Institut für Agrarökonomie
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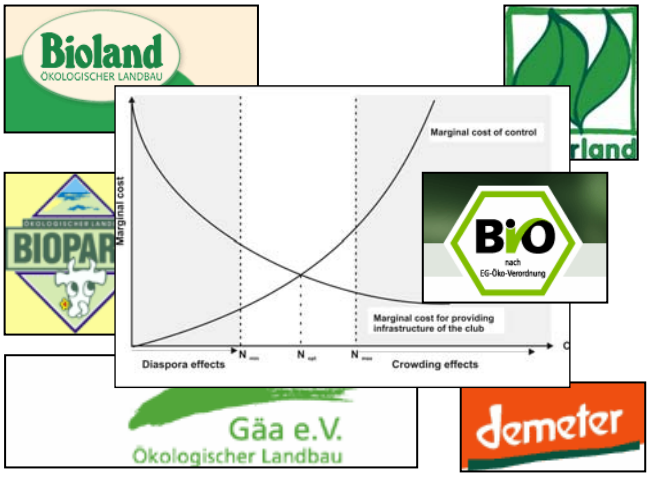
Institutional Change in Quality Assurance:
The Case of Organic Farming in Germany

by Gabriele Jahn, Matthias Schramm and Achim Spiller



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M.Sc. Dipl. Ing. agr. Gabriele Jahn
Lehrstuhl für Marketing für Lebensmittel und Agrarprodukte
Institut für Agrarökonomie
Platz der Göttinger Sieben 5
37073 Göttingen
Tel.: +49-551-39-4821
Fax. : +49-551-39-12122
Email: gjahn@gwdg.de

Dipl.-Ök. Matthias Schramm
Lehrstuhl für Marketing für Lebensmittel und Agrarprodukte
Institut für Agrarökonomie
Platz der Göttinger Sieben 5
37073 Göttingen
Tel.: +49-551-39-4825
Fax.: +49-551-39-12122
Email: mschram1@uni-goettingen.de

Prof. Dr. Achim Spiller
Lehrstuhl für Marketing für Lebensmittel und Agrarprodukte
Institut für Agrarökonomie
Platz der Göttinger Sieben 5
37073 Göttingen
Tel.: +49-551-39-2399
Fax.: +49-551-39-12122
Email: a.spiller@agr.uni-goettingen.de

CONTENTS

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Abstract

In the past, compliance with the rules of organic production has been motivated intrinsically. Cooperative behaviour, thus, has been a key issue in assuring organic quality. However, the environment is continuously changing. An increasing number of farmers are producing organic food not only driven by altruism, but by economic factors and public support (i.e., subsidies). The following contribution aims to reveal determinants for an efficient quality assurance within an organic farming association. It focuses on changes caused by the introduction of a public certification system and the "loss" of social cohesion among organic farmers. Based on the theory of club goods, an application of the decision theory approach underlines the analysis.

Key words: Organic Farming Associations, Club Goods, Quality Assurance

1 Introduction

Organic production of foodstuffs has become a focus of interest in recent years in Germany not only because of the agricultural policy change ("Agrarwende") proclaimed by the German agricultural minister, Renate Künast, but also due to a series of problems that have become public, e. g. the Nitrofen scandal. In comparison to this more recent political integration of organic farming in German agriculture, its origins lie in an idealistic culture, whose organisations have their own infrastructure of quality assurance, while the marketing of their products has been built up under the high personal endeavours of the people involved (Vogt, 2001; GUTHMAN, 2004). This is especially important due to the particular situation found in the marketing of organic products, as organic production is a "process quality" that cannot be detected in the final product. A high degree of information asymmetry can occur in markets with such assurance characteristics; the final consequence of which would be a complete market collapse (AKERLOF, 1970; MCCLUSKEY, 2000; GIANNAKAS, 2002).

