

**IDENTIFYING PROBLEMS AND POTENTIAL  
OF THE CONVERSION TO ORGANIC  
FARMING IN SOUTH AFRICA**

**by**

**Katharina Niemeyer and Dr. Jan Lombard**

Contributed Paper Presented at the 41<sup>st</sup> Annual  
Conference of the Agricultural Economic Association  
of South Africa (AEASA), October 2-3, 2003,  
Pretoria, South Africa

# **IDENTIFYING PROBLEMS AND POTENTIAL OF THE CONVERSION TO ORGANIC FARMING IN SOUTH AFRICA**

## **Katharina Niemeyer**

Technical University Munich, Germany

Chair of Agricultural Economics and Farm Management

Alte Akademie 14

D-85350 Freising

Germany

Tel: +49 (8161) 71-3024

Fax: +49 (8161) 71-4426

niemeyer@wzw.tum.de

## **Dr. Jan Lombard**

University of Stellenbosch

Department of Agricultural Economics

Member of the AEASA

Privat Bag X1

Matieland 7602

Stellenbosch

Tel: +27 (21) 808-4754

Fax: +27 (21) 808-4670

jpl@sun.ac.za

# IDENTIFYING PROBLEMS AND POTENTIAL OF THE CONVERSION TO ORGANIC FARMING IN SOUTH AFRICA

Katharina Niemeyer<sup>1</sup> & Jan Lombard<sup>2</sup>

## ABSTRACT

*The world-wide trend of a growing organic sector is also detectable in South Africa. From 2000 to 2002 the number of farmers who had converted to organic farming in South Africa increased sixfold, and although organic farming still accounts only for a minute percentage of the total number agricultural producers, the increasing importance of this sector is apparent. Based on survey results, information was gathered about organic farmers in South Africa concerning socio-demographic aspects, farming operations, motivations and problems of the conversion process. These results were analysed in the context of possibilities to support the organic farming movement theoretically and practically.*

*With respect to the findings it is recommended that the conversion to organic farming should be supported, not necessarily via direct financial support to the organic farmers, but by means of different instruments such as the development of an improved infrastructure for marketing, networking and information exchange. Several areas for future research are identified to increase our understanding of organic farming in the South African context.*

## 1. INTRODUCTION

Organic farming holds an increasingly important position in today's agriculture. Hardly any discussion about the future of modern agriculture is made without taking organic farming into consideration. The International Federation of Organic Agriculture Movements (IFOAM) (2000) estimated a global production growth rate of between 20 and 30 percent annually. This movement, which was founded in 1972, has 770 member organisations in 107 countries. Europe and the USA are leading the way in this development, but also in the developing countries organic farming is seen as a rewarding alternative to meet the difficult situation of agriculture.

In South Africa, as in most African countries, organic farming is nevertheless still a very young industry. During the last few years, however, more and more farmers have started the process of conversion to organic farming. According to Moffet (2001:12) in 1999 only 35 farms were certified in South Africa, whereas in 2000 this number had increased to approximately 150. According to the latest statistics, 240 farms with a total area of 43 620 ha (including pastures and in-conversion land) were certified in 2002 (Grolink, 2002:25). The main products under certification were vegetables, wine and table grapes and other fruit, while the number of organic livestock farms is still very small.

As discussed by Mahlanza et al (2003:145) and Troskie (2000) changing consumer preferences towards more health and environmental awareness led to an increase in the demand for products from sustainable production. According to Grolink (2002:24), South Africa has, contrary to other Sub-Saharan countries, a substantial domestic market for organic products. This indicates that the potential for organic farming in South Africa is not only based on the access to export market in Europe and the USA but also on local demand.

As analysed by Padel (2000) the adoption/diffusion model can be used to analyse the diffusion process of organic farming and the conversion decision. It is expected that organic farming in South Africa, as a new industry, is in an early stage of the adoption process and therefore organic farmers show similar characteristics to innovators or early adopters of other environmental

---

<sup>1</sup> Research Assistant, Chair of Agricultural Economics and Farm Management, Technical University Munich, Germany

<sup>2</sup> Senior lecturer, Department of Agricultural Economics, University of Stellenbosch, South Africa

innovations (*i.e.* Anim, 1999). However, bottlenecks can hamper the establishment of this innovation. Such bottlenecks are expected to be not only natural factors but especially socio-economic and structural factors.

Against this background, this paper intends to investigate the socio-economic aspects of the organic farming movement in South Africa. Those features, together with the problems associated with the conversion from conventional to organic farming, are then used to identify potentials means to support this movement, taking into consideration the structural background for agriculture in South Africa.

## 2. METHODOLOGY

A multi-disciplinary approach was used in this study, which was appropriate given the range of problems identified as threatening to the conversion process. A survey method was applied, which gave a broad overview of the organic farming industry and the problems of the conversion process in South Africa. The data were collected by means of postal questionnaires. Contact details were obtained from the different certification organisation that are active in South Africa as well as from the Cape Organic Producer Organisation (COPA) and the Organic Agriculture Association of South Africa (OAASA).

