebek Farm). Interviews with people in charge on these farms were carried out. There are innovative approaches like the integration of school classes and establishing a farm kindergarten on Dannwisch Farm (Picture 4). Furthermore, several sheltered workshops for disabled people were visited. Besides horticulture and farming they also process potatoes, fruit and herbs.

To support and promote landscape activities on social farms, landscape seminars were carried out on three social farms (Oberfeld/Darmstadt, Bingenheim, Richerode). On each of the farms the initial steps were made towards a planning process to integrate landscape work into social farming (Pictures 5-7).

An example of the synergy between social agriculture and development of the natural surroundings is provided by Surcenord Farm, an organic grassland farm in France founded in 1978 which keeps cattle and forms part of a remedial



Picture 4. A kindergarten has been established on Dannwisch Farm.



Picture 5. On Richerode Farm the clients were asked for proposals to improve the cultural landscape



Picture 6. Proposal to include flower strips at arable fields along ditches on Richerode Farm, drawn by one of the handicapped clients



Picture 7. Participatory landscape planning on Oberfeld Farm

educational institution with several residential homes and workshops. Fifteen young people with learning disabilities aged between 15 and 27 receive instruction and therapy (riding, art therapy and eurythmy), work on the farm and undertake domestic duties. The two farmers place the land and the farm facilities at the disposal of the instructor and carers. Some seven or eight of the young people at a time, always accompanied by educators, are involved in the farm work which mainly comprises work in the cattle sheds, harvesting fodder, woodland management and landscape care as well as the maintenance of fences and traditional irrigation systems.

The farm is situated on about 100 ha of largely sloping land at 850-1140 m AMSL in the parish of Orbey and Weisstal in the Vosges (cf. also Köppl and van Elsen 2005). It is managed as pasture and mowed for forage. The livestock comprises 25 cows and calves, about 20 beef cattle, 10 heifers and 10 horses. The products sold are meat, wood and woodchips. In 2004, the subsidies, which include state support for integration of the disabled, comprised 44% of turnover.

The management of Surcenord Farm are working to open the landscape, part of which has become scrubby with broom, by planned clearing. Farmer André Frommelt stressed that they are of course not trying to revert to the 'monotony' of the bare hillsides that were there at the end of the 19th century but rather they value a 'diversity of habitats' on the land they manage and strive to 'maintain and further develop' them. During tree-felling, individual pines, firs, rowans, junipers, dogrose and whitebeam are preserved. The tree stumps are left in the ground and eventually rot away. The fellings are used in the woodchip central-heating system which meets all the heating and hot water requirements of the living accommodation and the farm buildings, using some 3,000 cubic metres of fuel annually.

Farmer André Frommelt sees himself as 'more a student of nature than an environmentalist'. He is a member of several naturalist associations, botanizes regularly and frequently devotes himself to the observation of wild animals. The cautious further opening of the landscape while maintaining a mosaic of open spaces, woodland margins, bushes and individual trees is intended to meet the requirements of, for example, red-backed shrikes and capercaillies. To protect whinchats, certain areas are used only after their nesting season. A sloping bog, which is subject to nature conservation status, is used particularly extensively and parts of it are fenced off to protect the coralroot orchid (*Corallorhiza trifida*), an endangered species. At the same site, André Frommelt would like to try to re-establish *Bruchia vogesiaca*, a species of moss that was discovered in the Vosges but has disappeared. In recent years there has been a close collaboration with the Ballons National Park in the Vosges. Partly at the instigation of

the farmers, the Park has commissioned various studies on botanical and entomological questions and these in turn have yielded information on management for the farmers.

The farmers are looking for opportunities to make a wider circle of people sensitive to ecological issues. Furthermore there is interest in 'stronger and more regular scientific guidance' for the concerns of species conservation. A medium-term plan for the farm is the construction of a solar-heating system for hot water and the installation of an ecological system for treating their own sewage. As regards education, they are considering employing adult carers to help with setting up a meat and milk processing unit.

The perspective: More landscape work through more helping hands

To summarize the multifunctionality perspective of the care farm approach: Care farms "use" nature as a tool to "heal" or to employ handicapped people; they use "natural processes" (like animal-client interactions, natural rhythms in horticulture). Moreover, care farms can also contribute to the care for healthy nature and landscapes: by additional manpower (clients) and less economic pressure (additional income). That makes social farming a "win-win"-situation, integrating functions like caring for disabled people *and* contributing to the development of rural landscapes.

Landscape care needs many helping hands. Social farming allows the use of hedgerows for dietary fodder (Picture 8), and it allows extensive care for bioto-



pes and provides experiences for children on school farms. Green care in agriculture or "social farming" might lead to new perspectives for healthy agriculture, healthy people and healthy landscapes in Europe. This makes social farming an important step towards healthy people *and* healthy landscapes.

Literature cited

- Kalisch, M. 2006. Potentiale der Kulturlandschaftsgestaltung in landwirtschaftlichen Betrieben mit Integration von behinderten Menschen Eine qualitative Untersuchung von drei Beispielbetrieben. Thesis, Univ. of Kassel, Witzenhausen.
- Köppl, K., van Elsen, T. 2005. Kulturlandschaft durch Ökologischen Landbau im Saint-Amarin-Tal (Südvogesen). In: van Elsen, T. (ed.): Einzelbetriebliche Naturschutzberatung ein Erfolgsrezept für mehr Naturschutz in der Landwirtschaft. FiBL Deutschland e.V.: 164-178, Witzenhausen.
- van Elsen, T., Günther, A., Pedroli, P. 2006. The contribution of care farms to landscapes of the future. A challenge of multifunctional agriculture. In: Hassink, J., van Dijk, M. (Eds.): Farming for Health. Green Care Farming across Europe and the United States of America. Wageningen UR Frontis Series Vol. 13., Springer: 91-100, Dordrecht (NL).
- van Elsen, T., Röhrig, P., Kulessa, V., Schreck, C., Heß, J. 2003. Praxisansätze und Naturschutzpotenziale auf Höfen des Ökologischen Landbaus zur Entwicklung von Kulturlandschaft. Angewandte Landschaftsökologie 60, Bonn, 359pp.
- van Mansvelt, J.D., Stobbelaar, D.J. (eds.) 1997. Landscape Values in Agriculture: Strategies for the Improvement of Sustainable Production. Agriculture, Ecosystems & Environment 63 (2,3) (Special Issue), Amsterdam/ Lausanne/ New York/ Oxford/ Shannon/ Tokyo.