The increasing degree of state subvention of organic farming has in the last few years caused an increase in this type of agriculture, while at the same time, the commitment of German farmers to organic farming associations has gone down. In 1996, roughly 87.9% (area: 92.3%) of the organic farms were integrated in organic agricultural organisations, whereas in 2003, only 58% (area: 70.2%) were members (SÖL, 2004). This change has been closely associated with the evolution of an alternative model for the monitoring of organic production. Nowadays, the organic agricultural farming associations in Germany are no longer involved in organising the control of their products as neutral certifiers have undertaken this control on the basis of European regulations (EEC No. 2092/91) (JUND and GERBER, 2003).

In addition to changes in agrarian practice, there has been another impulse causing a change in the existing structures in Germany: a national organic label based on EU certification standards has been introduced alongside the classical organic farming associations' own labels. As a consequence of this situation, the question arises as to whether or not the newly created institutional structures are more effective in ensuring quality than the classical control undertaken by the organic farming associations. This article, therefore, initially analyses the ways in which the organic farming associations function as a safeguard ensuring organic production and shows their possible limitations. Subsequently, the available institutional alternatives are discussed, especially with respect as to how their sustainability can be assessed.

2 Clubs as Models for the Safeguarding of Standards in Organic Farming

2.1 Organic Farming Associations as Homogenous Clubs

In a historical sense, the roots of organic farming go back to a social movement. At the beginning of the last century, a series of organic farming associations – starting with Demeter – were founded as an alternative to conventional farming. These organisations developed in addition to their own working concepts, vocational examples and established specialised advisory services for their members. Especially in the early years of the movement, the participants were able to set up closed organisatory structures, which, over and above their organic production techniques, included marketing and channels of distribution for their products (VOGT, 2001; OPPERMANN, 2003; Seppänen and Helenius, 2004).

In an economic sense, these organic farming associations formed – at least in this starting phase – homogenous clubs (BUCHANAN, 1965), which were separated from the outer world by certain idealistic criteria and had their own uniform internal (production) standards. Basically, such clubs are defined as "a voluntary group deriving mutual benefit from sharing one or more of the following: production costs, the members' characteristics, or a good characterized by excludable benefits" (SANDLER and TSCHIRHART, 1980, p. 1482). This club theory originated against the background of a production of "impure public goods" that combined the characteristics of both public and private goods (so-called club goods) (STEVENS, 1993). Bearing this in mind, the club theory has been further developed in its fundamental points and supplemented by the establishment of neo-institutional approaches in order to explain the clubs' internal incentive structures (SANDLER and TSCHIRHART 1997; SCHRAMM and TAUBE, 2003).

The organic farming associations act as clubs, because they ensure the quality assurance of goods with process characteristics. Accordingly, the provision of a quality assurance system and a reduction of informational asymmetry through appropriate quality signalling with respect to the customer (i.e. club label) can be considered as being a club good. This is especially important as the "organic" quality is a process quality that cannot be ascertained by a third party in the final product (credence or Potemkin attribute; JAHN et al., 2005). Such a situation puts a high demand on the quality assurance. The associated information asymme-

try must be overcome, as only then a suitable positioning on the market can be possible, which will allow the quality premium to be gained. This situation, therefore, places a second challenge on the system: both the control and the sanction systems must be so designed that free-rider effects are prevented. The mechanisms that effect the production of this type of club good and their limiting factors will be analysed more fully in the subsequent sections.

2.2 Quality Assurance as a Club Good

The first mechanism that has a stabilising effect on the institutional arrangement of a club is the specific investment associated with club membership (WILLIAMSON, 1983; PICOT et al., 1999). This includes not only the expenses involved in specialised production technology and machinery, but also the investment in human capital (e. g. employee qualification). The latter investment is hard to quantify in a monetary sense, as is the – often necessary – restructuring of the farm according to the prerequisites of circular flow economy. In addition, the opportunity costs of the change to organic farming also count: the yields drop to a low level due to the changed use of resources in this phase, while the quality premium cannot be utilised to its full capacity as organic products in this transitional phase have to be marketed conventionally. This situation of high initial investment leads to a commitment of the members to the club regulations as the accrued sunk costs can only be amortised slowly. Believable threats of expulsion can, therefore, lead to a disciplining of club member behaviour, as expulsion would result – at least in this phase – in exclusion from the organic marketing system.

