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## **The Development of Organic Agriculture. Sustainable Development or Industrial Modernisation?**

### **Abstract**

The European Union supports the development and diffusion of organic agriculture across European agriculture. Both in conventional and organic agriculture circumstances and methods of agricultural production and marketing are similar in several aspects. The development of organic production is no longer a guarantee of sustainable development as was hoped among experts two decades ago. Besides, the differences in price levels have diminished. Experts do not observe an overall breakthrough in consumer behaviour towards organic products.

**Keywords:** European Union, organic agriculture, sustainable development, price level and overproduction, consumer behaviour, marketing, direct marketing, super-markets.

### **The Common Agrarian Policy (CAP) between Competitive and Environmental Policy**

The increase of agrarian productivity in the developed countries in the 20<sup>th</sup> century depends on the industrialisation and mechanisation of agriculture (Fourastié, 1969). In the more highly developed countries about 3% of employees are professionally active in agriculture and can sufficiently provide the entire population's nutrition. But on the other hand, industrial agriculture is based on an enormous consumption of raw materials and energy. And it therefore issues harmful substances into the environment. For the last 30 years, science, politics and public opinion in the developed countries have better understood that industrial agriculture is connected with tremendous environmental problems (Zeddies, 1995; Agrarbericht, 2000; Enquête-Kommission, 1994; Markand, 1999; Tivy, 1993; Sieferle, 2001).

Although nation states and the European Union announced environmental programmes to change the ecological situation (Lampkin, 1998;

www.europa.eu; Grefe, 2002), agriculture nowadays largely follows the path of modernisation, concentration and specialisation. The persisting modernisation of agriculture reinforces ecological problems. There is a split between political programmes and actual economic development. The regions of highly intensive agriculture, as for example Oldenburg and Münsterland in Germany, the provinces of Limburg and Brabant in the Netherlands, and Brittany in France are characterised by especially high environmental damages (Oppermann, 2001: 6).

Environmental damages in these regions are heavy, concentrated and critical. In these mostly modernised regions cattle breeding depends on animal feed imports. The feed is imported especially from the USA, Brazil, Thailand, Argentina and other countries. Areas which are near sea harbours have a clear advantage. Therefore, modernised regions of cattle breeding concentrate near ocean coasts (Oppermann, 2001: 126; Hervieu, 1993). Some authors predict that nearly 80% of European agrarian production will be produced in regions near coasts in about ten years. This chain of highly intensive productional areas close to the ocean could reach from Brittany in the South to Denmark in the North (Oppermann, 2001: 128).

This development would imply that the use of a great deal of rural areas could shift from agriculture to tourism, sport, parks and other cultural activities (Vonderach, 1990; Vonderach, 1997). Experts predict a concentration process in cattle breeding. Farms with more than 1200 pigs are foreseen as economically necessary. Experts say, dairy farms with only 125 cows and 1 m kg milk production per year will have a future, because they have to invest in expensive milk robots. Other authors guess only farms with a minimum of 300 cows will have a sufficient business future. Grain farms will be economically successful having about 1000 ha (Oppermann, 2001: 177 f.; Windhorst, 1996: 16 f.; Thiede, 1992: 292).

If these forecasts are realised in the future, then the political programmes of environmental policy and sustainable development will surely fail. Then rural development will follow the direction of further industrialisation and seriously damage the environment.

### **The Development of Organic Agriculture**

Due to the ecological problems of industrial agriculture, a movement pursuing and supporting organic agriculture has developed. Rudolf Steiner and Hans Müller belonged to the origins of organic agriculture in about 1920 (Haccius/Lünzer, 2001).