Twenty-nine out of 93 questionnaires were satisfactorily completed and included in the study. Sixteen questions, qualitative as well as quantitative, about the decision process that led to the start of the conversion process, the farming situation before and after/during conversion as well as socio-demographic factors were included in the questionnaire. Special focus was placed on the problems experienced during the conversion process as well as on the most important changes that took place during this time. Where possible, survey results were compared to similar data for all farmers (conventional and organic) in South Africa. This reference data was obtained from the Abstract of Agricultural Statistics 2001, an extensive study of the Buro vir Markte en Media (1997) and Van der Westhuizen & Viljoen (1999)<sup>1</sup>. Latter is however limited in its representativeness for the whole of South Africa.

To estimate the differences in farm size between organic and commercial farms in general in South Africa, the organic farms were divided into two groups. The first group consisted of farms with horticulture as their main business and the second group included farms with mixed farming operations. Farm sizes for the Western Cape were displayed separately since they were mainly of horticultural nature and thus interesting to look at. The corresponding data for commercial (conventional and organic) farms (Abstract of Agricultural Statistics 2001) were used to analyse the differences.

In addition to the socio-economic data, findings of broader literature on the conversion process to organic farming were included and compared with the findings of the study. However since no literature (except for Anim, 1999 and Mahlanza *et al.*, 2003) exists on the conditions of organic farming in South Africa, international literature had to be used. Therefore the comparison with those findings was mentioned only briefly.

To determine whether the organic farmers in South Africa differed in their motivations from farmers in other countries, a chi-square test was applied on data from Fisher (1989), who evaluated the motivations of New Zealand farmers. The null-hypotheses stated that no differences in motivational factors exist between the South African organic farmers and the reference group.

---

<sup>1</sup> Although not representative for South African farmers this source was used since no recent data were available from the Statistics South Africa. The most recent data from the Agricultural Census dated back to the 1980s and was thus not used.

Since the survey of Fisher (1989) did not cover the same motivational factors, only the identical ones as shown in Table 2 in the appendix were selected for the test. Furthermore since the surveys worked with different numbers of rating levels (three compared to four), the levels two and three of the above ratings had to be merged in order to make the results comparable. This affects the value of the outcome in a negative way and has to be kept in mind. A chi-square test was also applied to test the problems arising from the conversion process dependent from the intensity level of farming before conversion.

Beside the lack of national literature, some other problems were encountered which set limitations to the methods used and the representativeness of the findings. The low number of farmers' addresses obtained and thus the low number of questionnaires completed was the main problem. In addition, not all of the respondent completed the open-ended questions satisfactorily.

### **3. RESULTS**

In the following the results of the survey are presented. This concerns socio-demographic characteristics of organic farmers as well as an identification of the features of the decision process and problems connected with the conversion process.

#### **3.1 Socio-demographic characteristics of organic farmers**

In order to compare age and education of the organic farmers<sup>1</sup> with a reference group consisting of commercial farmers, the farmers were grouped according to the age categories shown in Table 1. These categories were chosen to be able to compare the data of the organic farmers with the data of the reference group since the grouping of the two sources differed.

The two groups of farmers differed strongly in the two personal characteristics, namely age and education. On average, the organic farmers were younger and better educated. More organic farmers belonged to the age group younger than 41 than to any other category, while more farmers in the reference group were grouped older than 41.

---

<sup>1</sup> The term 'organic farmers' includes converting farmers and fully certified organic farmers.

**Table 1:** Comparison of age and education between organic farmers and farmers in the reference groups

Characteristics	Organic farmers		Reference group <sup>1</sup>	
	Percentage	n	Percentage	n
<b>Age in years</b>				
Younger than 41	39.3	11	29.8	50
41 to 50	35.7	10	39.9	67
Older than 50	25.0	7	30.4	51
<b>Highest qualification</b>				
Less than Std 10	0	0	3.0	59
Std. 10	10.3	3	39 <sup>2</sup>	771
College/university partially completed	0	0	9.0	178
Diploma	37.9	11	29.0 <sup>3</sup>	573
University degree	51.8	15	21.0	415

1: Reference group 'Age': Buro vir Markte en Media (1997)

Reference group 'Education': Van der Westhuizen and Viljoen (1999)

2: Agricultural school and other high school

3: Agricultural college and technical qualification

Note: Five percent of the conventional farmers had an education level other than the above categories and could therefore not be placed in one of these groups.

Source: Van der Westhuizen & Viljoen (1999); Buro vir Markte en Media (1997)

Table 1 also compares the highest levels of education of the organic farmers with a reference group. These data show that organic farmers were generally more educated than commercial farmers, with 89.7 percent of the farmers having a tertiary education in the form of a diploma or a university degree, compared to 50 percent of commercial farmers in 1997 and 57 percent in 1998 (Eksteen and Snyman, 1999:30).