The evolution of a club cannot, though, be attributed to the generation of quality premiums and the associated economic incentives alone; it also follows social or idealistic factors (SCHRAMM and TAUBE, 2004). The primary (social) context plays an important role as the institutional structure of a club is embedded in a social system. This social embeddedness (GRANOVETTER, 1985) can be understood as "a logic of exchange that shapes motives and expectations and promotes coordinated adaptation. This logic is unique in that actors do not selfishly pursue immediate gains, but concentrate on cultivating long-term cooperative relationships" (UZZI, 1996, p. 693). The set values and norms within a club have their origins in the idealistic behaviour of its founding members.[1] Production is oriented towards a sustainable, holistic circular flow economy. The basic orientation of the organic farming associations was influenced by later movements (e. g. the environmental movement in the 1980s).

[1] R. Steiner is considered to be the founding father of farming according to Demeter's regulations, which are closely associated with anthroposophic ideology. Hans and Maria Müller, along with H. P. Rusch are the founders of the organic-biological farming methods.

Such idealistic values will have dominated any potential economic advantages, especially in those people who changed to organic farming in the early stages and so chose membership in these organisations. As a consequence of this situation, such idealistic factors must be taken into any consideration of these organisations. The initiation in the logic of organic farming, the building up of a network, etc., all represent an investment in social capital (COLEMAN, 1988; DASGUPTA et al., 1999) and must be considered as sunk costs alongside the characteristic ones in the "real capital“ according to the transaction cost theory. The individual members "invest" in the building up of their reputation as a trustworthy member of the club. Only in this way is it possible to build up trust between the individual protagonists and help them rise above any uncertainties associated with a "faceless" transaction environment, as well as overcoming any information asymmetry.[2] The social capital accumulated in this manner forms another basis of the club arrangement. The institution-building effects that the formation of social capital can have, have already been shown in many analyses – from development economics to studies on the accumulation of political power (e. g. in alumni groups or senator clubs) (COLEMAN, 1988).

A believable threat of expulsion (which would be associated with the loss of all capital invested) increases the members' adherence to the club statutes. Due to this socio-economic entanglement, the threat of a loss in trust and the undertaking of a warning example can be extremely effective: "Performance is implicitly enforced by the threat of termination of the transactional relationship and communication of the contractual failure to the market place." (KLEIN, 1985, p. 595).

The necessity of functional information and sanction mechanisms for the club system is self-evident. The adherence to informal and formal rules can only be achieved when information about the lapses of individual members is relatively quickly disseminated throughout the club. This is mainly achieved within the framework of the organic farming associations by two factors: firstly, the above-mentioned embeddedness in the idealistic and social contexts and secondly, the primarily regional aspect of the organic farming associations, which are made up of local groups formed by different producers and their associated channels of distribution

[2] Trust should be interpreted here according to DASGUPTAS' "secured expectations" with respect to the behaviour of the other club members (Dasgupta, 1988).

(mainly direct marketing with close customer contact or via a few specialty shops with long-term business connections).

2.3 The Modelling of the Club Concept

The afore-mentioned considerations will now be integrated in a simple model, which will demonstrate the sustainability of the club arrangement for the safeguarding of the process quality "organic production". The organic farming associations or support groups form, in the initial phase, characteristic clubs with only a few formal rules or regulations.

