



LOUIS BOLK
I N S T I T U U T

Relevance Annual Report 2007

Supervisory Board

On 1 October 2007, the Louis Bolk Institute said farewell to the Board which, under the inspirational leadership of Bas Pedroli, had made a real contribution to the professionalisation of the institute. An important step in this process was the conversion to the Raad van Toezicht (Supervisory Board) model on 1 October. The management of the foundation is now in the hands of CEO Vincent Blok

The Supervisory Board met twice in 2007, approving an ambitious annual plan and budget for 2008. In preparation for this the Board debated developments within the organisation and how the institute should grow. At the beginning of 2008 the Board approved the 2007 accounts and is now considering its own role and the mission of the institute in more detail. Naturally the Board will supervise the further development of the institute, where it is not only good to work, but which also delivers an inspiring contribution to social renewal.

Bram van de Klundert
Chair of the Supervisory Board

2007 was a good year for the Louis Bolk Institute. Once again we achieved spectacular results with our research: relevant results that contribute to science, are significant for society, and that work in practice. The KOALA birth cohort study was one such project, with very clear results. It showed that children who consume predominantly organic dairy products are less likely to get eczema than children who consume conventional dairy products. At the scientific level, this research produced new data on the effects of organic food on health and the results were immediately published in the British Journal of Nutrition. At the social and practical level it contributed to the prevention of eczema and allergies in children. We like to see such a combination of results. We always strive to work on sustainable solutions based on the way things are done in practice: solutions in which ecological, social and economic interests are brought together, now and for the future. We know from experience that our participative research often leads us to solutions and concepts which have never previously been imagined, but which nonetheless work in practice. Policy makers also increasingly make use of our research and findings, which results in an agreeable interaction between policy and practice.

Our research contributes to science, society and practice

But our institute goes beyond research. We are also keen on concept development. For example, we developed the concept of naturalness. In the spring of 2007 the Wageningen journal of life sciences, NJAS, published a special edition entitled Values in Organic Agriculture about this concept of naturalness and associated values in organic agriculture.

In 2007 our institute made a further important contribution to the exchange of knowledge in the organic and sustainable sector. We were involved in the organisation of Biovak, the first Dutch trade fair in the field of organic agriculture, focusing on the transfer and exchange of knowledge. We also played a coordinating role in the business networks for soil fertility, goats, poultry, and glasshouse and ornamental horticulture, and collaborated in the Network for innovation in organic dairy farming. We work with Wageningen University and Research Centre to disseminate our knowledge and research findings to a broader public through the website www.biokennis.nl. We will of course continue to do so in the coming years. We brought out a considerable number of publications during the period of the report. A complete list is available on our website: www.louisbolk.nl.

2007 was also a good year financially. We are very proud of this, as we see it as a token of our clients' appreciation. It also builds confidence for the future that an institute like ours, which often explores the less trodden ways, is so valued.

In 2008 we will continue with our mission to develop sustainability based on our systemic vision of people and nature, combined with our participative approach. We are convinced that this leads to innovations that are relevant to science, practice and society. Take plant breeding, for example, which can now be achieved simply with the aid of biotechnology. Other research institutes are investing heavily in this route. Conversely, we see it as our challenge to investigate innovations that can be achieved using of traditional plant breeding methods. In doing so we contribute to much-needed pluralism in science. After all, history shows that scientific progress depends on a range of approaches. Moreover, our approach produces to excellent results, as demonstrated year after year by our research group on organic breeding.

In 2008 we will continue to break new ground, and not just in our working methods. We see it as our social duty to literally break down boundaries with our mission. So 2008 is the year in which we hope to grow in the international field. We will cooperate with organisations that operate internationally, so that we too can break down boundaries. We will focus even more sharply on knowledge transfer with target groups. After all, we do not do research for its own sake; we want to find practical solutions and provide direction for new policy to benefit society.

We are increasingly approached by farmers, nature manager, health organisations, research institutes and the media. This makes us confident that we are making a relevant contribution to science, society and practice – both nationally, and soon, more internationally.