However, in Western Europe modern organic agriculture has gradually been spreading since 1970. Organic farms try to realise a kind of circulatory system of production ingredients. Animal fodder and further raw ma-

terials should be produced on these farms as much as possible. Mineral fertilisers and chemical plant protective agents are forbidden. Soils should only be treated by natural methods. Cattle should be held which is characteristic of the species. It should not be kept in cages and the variety of species will be provided (Nabu, 2002; Willer, 1998). However, the realised forms of organic agriculture are not always in accordance with these criteria and still maintain conventional practises in many fields. On the other hand, in the future, there will be many more possibilities of realising ecological measures. For example, in the future farms could largely produce their required energy by themselves.

The federal government of Germany, the Enquête Commission of the German parliament (Deutscher Bundestag), the European Union and numerous state political and scientific institutions in Europe and elsewhere are convinced that organic agriculture fulfills most claims for environmental policy and sustainability (Nabu, 2002; Willer, 1998). The European Union put into force the prescription of organic agriculture in 1991 (prescription 2092/91) ([www.soel.de/oekolandbau/richtlinien](http://www.soel.de/oekolandbau/richtlinien) 26.7.02; [www.Europa.eu](http://www.Europa.eu))

Organic agriculture is progressing not only in Europe, but world-wide. World-wide, more than 17 m ha are cultivated by organic methods (in 2002).

The largest areas are currently in Australia, Argentina and Italy. 45% of the ecological area world-wide is to be found in Australia/Oceania, 25% in Europe and 22% in Latin America (Soel survey February 2002; [www.soel.de](http://www.soel.de)). The ranking order of countries with the most organic areas is headed by Australia (7,654,924 ha), followed by Argentina (2,800,000 ha), Italy (1,040,377 ha), USA (900,000 ha), Brazil (803,180 ha), Germany (546,023 ha), UK (527,323 ha), Spain (380,838 ha), France (371,000 ha), and Canada (340,200 ha) (Soel survey 2/2002, [www.soel.de](http://www.soel.de))

Political motives, alternative ideas and ideological thoughts were the origins of organic agriculture in the seventies. Nowadays, the aims of the environmental movement are more or less accepted by most of society and public opinion. Therefore, organic agriculture and ecological products are accepted by the majority of the population (Watzek, 2002; Willer, 1998; Hillmann, 1986, 1989; Lampkin, 1998; Haccius/Lünzer, 2001).

But, in the last decade, organic agriculture has dismissed alternative, romantic concepts of work, farm management and marketing. It has rationalised, specialised and professionalised. It has become a normal business. Nowadays, many organic farms are as large as conventional farms. In recent years, organic farms which are larger than 300 ha or 500 ha have been established. Eco-farmers have abandoned in many respects the strong criteria of organic production. They sometimes use conventional practices. Experts name this trend 'Eco-light' (Oppermann, 2001: 29 f.).

Table 1

## Organic agriculture in Europe 2001

Country	Date	Areas with organic agriculture (ha)	% of land area	Organic farms	% of all farms
<b>European Union (EU 15)</b>					
Austria	31.12.2000	271,950	8.68	19,031	8.42
Belgium	31.12.2000	20,263	1.46	628	0.83
Denmark	31.12.2000	165,258	6.20	3,466	6.40
Finland	31.12.2000	147,423	6.73	5,225	6.60
France	31.12.2000	371,000	1.23	9,283	1.37
Germany	31.12.2000	546,023	3.20	12,732	2.93
Greece	31.12.2000	24,800	0.72	5,270	0.64
Ireland	31.12.2000	32,355	0.73	1,014	0.69
Italy	31.12.2000	1,040,377	6.76	51,120	2.21
Luxembourg	31.12.2000	1,030	0.81	51	1.70
Netherlands	31.12.2000	27,820	1.42	1,391	1.48
Portugal	31.12.2000	50,002	1.31	763	0.18
Spain	31.12.2000	380,838	1.30	13,424	1.11
Sweden	31.12.2000	171,682	5.20	3,329	3.70
Great Britain	31.12.2000	527,323	3.33	3,563	1.53
<b>Total EU</b>		<b>3,778,144</b>	<b>2.81</b>	<b>130,290</b>	<b>1.86</b>
<b>EU + Enlargement (EU 15+13)</b>					
Bulgaria	2000	500		50	
Cyprus	2000	52	0.04	15	
Czech Republic	2000	165,699	3.86	563	2.04
Estonia	2000	9,872	0.69	231	0.20
Hungary	2000	47,221	0.77	471	
Latvia	1999	20,000	0.79	225	
Lithuania	2000	4,709	0.13	230	
Malta	1999				
Poland	2000	22,000	0.12	1,419	0.07
Romania	1999	1,000	0.01	100	
Slovakia	1999	60,000	2.45	100	
Slovenia	2000	5,200	0.66	620	
Turkey	2000	21,000	0.05	10,000	
		<b>4,135,397</b>		<b>144,314</b>	
<b>EU + Enlargement + EFTA</b>					
Iceland	2000	3,400	3.40	30	0.80
Liechtenstein	2000	690	17.00	33	15.71
Norway	2000	20,523	2.01	1,823	2.68
Switzerland	2000	95,000	9.00	5,852	9.50
		<b>4,255,010</b>		<b>152,052</b>	