The following factors will be assumed in the model: (1) a single-period game susceptible to opportunistic behaviour (a single transaction between isolated economic agents) will be embedded within the framework of a club in an iterative system of multiple games (AXELROD, 1983). (2) In addition, there is a rapid dissemination of information between the club members about norm-conform or non-conform behaviour. Opportunistic behaviour will result in expulsion from the club, which is the same as being completely excluded from the organic market. Behaviour that upholds the statutes will – under the premise that all the players act rationally (and with risk neutrality) – so become the dominant strategy in the club system. (3) It is also assumed that a higher profit margin will always be achieved with the change to organic production at a specific location than that which would be achieved with the continuation of conventional farming.

The game situation will be modelled as a self-repeating game, in that in every round the participant has the decision between "cooperation" (i.e. upholds the club statutes) and "defection" (i.e. breaks the club statutes with conventional production while selling on the organic market). In the case of cooperation, it is possible to achieve in the chosen period a quality premium (Q) as a supplement to the market price of conventional products (p^C). In contrast, the amount produced (q^B) is less than that achieved with conventional production. In comparison, the decision to defection allows the higher initial price to be attained, while at the same time the amount produced (q^C) will increase up to the level of a conventional producer, and the variable cost of production per unit (c^C) will fall compared to the variable cost for organic production (c^B). This higher profit margin associated with defection (π^D) contrasts with the danger of disclosure of the opportunistic behaviour, whereby the probability of disclosure (P^A) itself is a function of the size of the club. Should the fraud be discovered, it will result in

an immediate expulsion from the club with the loss of all specific investments and there will be no other possibility of achieving the quality premium.

At the beginning, the following relationships hold true:

(1) $$PM_n^B = (Q_n + p_n^C) \times q_n^B - c_n^B \times q_n^B$$

(2) $$PM_n^C = p_n^C \times q_n^C - c_n^C \times q_n^C$$

where each: $q_n^C > q_n^B$, $c_n^C < c_n^B$ and $Q_n \geq 0$; $\forall n \in \{i...m\}$

(3) $$\pi_n^D > P^A \times \left(\sum_{n=i}^{m} PM_n^B \times \frac{1}{(1+r)^n} + S \right) \text{ with: } \pi_n^D = (Q_n + p_n^C) \times q_n^C - c_n^C \times q_n^C$$

(4) $$P^A = P^A(CS)$$

According to this optimisation calculus, a participant will then defect when the defection profit (π^D)[3] of the period *n* – composed of the price for organic production (including the quality premium) multiplied by the amount produced with conventional farming (q^C) minus the associated variable costs (c^C) – is larger than the discounted amount of the future yields produced when remaining in the club multiplied by the probability of disclosure. Furthermore, inequation (3) considers sanctions (*S*) linked to the internal sanction mechanism of the club. A potential monetary penalty of fraudulent behaviour was originally not included in the club statutes. Finally, it should be noted that the decision to defect depends on various key factors, which need to be analysed further (see below).

2.3.1 The size of the attained defection profit (π^D)

The defection profit depends, as inequation (3) shows, on three variables: First of all, the size of the quality premium attained on the market is a decisive factor. The defection profit can vary according to the different branches of production. Basically, the higher the quality premium paid on the market, the stronger is the tendency for opportunistic behaviour.

In addition, the size of π^D depends on the expected surplus achieved with conventional production: the rule "the greater the difference in the amount produced between conventional and organic production, the greater is the potential gain by defection" holds true here also.

[3] Strictly speaking π^D is also a profit margin as the fixed costs are not considered here.

The variable production costs are closely associated with the amount produced and these are often lower with conventional production than with organic farming (e. g. the higher man-power requirements in organic farming; BMVEL, 2004).

2.3.2 The behaviour of the profit margins (PM)

It is assumed in this model that initially the profit margin with organic production is always higher than with conventional farming: $PM^B > PM^C$. It is only in such a situation that expulsion from the club acts as a credible threat as the sunk costs incurred within the club allow for higher yields than those attained outside. This latter premise does not always hold true in real life.