### 3.2 Farm size

In the Western Cape the organic farms were 62 percent smaller than the average commercial farm. Table 2 displays the differences in the results. The organic farms showed a wide variation in size, with the smallest farm consisting of 24 ha and the largest being 525 ha in size.

**Table 2:** Comparison between sizes of surveyed farms and the reference group in ha

	Organic farms (ha)			Reference group (ha)	
	Average	Range	n	Average	n
Western Cape	202.6	24-525	16	531.8	3 336
Total South Africa	482.9	3-4 000	29	1 427.4	57 980
Horticulture	185.9	3-525	24	484.9	8 039
Mixed farming	484.7	200-1 000	3	769	5 711

Source: National Department of Agriculture (2001)

A look at the average farm size of all organic horticultural holdings revealed a corresponding differences in size. Organic mixed farming operations were more than double the size of the farms specialising in horticulture and were 37 percent smaller than average commercial mixed farming farms. The small number of farms included in this sample, however, may have a negative influence on the representativeness of the results. Among organic farms in general there were large discrepancies in farm size, making it difficult to generalize about organic farms in South Africa as a whole.

### 3.3 Motivational factors and information sources

Different motivations were responsible for the decision of the organic farmers to convert to organic farming. The farmers were asked to rate different motivational factors according to their importance during the decision process. Figure 1 displays the outcome of these ratings.

Protecting the environment and improving the soil fertility were the two major driving forces in the decision process. Farming organically as a new challenge in life motivated more of the organic farmers in South Africa than in other countries (*i.e.* Germany, USA, New Zealand). Financial reasons such as higher prices or the reduction of input costs played a minor to average role in the decision.

The lowest rating was found for the improvement of livestock health. This low figure can be attributed to the fact that the majority of organic farmers did not farm with livestock. The organic farmers who had livestock included in their farming activities rated this factor as moderately to very important for their decision to convert.

The chi-square test applied on the data from Fisher (1989) revealed the following results displayed in Table 2. The null-hypotheses could be rejected only in two cases on a five percent significance level. For New Zealand farmers the improvement in lifestyle and especially the reduction of input costs played a bigger role in the decision process than for the South African farmers. The remaining factors were rated similarly by the different groups and showed no significant differences.

**Table 2:** Results of the chi-square test for motivation factors

Motivation factor	Chi-square test value	5%-level critical value
Protecting the environment	0.14	5.99
Improvement of soil fertility	0.50	5.99
<b>Improvement of lifestyle</b>	<b>7.68</b>	<b>5.99</b>
Higher prices for organic products	3.72	5.99
New challenge	0.31	5.99
Philosophical reasons	4.96	5.99
<b>Reduction of input costs</b>	<b>12.33</b>	<b>5.99</b>

Sources: Fisher (1989)

Other than for the motivational factors, no data were available that would have allowed a statistical analysis of the differences between the findings of studies done in other countries and the results of this survey. Thus, the other comparison in this section is only descriptive.

The organic farmers rated their own education, conversations with other organic farmers and books about organic farming as the most important sources of information about organic farming, and these were the only three that were rated on average higher than moderately important (see Figure 2).

The rating of the importance of international magazines and journals, as well as contact with international organic farming organisations compared with their national counterparts, were included in the questionnaire. National organic farming organisations such as COPA and OAASA were rated low in their great value to the organic farmers. According to the respondents, universities and research institutions played no role at all in the process of providing useful information for organic farmers.

### 3.4 Problems arising from the conversion process

During the process of conversion to organic farming, farmers are confronted with several problems. The literature (*i.e.* Duram, 2000 and Rigby *et al.*, 2000:9) identified problems such as yield reductions, higher weed, pest and disease pressure, reduced livestock performance, few

marketing opportunities, no premium prices, refusal of loans or insurance for organic production and lack of legislation, subsidies and certification bodies.

In this study the respondents were asked to rate several problems, which were adapted from the literature and based on the expectations of the South African situation, according to four degrees of importance. Figure 3 shows the results of the survey in this regard.

The lack of national legislation was rated as the most serious problem. Since the draft for national legislation was published during 2001 this problem seems to have been addressed. However, during the personal interviews with farmers who took part in case studies carried out for the Authors' Master thesis, it was discovered that they believed this draft legislation is unsuitable under South African conditions since it is too closely orientated to EU-Regulations. Lack of advice was a further major problem. Since organic farming is a new sector in South African agriculture, the involvement of advisory and extension services, the national press and official agricultural institutions is still small.

According to the survey results, higher weed infestation is the main technical problem. Higher insect infestation and more diseases were other common technical problems, although they were generally rated as less important than the problem of higher weed infestation.

Financial obstacles during the conversion period were relevant for the organic farmers. Relatively high costs of initial certification and the annual inspection, which are dependent on the certification body and also partly on the size of the farm, are also seen as problematic. These costs can often not be recouped, especially during the conversion period, as farmers often lack possibilities for marketing their products as organically produced products or achieving premium prices.