Source: Helga Willer, [www.soel.de/ockolandbau/statistik\\_europa.html](http://www.soel.de/ockolandbau/statistik_europa.html), 26.7.2002 (see below: [www.organic-europe.net](http://www.organic-europe.net)).

Table 2

Development of Organic Agriculture in Germany according to EU-regulation 2092/91 (31.12.2001)

Year Per 31.12.	Farms		% of all farms	Land area in hectares		% of agricultural land
	Total	Organic		Total	Organic	
1994	578,033	5,866	1.01	17,209,100	272,139	1.58
1995	555,065	6,641	1.20	17,182,100	309,487	1.80
1996	539,975	7,353	1.36	17,228,000	354,171	2.06
1997	525,101	8,184	1.56	17,200,800	389,693	2.27
1998	514,999 <sup>a</sup>	9,209	1.79	17,232,800	416,518	2.42
1999	428,964 <sup>a</sup>	10,400	2.42	17,103,000	452,279	2.64
2000	434,130 <sup>a</sup>	12,740	2.93	17,067,334	546,023	3.20
2001	471,960 <sup>a</sup>	14,703	3.12	17,070,000	632,165	3.70

<sup>a</sup> Farms under 1 h in size have not been included.

Source: Bundesanstalt für Landwirtschaft und Ernährung (BLE) 1995 – 1999; Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft (BMVEL) 1991–2000; [www.soel.de/oekolandbau/statistik](http://www.soel.de/oekolandbau/statistik)

The Eco-market in the eighties was, in some respects, very attractive for producers. The demand for organic products was higher than supply. Therefore, prices were very high and did not play an important role in commercialisation. Nowadays, the market for organic products is pretty narrow due to overproduction and stagnating demand. Therefore, prices have dropped. Price levels sometimes approach those of conventional products. Experts estimate that there will be no difference in price level between conventional and organic products in some years. In some fields, prices of organic products have reached the same low level as prices of conventional products, in other fields they are only 20–30% higher. Meanwhile, supply is higher than demand, compared with the market situation in the eighties.

According to consumer views in the eighties, 'Eco' justified high prices. Since the nineties, clients have become accustomed to dropping prices in all quality markets, regardless of whether they are conventional or organic. In the food market, high quality and discount prices no longer differ. Clients have often observed this trend. So they are no longer willing to pay high prices for organic food. In the meantime, falling prices and overproduction characterise this market.

### Consumer Behaviour and Change in Values

Consumer research and social research of change in values showed that demand for expensive goods and merchandise has increased due to rising

incomes after 1960. Increasing incomes motivate people to buy quality products and expensive goods (Bayer, 1999; Opaschowski, 1997; Stiens, 1996). Particularly expansive strategies of the organic food business imply such theories of consumer behaviour. At a first glance, it seems to be a question of understanding the growing demand for biologically valuable food over the last two decades from this theoretical perspective.