In the case where $PM^B < PM^C$, a higher profit margin can be achieved with conventional production (and honest behaviour). Formula (3) must then be so modified that it no longer deals with the profit of club membership, and that any further organic marketing would be associated with loss. Only those participants who a) have a high degree of intrinsic and idealistic motivation, or b) expect a speedy improvement of their eco-cost effectiveness, will continue with organic production; although there will still be an incentive for swindling the system as long as a quality premium for "organic" can be obtained on the market. Opportunistic participants will, therefore, try to produce greater amounts at the lower variable costs associated with conventional production. The probability of breaking the rules will increase greatly as there are no longer any economic reasons for commitment to the club. The attained sunk costs are not relevant for decision-making. The same holds true when $PM^B = PM^C$.

2.3.3 Sanctions (S)

The size and type of sanctions which are imposed on non-statutory behaviour directly influence the defection profit. Normally no or only minimal monetary penalties exist within the framework of the clubs in the game scenarios. In such cases, inequation (3) using a realistic numerical assumption for the organic market will almost always show a large defection profit as there is a large difference in costs and a high quality premium. In this situation, the implementation of social sanctions has a decisive effect. These can have, and must have, a much more drastic effect than a pure monetary one as according to BUSKENS (1999, p. 18): “Sanctions in social networks can go even further than the termination of business relationships with a trustee who has abused trust. […] untrustworthy [members] can fall victim to

social ostracism and lose all social and religious contacts. This sanction is so severe that, […], trust becomes almost self-evident and sanctions are hardly ever necessary."

2.3.4 Probability of disclosure (P^A)

The probability of disclosure (P^A) even when it has a relatively high value can change the members' decision-making. It can be envisaged as a direct function of the club size: crowding effects arise with increasing membership. This disturbs the functionality of the club's internal sanctioning mechanisms and reduces the incidence of control (both social and conventional), and P^A falls. Within each club, there is a trade-off between the incremental cost-reducing effect of an increase in the membership number and the increasing incremental costs of control through a devaluation of the social capital (STEVENS, 1993).

The falling marginal costs of investment can be ascribed to economies of scale, which are reflected primarily in the provisions of the club's infrastructure (i. e. for the setting up of communication forums, for the establishment of the club label or the development of new channels of distribution and marketing structures). Working against these falling marginal costs of investment are the increasing incremental costs of the control of compliance to the club's statutes: the crowding effects arising with increasing membership reduce the club's ability to apply sanctions based on social mechanisms (devaluation of the social capital, poorer communication, etc.). It is necessary to have either higher investments in the cultivation of the club's identity (reputation costs) or the establishment of additional controls (control costs).

As illustrated in Fig. 1, the optimal club size can be extrapolated from the above considerations. On the one hand, a critical mass must be achieved in order to reduce the investment in the club (development of reputation, etc.) for the individual member to an acceptable level. On the other hand, when a certain upper limit is exceeded, higher costs are involved in maintaining the club's cohesion (STEVENS, 1993).