The organic farmers experienced hardly any problems with the reduction in yields and the increase in workload. Increased workload is a common problem in other countries. This may not be a problem in South Africa because labour is more readily and inexpensively available than in Europe or America, where labour is expensive and most farms are managed by families alone with no labour input from outside.

The refusal of loans was named by only five organic farmers as problematic and can thus not be seen as a threat to the conversion process. The same applied to the refusal of insurance and problems internal to the farm.

To evaluate the differences in the rating of problems depending on the intensity<sup>1</sup> of farming practice before conversion, the farms were divided into three categories (rather intensive, rather extensive and virgin). A chi-square test was then performed on the categories 'rather intensive' (14 farms) and 'rather extensive' (11 farms). The category 'virgin' was not included since only four farmers were in this category. The Null Hypotheses stated that no difference existed between the above mentioned categories. The chi-square test was carried out on those categories where differences were expected (see Table 3).

The different farming levels before conversion differed only significantly with regard to more diseases. Farmers who used intensive farming practices before conversion had a problem with increased diseases to a larger extent than farmers who used extensive practices. No significant difference could be found in any of the other factors.

---

<sup>1</sup> Rather intensive: high input of chemical fertilizers, intensive tillage, *etc.*  
Rather extensive: low input of chemical fertilizer, minimum tillage, *etc.*

**Table 3:** Results of the chi-square test comparing different levels of intensity

Factor	Chi-square test value	5% level critical value
Lower yields	3.25	7.82
Higher weed infestation	1.16	7.82
Higher insect infestation	0.95	7.82
<b>More diseases</b>	<b>8.25</b>	<b>7.82</b>
Lower farm income	1.38	7.82

### 3.5 Performance of farming during conversion

#### 3.5.1 Changes in yields

When asked if they were satisfied with their present organic farming results, seven farmers answered that it was still too early to assess. Eight farmers were not or only partly satisfied with the yields of their crops. Insect and disease damage were the major reasons for lower yields. A need is seen for the improvement of yields. The short time under organic management or the lack of information and support as found in Section 3.4 can be seen as reasons for this problem.

The remainder of the organic farmers (48 percent) were satisfied with the yield. Two specifically mentioned higher yields than under conventional production. Insect and disease damage was also stated here as the major factors resulting in yield reductions.

#### 3.5.2 Financial performance

For eight farmers it was still too early to see if the financial performance of their organic operation was satisfactory or not, while four farmers did not answer this question. The remaining farmers (21) gave a wide variety of responses to this question. Seven were not satisfied with the financial performance, citing as reasons poor international markets (pome fruit), research costs and crop loss due to pests. The other 14 farmers reported a good to excellent financial performance.

## 4. DISCUSSION AND CONCLUSION

The analysis of the survey resulted in a number of findings. It confirmed several of our expectations based on the literature, such as a younger age and higher education for organic farmers compared to their conventional counterparts. These findings comply with the innovation theory, which states that innovators and early adopters are younger and better educated than later adopters. This theory can be applied in the case of organic farmers in South Africa since this movement is still very young and confirms the findings of Anim (1999:656), who found that more educated farmers tend to adopt organic farming methods more quickly than less educated farmers.

At the time of this study, most of the farms converted in South Africa were horticultural holdings and smaller than the average commercial farms. These results support the findings of the literature (*i.e.* MacRae *et al.*, 1990; Lockeretz, 1995; Fisher, 1989; Egri, 1999 and Alteri *et al.*, 1983). Reasons for this could be that risks and problems associated with the conversion process frighten large-scale farmers, as they see difficulties in implementing organic methods on a large-sized farm (Egri, 1999:65). A further aspect could be the greater financial pressure owners of smaller farms often have to face, thus encouraging them to consider high-value agricultural activities such as organic farming.

Several factors played a role in the process that led to the decision to convert to organic farming. The organic farmers were not mainly motivated by financial reasons, but more by concerns about the environment and soil fertility. This complies partly with the findings in the literature (*i.e.*

Stolze *et al.*, 2000 and Freyer *et al.*, 1994). Financial reasons such as higher prices or the reduction of input costs played a minor to average role in the decision. This is contrary to the findings of the literature, which state that the promise of higher profits, although less important than environmental reasons, is at the forefront of the decision process for farmers in other countries, although a change to organic farming does “not intend to be a solution for the structural problems of farming in general” (Freyer *et al.*, 1994:245).

However, the low average profitability of conventional farming systems in South Africa had no large influence on the decision, which is confirmed by the fact that only eight of the organic farmers were, according to the statement of the farmers, not farming on a profitable basis before conversion. Therefore it seems that farmers converted because of the added financial attractiveness of organic farming rather than as a solution to an unprofitable farming situation.