Do the facts concerning this development actually confirm this theory? According to Oppermann (2001: 36), in Germany, only some 100,000 households have so far converted their nutrition to bio-food. The consumption of organic food in Germany had in 1999 a volume of about 2–2.5 billion euro. One third of all consumers never buy or eat organic food. In 1996, 18% of all consumers were regular bio-food consumers, compared with 5% in 1988. For over ten years, half of all consumers have been considered as occasional clients. If a consumer buys eco-products twice a week, then he is considered as a regular client. An occasional client only buys bio-food once a week (Oppermann, 2001: 37). In Germany, about 55 million clients consume eco-food in general. An average client only spends about 46 euro on organic food per year, i.e. under one euro per week (Oppermann, 2001: 37). These figures show that the number of consumers, who have totally converted their nutrition, must be very small. There is no social milieu or class that has converted its nutrition to an amount worth mentioning (Oppermann, 2001: 39 ff.).

Oppermann (2001: 41) states, that consumers of bio-food predominantly stem from the middle and upper classes. I rather believe the clients come from all social milieus, including the lower income classes. Most consumers prefer a predominantly conventional diet, but vary it a little by additional bio-food. Consumers normally buy all their food conventionally, apart from one, two or a few articles of a biological nature. Some customers only buy organic eggs, fruit, potatoes or milk, while all other products they buy are conventional. Buying organic products only seems to have symbolic value; it is a way of satisfying the ecological conscience.

People believe they can improve their health by this symbolic act. For example, typical clients visit the health food shop (*Reformhaus*) when their grandmother is in hospital and want to get her an extraordinarily good juice. Or people with stomach-aches want special breakfast cereals (Oppermann, 2001: 45).

Baby food is the field where biological food has been predominant for the last ten years. More than 90% of the raw materials of baby food are produced organically. All clients are forced to buy organic baby food, whether they like it or not. The health of babies and small children apparently has the highest value in public opinion. People do everything to care for their babies' health. They are willing to pay more and seem more conscientious.

But their care and attention are limited. When the children grow older, their parents' attentiveness diminishes. Parents no longer care as much about their children's nutrition. The food is conventional, sometimes junk food, much like their parents' food (Oppermann, 2001: 42). So we can say: attention regarding nutrition solely concerns babies, not other age groups.

Besides, financial reasons, fear of unemployment and stagnating wages are other reasons for the limited demand for bio-food. Especially German as well as other European consumers save money and do not spend much on food. Consumers will hesitate as long as bio-food is 20–30% more expensive than conventional food. Clients are accustomed to lower prices of quality products.

A growing number of supermarkets supply their customers with organic food. Many supermarkets don't differentiate their supplies between 'organic' and 'conventional' (Oppermann, 2001: 103). Furthermore, the high quality criteria regarding the production of organic food are less and less observed.

### **Marketing and Overproduction**

There are about 10,000 organic food products on the market in Germany. Direct marketing is made by the producers, the farmers themselves. In Germany, organic food is sold by direct marketing, in natural food shops (*Naturkosthandel*) and health food shops – special shops selling ecological products – and supermarkets. Each of these forms currently have a market share of 25% of the entire organic market (Oppermann, 2001: 129, 146). These figures are estimated, moreover they shift annually. The market shares of supermarkets are growing.

Direct and regional marketing more or less correspond to the principles of sustainability and environmental protection. They don't use much energy and don't produce much pollution because they have small transportation distances compared with those of the big trade companies running their national and global sales strategies. Ecological production and industrial marketing don't suit each other.

National and global ways of supply, implying high energy consumption and pollution, contradict the ideas of sustainable development and the philosophy of organic agriculture and products. Nevertheless, both these ways of unpleasant marketing are gaining more and more influence (Oppermann, 2001: 124).