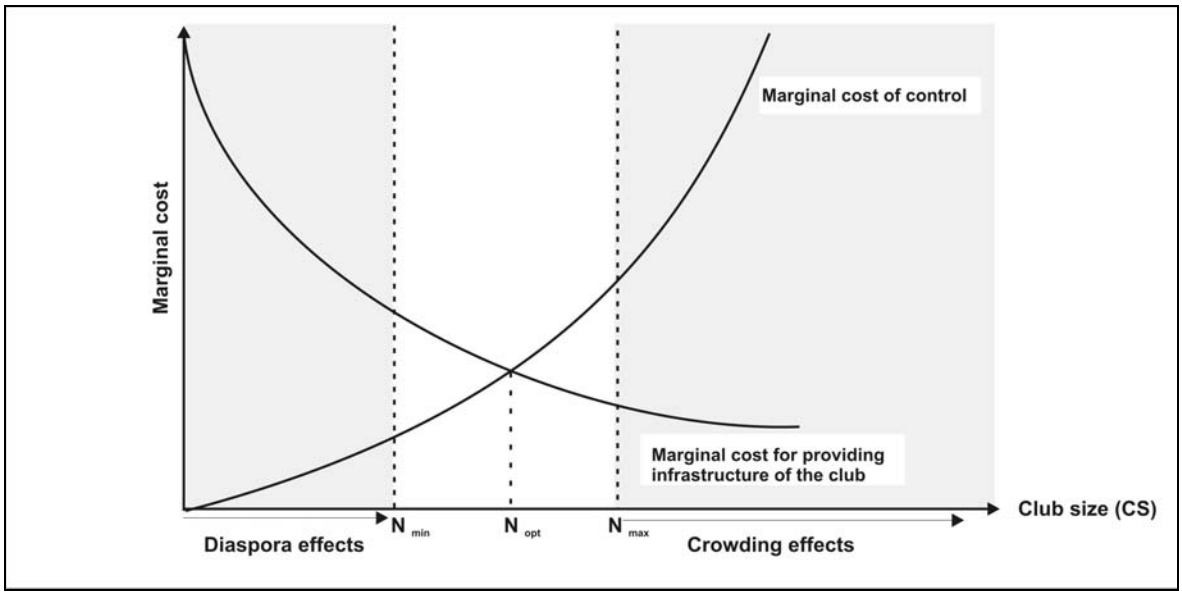

Figure 1: Limiting Trade-offs on Club Size

How far the true membership numbers may differ from the optimal club size without endangering the continuation of the club can only be assessed with difficulty and it is, in addition, dependent on the social embeddedness of the arrangement under consideration. It is obvious, though, that basically all clubs can only be enlarged to a certain limit. When this limit is exceeded, the internal mechanisms involved in sanctioning and the control of the club statutes will no longer function.

Monetary stimuli to join in the organic market independent of idealistic characteristics have been created by public intervention (e.g. changes in agricultural policy, the promotion of organic farming, etc.). The German organic farming associations appear in many cases to have exceeded their upper limit due to the influx of new members. This has lead to the question of how these clubs should react to this increase in their membership and which alternative quality assurance systems are available. The different institutional ways of development will be discussed in more detail below.

3 Institutional Change: From Club to Certification Model?

3.1 Possibilities of Change Within a Club

With increasing club size, it is possible to undertake a local or specialised division of the parent club, or even the founding of new clubs, to maintain structural homogeneity. Indeed, the number of organic farming associations has increased over the years. These organisa-

tions differ, for example, with respect to the definition of their respective standards, i.e. their opinions about sustainable and organic practices. A coordination of the individual German organic farming associations under one umbrella has been attempted in order to utilise any synergies and to strengthen their common basis of representation to the general public. As a consequence, there are nowadays several organic farming associations active in Germany under the auspices of an umbrella organisation ("BÖLW, Bundesverband für ökologische Lebensmittelwirtschaft"; SÖL, 2004). Although such cooperation should generate a mutual "basic capital", there can still be a conflict of aims with regard to the competitors' market positioning with respect to customers. In addition, the idealistic attitudes that are the elementary building blocks of each individual club can make a mutual solution more difficult.

The increasing number of organically run farms has not only been compensated for by the foundation of new clubs, but also through an increasing generation of formalised norms or regulations. Via the formalisation of informal values and the associated sanctioning mechanisms, it is possible to coordinate a greater number of members. This step was necessary in practice mainly because of the increased inter-regional activities of the organisations. Such attempts at formalisation have, however, undermined in many ways the social control or sanctioning on which the organisations have been founded: additional extrinsic motivation (due to formal regulations, sanctions and an increased incidence of control) has increasingly pushed out any intrinsic motivation. This trade-off between intrinsic motivation and external pressure for more control has been elucidated more fully in the past few years by FREY (FREY and OBERHOLZER-GEE, 1997; FREY and JEGEN, 2001).