Information sources which supported this process and helped farmers to gather knowledge about organic farming were mainly their own education, conversations with other organic farmers and books addressing organic farming issues. These were the only three sources of information that were rated on average higher than moderately important (see Figure 2 in the appendix). This complies partly with the findings of Fisher (1989:36), who found books, seminars and conversations with individuals in the organic movement to be the most useful sources for practicing and prospective organic farmers. In both the studies of Fisher (1989) and Schulze Pals (1994:100), the farmer’s own education played a less important role in his or her acquisition of knowledge than in the case of South African organic farmers, who rated it as the most important source.

The low rating of national magazines and journals showed that organic farming is a sector that is not covered well by the local press, probably because it is a rather new and small industry. The work of national organic farming organisations such as COPA and OAASA provide at least a contact point for local organic farmers, but their low rating shows that they were not of great value to the organic farmers. These findings provide evidence of the small national involvement in organic agriculture research and lack of information availability in South Africa.

This minor national involvement also caused several of the problems farmers rated high in this survey such as lack of advice, information and suitable national legislation. As expected, higher weed infestation was the main technical problem during the conversion period and confirmed the findings of the literature (*i.e.* Rantzau *et al.* (1990) and Lampkin (1994:227)). Surprisingly no significant differences were found by comparing different levels of farming intensity before and after conversion. It was only discovered that farmers who had farmed more intensively before conversion had more problems with diseases. The expected yield reduction as proved by the findings of similar studies (*i.e.* Dabbert, 1994; Lampkin, 1994; Freyer *et al.*, 1994; Peters, 1994 and Schulze Pals, 1994) could not be proven. A reason could be the generally lower intensity of farming in South Africa compared to other countries.

The big differences in performance among the farmers surveyed could have several reasons. First of all, the financial output in the first years of conversion is often lower than before because of increasing fixed costs, cost of establishment of the organic system, cost for training and advice or the lack of access to premium prices. Although South Africa has a substantial domestic market for organic products, access to premium prices is not guaranteed. Furthermore, start-up costs are a drawback as in the case of one farmer who established a new farming activity. Good financial performance among some farmers, on the other hand, could be related to a reduction in input costs combined with premium prices. An additional positive impact on the financial situation was made by higher yields, which was the case in all but two situations.

These results revealed that the organic farming movement is in an early stage of the adoption/diffusion process of an innovation. However, the environment has to be suitable if the innovation is to become implemented as a part of the system. This requires support not only

concerning technical aspects but also socio-economic ones. We suggest several steps that can be taken to aid the organic farming movement in South Africa.

Firstly, there is a strong need for more national involvement in organic farming. This includes the introduction of a suitable national legislation that is based on the one hand on the requirements of South Africa's main export market, the EU, and on the other hand on the socio-economic and natural conditions of agriculture in South Africa. Furthermore, the problem of lack of information can be addressed if the status of organisations like OAASA improves. Intensive networking among people involved in the organic farming movement is essential to exchange knowledge and experience. Services could include the publication of magazines (as is the case already in the form of the OAASA Newsflash), production guidelines, advisory services, farm days and seminars.

A critical issue is the financial support of organic farming, especially during the conversion period. Since it was found that the conversion period for most farmers is a time of financial constraint and risks, support during this time is of decisive importance. Financial support could include the introduction of support for investments, *e.g.* in the form of soft loans. However, in the case of a fairly well-developed domestic market and/or the possibility for export, this support is only needed if organic farming is identified to have a macro economical surplus for the society.

These support systems could be embedded in national programmes that focus on the promotion of an increase in sustainability of agricultural production. However, the implementation of such support programs in South Africa is unlikely. In the context of the EU and the USA, financial means are available to introduce such programs, as has already been done in these countries. In South Africa, due to the political and economical situation, it is doubtful that the state has the financial capacity and the will to implement such programs at this stage. The focus of the South African agricultural policy is rather on urgent aspects such as land reform. Due to the complexity of this problem, the probability of the introduction of support programs for organic farming systems in the future has to be investigated in a separate study.

As already mentioned by Mahlanza *et al.* (2003:159) there is also a considerable potential for research in the field of organic agriculture in South Africa. This could cover technical, economical and social aspects. The contribution of organic farming to the development of sustainable and environmentally friendly agricultural systems as well as the impacts of a widespread conversion to organic farming on public costs and benefits should be evaluated.