Direct marketing is very important for farmers because they can earn both by producing and marketing their products. Direct marketing is a question of survival for many farms. For many farms the only alternative to direct marketing is the extension of areas of deteriorating ecological quality. Large organic farms do not normally apply direct marketing but are connected with big trade companies which obtain the harvests. So the with-

drawal from both small farms and especially from direct marketing is connected with deteriorating ecological quality.

In 1998 50% of all eco-farmers in Germany probably had a farm shop of their own, i.e. about 4000 farm shops altogether, furthermore there are 1800 natural food shops and 1500 health food shops (Oppermann, 2001: 17, 109, 113, 129 f.). Besides, most of the eco-farmers sell their products at street markets and at special farmers' markets. In many German villages and cities, street and farmers' markets are attractions and highlights of shopping tours and leisure time activities. Therefore, new street markets, farmers' markets and new market days have been organised. They have considerably raised the prestige of organic agriculture in public opinion and have promoted sales figures (Oppermann, 2001: 88; Haccius/Lünzer, 1998: 64 ff.).

Nevertheless, direct and regional marketing have been losing ground. Consumers want to have all vegetables and fruit at all seasons. In order to satisfy customers' wishes long ways of transportation are unavoidable. Imports from other continents are necessary. Experts say direct and regional marketing of organic products do not have a real future (Oppermann, 2001: 132).

The largest German supermarket chain 'Rewe' made half of the sales of organic products in the entire supermarket area in Germany in 1999 ([www.rewe.de](http://www.rewe.de); [www.lidl.de](http://www.lidl.de)). Rewe's so-called 'Füllhorn-Linie' consisted of 200 organic products. But Rewe obtained most of its milk products from two German dairies and butter from Austria (Oppermann, 2001: 46). The limits of regional marketing in the organic food business are obvious.

The very big East German farms, which were called *Landwirtschaftliche Produktionsgenossenschaften* in socialist times, have developed large and successful sales strategies. The West German supermarket chains and hypermarkets like working with them. These East German farms can produce cheaper than the smaller West German family farms. So their products are conquering the West German markets of organic products. The dropping prices are not a result of East German competition strategies. Eastern Germany seems to dominate prices and markets in the whole German organic food business (Oppermann, 2001: 75–83; about German family farms: Vonderach, 1993).

Similar developments may take place after the enlargement of the European Union in 2004. East European farmers will be able to participate in organic food production because it requires lower financial investments than conventional production. The vast majority of organic food production in Hungary, Poland and the Czech Republic has been destined for export to Western Europe for some years. Due to their lower prices, certain products like cereals and berries from Eastern Europe's organic production have been imported by West German trade companies for years (Oppermann, 2001: 84 f.).



So sales of biological food have been losing their direct, regional and national borders. They have developed into international, European and global dimensions. Not only has Eastern Europe been pushing into European sales markets, but also other regions world-wide. Within the current borders of the European Union the organic food trade has gradually developed a supranational dimension in recent years. Leading supermarket chains in Europe with both conventional and organic food have grown into a European dimension and have surmounted their national limits for some years. Especially Denmark, the Netherlands and France are developing a powerful export industry with organic food. Argentina is an example for the growing global dimensions of the organic food trade. Argentina has extended its areas with organic agriculture from 28,500 ha to 2,800,000 ha from 1993 to 2001. 75% of Argentina's organic food is destined for exportation, two thirds of this exportation is supplied to the European Union. Argentinian products (wheat, sunflowers, olives) are not different from European products. So these exports lead to a competitive situation and to overproduction (Oppermann, 2001: 87 f.).