3.2 Possibilities of Change Outside a Club

In addition to the present club situation, there are other institutional arrangements that overlook the adherence to process-oriented quality standards in many economic areas, i.e. state-run or private certification systems. Politically, organic farming is considered at the moment to be a cost effective and socially acceptable possibility of internalising the external effects of farming (DABBERT and HÄRING, 2004). Organic farming's idealistic basis has often been seen as a barrier to any potential increase in its market share. Due to this, a state-run certification system for quality assurance in organic farming was created. The German organic certification can be considered as a typical example of a state-run approach to certification (JAHN et al., 2005, SCHRAMM and SPILLER, 2003), whereby the state is just involved in the definition of the standards according to EU regulations and the necessary monitoring. The real control is done via certification companies in the private sector. In another scenario, the state could

also – as in Denmark – undertake the complete certification process. The latter system is almost totally independent of the number of participants, though it is more suitable for larger markets due to the associated high set-up costs.

However, new types of problem complexes have arisen from the setting up of a state-run control system, which had not occurred with the quality assurance practised by the organic farming associations. The conception of such systems is complex and the formulation of uniform quality standards is difficult due to the different types of participants involved (e.g. German state and government authorities, EU, certification organisations, accreditation organisations). In addition, principle-agent problems can occur between the owner of the certification system, the certifier and the enterprise under investigation, which may lead to inadequate testing (JAHN et al., 2005). Even greater deficits and differences in quality in the control of the whole supply chain can occur particularly in an international context (GFRS 2003). Certainly, an improved harmony of the German national system with respect to the international systems would provide a definite increase in quality and a reduction in costs (JAHN et al., 2003).

Finally, the crucial problem is that there is a conflict of aims between intrinsic motivation and corporate feeling (i.e. the self-control) within a club on the one side and the formalised control found in a certification system on the other. The latter system requires strict neutrality and independence of the auditors. This criterion is not exactly fulfilled by the certification boards as they cooperate with the organic organisations. As a consequence, the certifiers are then actually a part of a club that may, for economic reasons, not be interested in making any problems public. Accordingly, in this situation the club system and certification are in an immanent conflict of aims.

4 Conclusions

Due to the increasing interest in organic farming, aided by political initiatives and support programmes, a change in quality assurance in organic farming can be seen (HALL and MOGYORODY, 2001). As a consequence of this increasing interest, the German organic agricultural organisations are reaching the limits of their capacities as clubs due to their increasing membership. At the same time parallel to this, alternative quality assurance concepts are being developed due to political initiatives. The quality assurance system undertaken by private sector actors for the production of organic products is being affected by this political intervention in the market.

Participation in organic farming today no longer requires any ideological or emotional involvement. The newly created external financial initiatives for changing to organic production have not missed their target: many farmers are changing their production methods due to economic expediency (DABBERT and BRAUN, 1993). At the same time, however, this alternative system is not undisputed and the EU "organic"-certification is not without its failings, as a look at general practice shows. Alone in 2001, 10% of the organically produced cereals sold in Germany actually came from conventional production (BAUMANN, 2001).

There are severe problems in the implementation and quality of the audit that are a result of the basic institutional structure of the system (JAHN et al., 2005). At the same time, the functional mechanisms of the alternatives in the private sector are being endangered: crowding effects in the clubs lead to weaker sanctioning mechanisms and endanger the continuation of these institutions. Last but not least, there is a systematic conflict of aims between certification based on neutrality and independence, and a club system based on intrinsic motivation and social capital.

This article shows the unintended side effects of the public regulations on the institutions involved in quality assurance in organic farming. Similar considerations should also be undertaken with respect to the marketing side (e. g. the German organic label scheme "Bio-Siegel"). The question as to whether the aforementioned political intervention in the certification of organic products in Germany has achieved an overall positive welfare effect must remain open at this point in time.

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Institut für Agrarökonomie
Platz der Göttinger Sieben 5
37073 Göttingen
Tel. 0551-394803
Fax. 0551-394823
Mail: uaao@gwdg.de
Homepage : http://wwwuser.gwdg.de/~uaao/welcome.htm