## REFERENCES:

- ALTERI MA, DAVIS J & BURROUGHS, K (1983). Some Agroecological and Socioeconomic Features of Organic Farming in California. A Preliminary Study, *Biological Agriculture and Horticulture*, Vol. 1, 97-107
- ANIM FDK (1999). Organic Vegetable Farming in Rural Areas of the Northern Province, *Agrekon*, Vol. 38 (4), 645-375
- BURO VIR MARKTE EN MEDIA (1997). *Investigating the South African Farmer*, Agric Research
- DABBERT S (1994). *Economics of Conversion to Organic Farming: Cross-sectional Analysis of Survey Data in Germany*, In: Lampkin NH & Padel S (eds.), *The Economics of Organic Farming: An International Perspective*, CAB International, Oxon, 285-293
- DURAM LA (2000). Agents' Perception of Structure: How Illinois Organic Farmers view Political, Economic, Social and Ecological Factors, *Agriculture and Human Values*, 17, 35-48

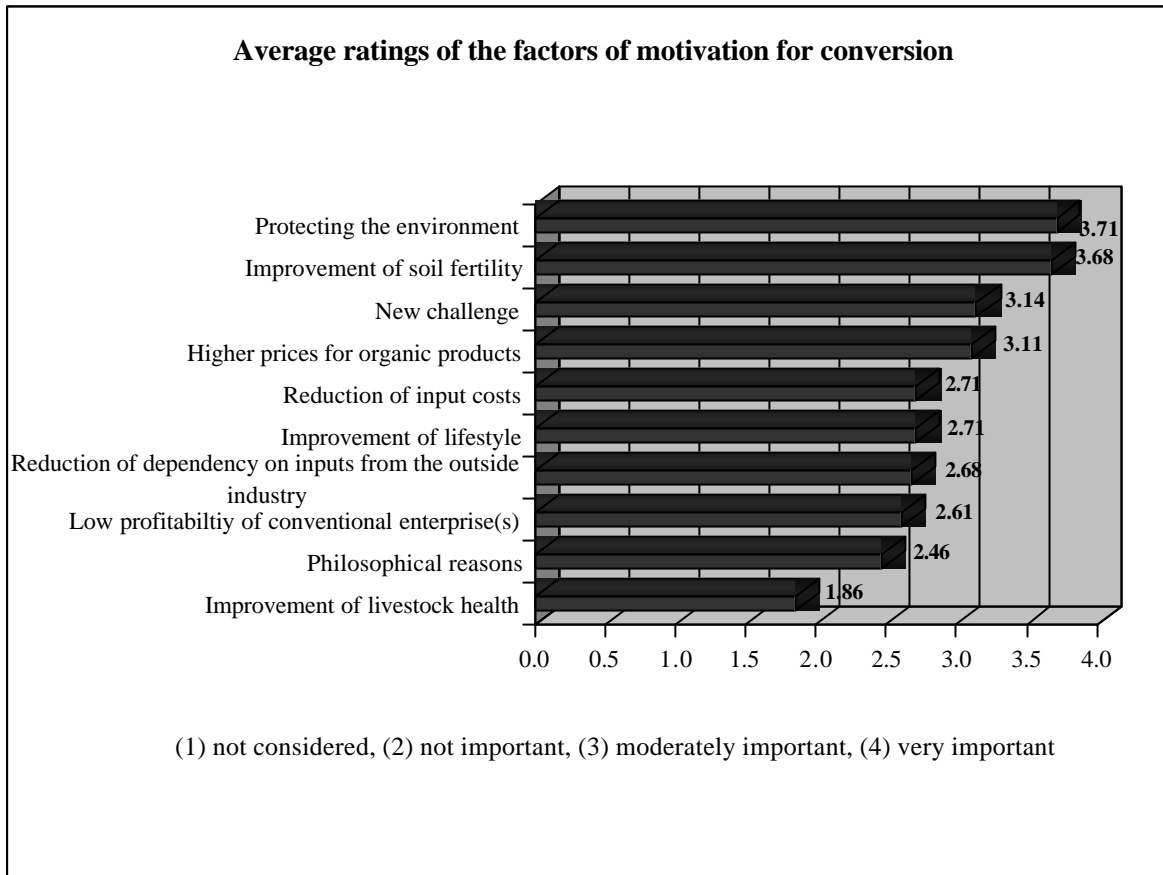
- EGRI CP (1999). Attitudes, Backgrounds and Information Preferences of Canadian Farmers: Implications for Organic Farming Advocacy and Extension, *Journal of Sustainable Agriculture*, Vol. 13 (3), 45-72
- EKSTEEN L & SNYMAN JNB (1999). Navorsing: Nuwe Blik op die SA Boere (*Research: A new view on the SA farmers*), *Landbouweekblad*, Nr. 1084, 19 February 1999, 30
- FISHER P (1989). *Barriers to the Adoption of Organic Farming in Canterbury*, MSc thesis, Centre for Resource Management, Lincoln College, University of Canterbury
- FREYER B (1994). Ausgewählte Prozesse in der Phase der Umstellung auf den oekologischen Landbau am Beispiel von sieben Fallstudien (*Selected processes during the conversion to organic agriculture, demonstrated on seven case studies*), *Berichte der Landwirtschaft*, 72, 366-390
- FREYER B, RANTZAU R & VOGTMANN H (1994). *Case Studies of Farms Converting to Organic Agriculture in Germany*, In: Lampkin NH & Padel S (eds.), *The Economics of Organic Farming: An International Perspective*, CAB International, Oxon, 243-263
- GROLINK (2002). *Feasibility Study for the Establishment of Certification Bodies for Organic Agriculture in Eastern and Southern Africa*, Report commissioned by Sida/INEC, Höje
- INTERNATIONAL FEDERATION OF ORGANIC AGRICULTURE MOVEMENT (IFOAM) (2000). *Organic Agriculture Statistics World Wide: Africa*, Tholey-Theley: <http://www.ifoam.org/statistics>
- KUPKA J (2002). Where do I go for Organic Certification? *Farmer's Weekly*, 25. January 2002, 16-19
- LAMPKIN NH (1994). *Changes in Physical and Financial Performance during Conversion to Organic Farming: Case Studies of Two English Dairy Farms*. In: Lampkin NH & Padel S (eds.), *The Economics of Organic Farming: An International Perspective*, CAB International, Wallingford, 223-241
- LOCKERETZ W (1995). Organic farming in Massachusetts: An Alternative Approach to Agriculture in an Urbanized State, *Journal of Soil and Water Conservation*, Vol. 50 (6), 663-667
- MACRAE RJ, HILL SB, MEHUYS GR & HENNING, J (1990). Farm-Scale Agronomic and Economic Conversion from Conventional to Sustainable Agriculture, *Advances in Agronomy*, Vol. 43, 155-198
- MOFFET J (2001). *Principles of Organic Farming*. Paper contributed at the 1. Short Course in Organic Farming organised by the Spier Institute and the Elsenburg Agricultural College, 25<sup>th</sup>-27<sup>th</sup> October 2001
- NATIONAL DEPARTMENT OF AGRICULTURE (2001). *Abstracts of Agricultural Statistics 2001*, Pretoria
- PADEL S (2001). Conversion to Organic Farming: A Typical Example of the Diffusion of an Innovation? *Sociologia Ruralis*, Vol. 41 (1), 40-61
- PETERS SE (1994). *Conversion to Low-Input Farming Systems in Pennsylvania, USA: An Evaluation of the Rodale Farming System Trial and Related Economic Studies*, In: Lampkin NH & Padel S (eds.), *The Economics of Organic Farming: An International Perspective*, CAB International, Oxon, 265-284
- RANTZAU R, FREYER B & VOGTMANN, H (1990). *Umstellung auf oekologischen Landbau (Conversion to Organic Agriculture)*, Reihe A: Angewandte Wissenschaften, Heft 389, Landwirtschaftsverlag GmbH, Muenster-Hiltrup