Austria and Denmark are leading European countries regarding organic food and agriculture. 70% of Austria's and 90% of Denmark's bio-food are supplied by supermarkets which obtain their products from a few creameries and dealers. France has undergone a similar development of trade concentration in the last decade (Reynauld, 1998: 128). So it is quite clear that in the near future there will be a greater nationalisation and globalisation of trade. Direct marketing can only have a niche function. We can expect both a concentration of trade and of production. Many family farms working in organic agriculture will diminish due to the law of capital concentration, especially the necessity of higher investments in technology. This tendency is already clear if one casts a glance at the preponderance and market position of East German business farms and the situation in Oldenburg and Münsterland.

### **Common Agrarian Policy (CAP) between Sustainable Development and Industrial Modernisation**

Chancellor Gerhard Schröder raised the issue of the estrangement from the agrarian factories and from conventional agriculture in the German Parliament in Berlin on 29.11.2000 (Meyer/Gaum, 2002: 25). The German federal minister for consumer protection, nutrition and agriculture, Renate Künast, wants to increase the market share of organic agriculture to 20% by 2010 and strengthen the practises of direct marketing.

In comparison with politicians' optimistic declarations and agreements, the analysis of the organic development of agriculture can be seen more critically. Organic agriculture is obviously no longer a countermeasure to

conventional agriculture. It has gradually taken over the conventional modes of production and marketing. The adoption of organic products to conventional standards in many respects, the enlargement and specialisation of farms and the nationalisation and globalisation of sales, altogether they prevent the realisation of ecological concepts. Organic agriculture no longer guarantees sustainable development.

The overall tendency of organic agriculture seems to be: large farms offer cheap eco-light standard products. The biggest supermarket chains in Europe will monopolise sales. Besides, consumer behaviour contradicts the principles of sustainability. So the dreams of Renate Künast and the programmes of the European Union will probably not be realised in the future.

### Literature

- Bayer, O. (1999), *Ernährung und Gesellschaft – Forschungsstand und Problem-bereiche*. Opladen.
- BMELF (Hrsg.) (2000), *Agrarbericht der Bundesregierung 2000*. Bonn.
- BMELF (Hrsg.) (2002), *Agrarbericht der Bundesregierung 2002*.
- Enquête-Kommission (1994), "*Schutz der Erdatmosphäre*" des Deutschen Bundestages (Hrsg.), *Schutz der Grünen Erde: Klimaschutz durch umweltgerechte Landwirtschaft und Erhalt der Wälder*. Bonn.
- Europäische Kommission (2002), *Auf dem Weg zu einer nachhaltigen Landwirtschaft. Kommission legt Halbzeitbewertung der EU-Agrarpolitik vor*. 10.7.2002. [www.europa.eu](http://www.europa.eu)
- Europäische Kommission (2002), *Erweiterung und Landwirtschaft: Die erfolgreiche Integration der neuen Mitgliedstaaten in die GAP*. Diskussionspapier. Brüssel, den 30.1.2002. [www.europa.eu](http://www.europa.eu)
- Europäische Kommission (2002), *Landwirtschaft und Erweiterung*, 3.7.2002, [www.europa.eu](http://www.europa.eu)
- Fourastié, Jean (1969), *Die große Hoffnung des zwanzigsten Jahrhunderts*, Köln: Bund Verlag.
- Grefe, Christiane (2002), *Die neue Dreifelderwirtschaft*. In: DIE ZEIT, Nr. 30, 18.7.2002, p. 18.
- Haccius, Manon/Immo Lünzer (1998), *Ökolandbau in Deutschland*, in: Helga Willer (Hrsg.): *Ökologischer Landbau in Europa*, Holm: Deukalion Verlag, pp. 64–99.
- Haccius, Manon/Lünzer, Immo (2001), *Organic Agriculture in Germany 2001*. [www.organic-europe.net](http://www.organic-europe.net)
- Hervieu, B. (1993), *Les champs du futur*. Paris.
- Hillmann, Karl-Heinz (1986), *Umweltkrise und Wertwandel. Die Umwertung der Werte als Strategie des Überlebens*. Würzburg.
- Hillmann, Karl-Heinz (1989), *Wertwandel. Zur Frage soziokultureller Voraussetzungen alternativer Lebensformen*. Darmstadt.
- Lampkin, Nicolas (1998), *Ökologischer Landbau und Agrarpolitik in der Europäischen Union und ihren Nachbarstaaten*, in: Helga Willer (Hrsg.): *Ökologischer Landbau in Europa*, Holm: Deukalion Verlag, pp. 13–33.