RIGBY D, YOUNG T & BURTON M (2000). *Why do Farmers opt in or opt out of Organic Production? A Review of the Evidence*. Symposium paper for the Annual Agricultural Economics Society Conference, Manchester, 14-17<sup>th</sup> April 2000

SCHULZE PALS L (1994). *Oekonomische Analyse der Umstellung auf oekologischen Landbau (Economic Analysis of the Conversion to Organic agriculture)*, Schriftenreihe des Bundesministeriums fuer Ernaehrung, Landwirtschaft und Forsten, Reihe A: Angewandte Wissenschaften, Heft 436, Landwirtschaftsverlag, Muenster-Hiltrup

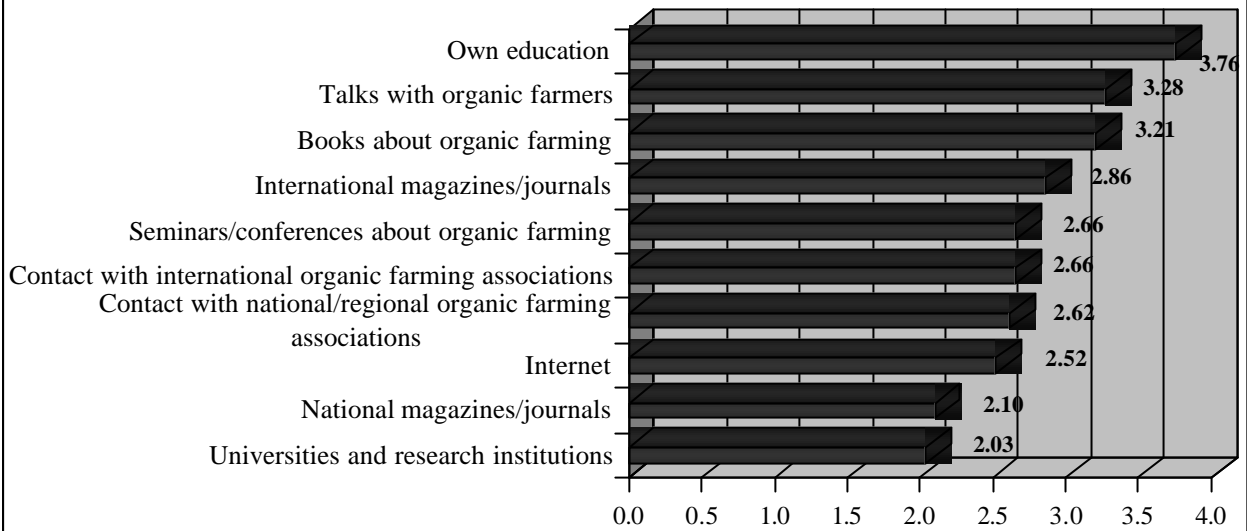
VAN DER WESTHUIZEN C & VILJOEN MF (1999). Relevance of the Improved Integrated Farm Planning Approach and Farm Management Performance Relationships to address the Challenges of the new Millennium, *Agrekon*, Vol. 38 (4), 670-679

## Appendix



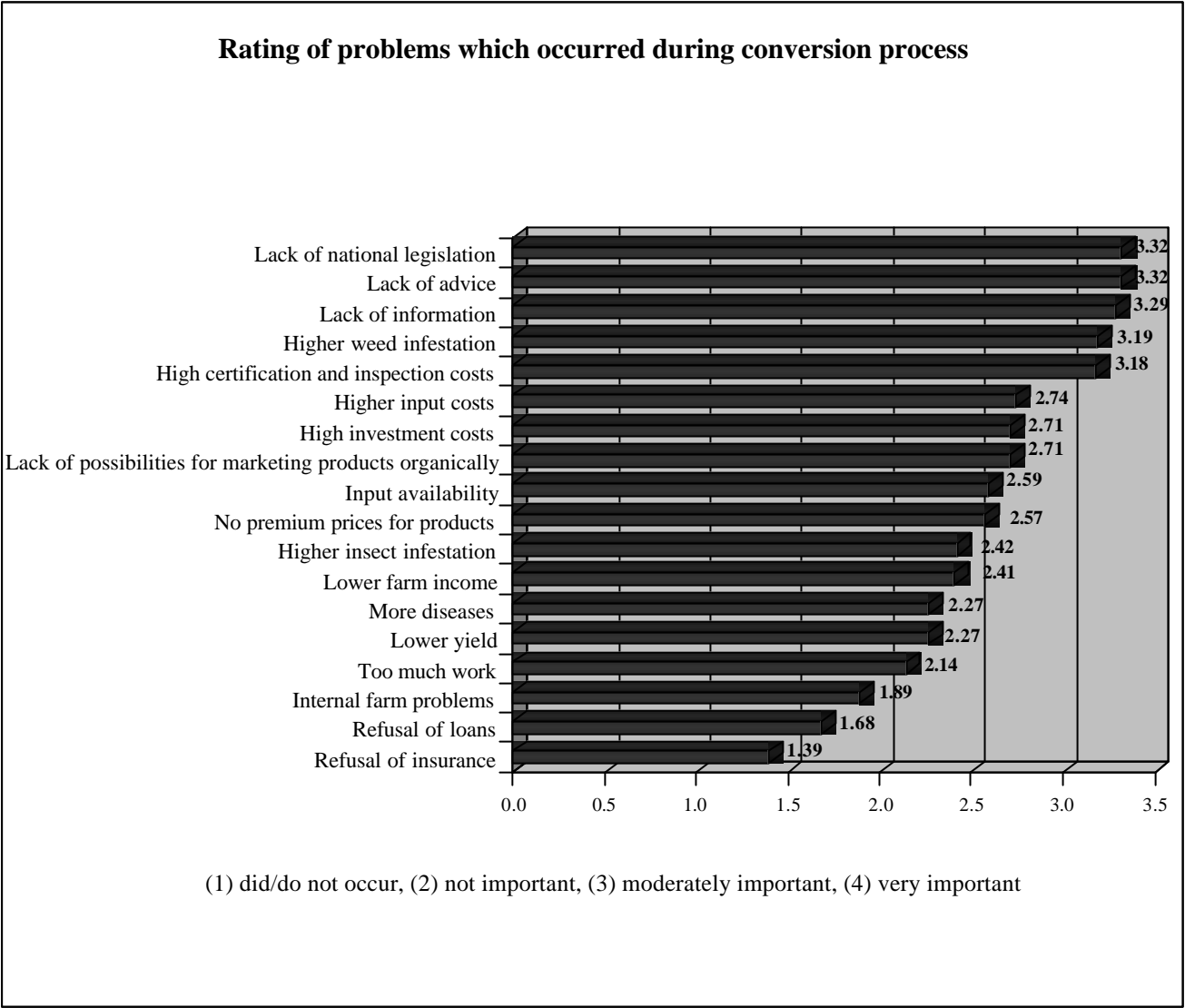
**Figure 1:** Motivations of interviewed farmers for the decision to convert to organic farming

### Sources farmers used to gather information about organic farming



(1) not used, (2) not important, (3) moderately important, (4) very important

**Figure 2:** Rating of sources used by the interviewed farmers to gather information about organic farming



**Figure 3:** Ratings of problems that the farmers had to face during the conversion process