- Markand, C. (1999), *Grundwasserschutz – ein vergessenes Thema?* In: *Wasser & Boden*, 51, 9, pp. 7–10.
- Meyer, Holger/Gaum, Wilfried (2002), *10 Jahre nach Rio – Wie nachhaltig ist die Agrarpolitik?* In: *Aus Politik und Zeitgeschichte*, B31–32/2002, pp. 25–36.
- NABU. Naturschutzbund (2002), *Nabu-Übersicht belegt Vorteile des Ökolandbaus*. Bonn, 3.7.2002. [www.presse-service.de](http://www.presse-service.de)
- Opaschowski, Horst W. (1997), *Deutschland 2010. Wie wir morgen leben*. Hamburg.
- Oppermann, Rainer (2001), *Ökologischer Landbau am Scheideweg. Chancen und Restriktionen für eine ökologische Kehrtwende in der Agrarwirtschaft*. Göttingen: ASG.
- Reynaud, Michel (1998), *Die Situation und das Entwicklungspotential der ökologischen Landwirtschaft in Frankreich*, in: Helga Willer (Hrsg.): *Ökologischer Landbau in Europa*, Holm: Deukalion Verlag, pp. 120–131.
- Sieferle, Rolf Peter (2001), *The Subterranean Forest. Energy Systems and the Industrial Revolution*. Cambridge: The White Horse Press.
- SÖL (2002), *Richtlinien und Gesetzgebungen zum ökologischen Landbau*. [www.soel.de](http://www.soel.de)
- Stiens, H. (1996), *Von anderen Branchen lernen*. In: *DLG-Mitteilungen*, Heft 11, pp. 17–19.
- Thiede, G. (1992), *Die grüne Chance. Landwirte zwischen Tradition und Fortschritt*. Frankfurt a.M.
- Tivy, Joy (1993), *Landwirtschaft und Umwelt. Agrarökosysteme in der Biosphäre*. Berlin: Spektrum Akademischer Verlag.
- Vonderach, Gerd (Hrsg.) (1990), *Ressourcenschonender und regionskundlicher Tourismus*. Bamberg.
- Vonderach, Gerd (1993), *Bäuerliche Familienwirtschaft im Wandel*. In: *Land, Agrarwirtschaft und Gesellschaft*, Jg. 10, H. 3.
- Vonderach, Gerd (1997), *In Zukunft mehr nutzungsfreie Landschaft?* In: Thomas Kutsch (Hrsg.), *Land- und agrarsoziologisches Symposium*. Winterschlick/Bonn.
- Watzek, Hans (2002), *EU-Agrarpolitik auf dem Prüfstand. Bilanz und Alternativen einer sozialen und ökologischen Landwirtschaft*. Hamburg: VSA-Verlag.
- Willer, Helga (Hrsg.) (1998), *Ökologischer Landbau in Europa. Perspektiven und Berichte aus den Ländern der Europäischen Union und den EFTA-Staaten*, Holm: Deukalion Verlag.
- Windhorst, H. W. (1996), *Die sektoralen Strukturen der Schweine- und Geflügelhaltung in Nordrhein-Westfalen um die Mitte der neunziger Jahre*. Vechta.
- Zeddies, J. (1995), *Umweltgerechte Nutzung von Agrarlandschaften*. In: *Berichte über Landwirtschaft*, 73, Jg., pp. 204–241.