Vincent Blok, PhD
CEO, Louis Bolk Institute





*Jan Paul Wagenaar,
senior researcher in Animal Health and Welfare:
Science and practice hand in hand*

"The research project *Calves with the cow: nature works*, which has now clocked up 5 years, is still producing new information and practical solutions", relates Jan-Paul Wagenaar, senior researcher in Animal Health and Welfare. "Raising calves with the cow has broad implications for a dairy farm", he says. "We have previously shown that calves that are allowed to stay with the mother or are fostered by another cow, grow into strong, well-developed animals. And when they become dairy cows themselves, they are far more easily absorbed into the herd. That in itself is nothing new. Many livestock farmers also see the advantages: it is just another way of working, but ultimately it is less labour intensive. However, we are now finding that the results of our research are particularly valuable as a basis for scientific research into improving general disease resistance in animals. This subject is receiving a lot of attention at the moment. And our practical experience with dairy herds proves invaluable in the current efforts to innovate animal housing. More and more farmers are convinced that investment in animal welfare pays for itself, and are prepared to look at solutions based around the animal. The Louis Bolk Institute acts as an information exchange. We organise regular meetings on animal health and welfare where farmers can learn from each other. Everyone can pick up information that's relevant to their own situation. Because if there's one thing we have learned from research, it's that no two farm systems are alike, and that it is best to implement research findings in collaboration with the farmer, since every case requires a unique solution."

*Machteld Huber,
senior researcher in Nutrition and Health:
New concepts from a different approach*

"Our approach to research brings a broader view on organic relationships. I see our methodology as an extra dimension within science, which produces new and valuable insights. We can use this insight to develop new scientific concepts, such as the concept of nutritional quality as a balance of physiological processes". So says an animated Machteld Huber, senior researcher in Nutrition and Health. Huber: "In our research we do not just study the analytical data, we also look at the bigger picture. For example, we study Man in relation to his environment, with his specific lifestyle characteristics. We look for patterns within the organism as a whole. Therefore, it is essential to make exact observations. Because our institute covers a number of different research disciplines, exchanging knowledge with colleagues also gives us a broader view of the research questions. This broad perspective is also characteristic of the project *Organic, More Healthy? A search for biomarkers* which I lead. This study investigates the effect of organic and conventional feed on the health parameters of two generations of chickens. The study has produced a vast amount of relevant information in relation to general health characteristics, immunology, physiology and gene activation. The final report was presented to Minister Verburg last December. The broad view was possible thanks to cooperation with diverse institutes, namely Wageningen University, RIKILT Institute for Food Safety and TNO (Dutch Institute for Applied Scientific Research). Our approach and the use of modern research techniques in this project led to new scientific insight. Until now, nutritional research mainly focussed on people and animals who were ill. We have made a first move toward defining the concept of health in terms of resilience", Huber concludes.





Organic is tastier

The perception of the consumer is that organic products are more healthy and taste better. In the project *Bijzonder Biologisch* (Specially organic, vegetables with character) Louis Bolk Institute worked with Wageningen University and Research Centre and DLV Plant consultants to investigate the quality and taste of bunching carrots, winter carrots and beetroot by looking at the opportunities offered by the different varieties. The field trial we carried out with carrot growers provided a basis for growing attractive and tasty carrots with the Mokum variety. This variety scored very highly on taste, both with a professional tasting panel and with consumers. We are now going to work with the growers to refine the cultivation method with this variety so that they can deliver tasty carrots to the wholesale trade on a daily basis in the summer season.



Organic crops more robust?

There is an idea that organic crops are more robust and less prey to pests and diseases. The Louis Bolk Institute investigated this in 2007 for late blight and silver scurf in organic potato crops. We identified all the preventive measures that work, such as reducing damage by crop establishment and pre-sprouting, or use of clean propagation material.



Investeren tot in de bodem (Investing down to the soil)

The *MAK-trial* to investigate options for manuring and fertilisation, invested a good eight years in the soil. Different fertilizer and compost types were trialled, and now the Louis Bolk Institute has demonstrated the long-term effects on yield, product quality, soil quality, environment and even climate. The long research period and the wide range of fertilisers make this project unique in Europe. The results are now accessible to farmers and policy makers alike in a report and booklet.

Quest for sustainability

The *Veldleeuwerik* (Skylark) project focuses on indicators for sustainable arable farming. The original groups of ten farmers has been extended to sixteen. Wholesalers and processors such as Heineken, Unilever, Suikerunie, McCain, Cargill and Gebr. Van Lier can benefit from sustainable raw materials and support the process. With the *Veldleeuwerik* system we are working openly to achieve sustainable farming for all.

Inspiring strategies for sustainable soil management

In 2007 the Louis Bolk Institute completed its *Bijzondere bemesting project* (Special Fertilisation: promising strategies for sustainable soil management). This project involved close monitoring of five arable farmers. This led to five inspiring examples of sustainable farming methods which are described in a booklet of the same name. At the end of the project the Louis Bolk Institute organised a successful symposium, *Duurzaam Bodembeheer, neem een voorsprong* (Sustainable soil management, get a head start) See also www.bodemacademie.nl



Extending the range of available seeds

The four-year *Bioconnect* research programme on organic breeding (2004-2007) has been successfully completed. In this project the Louis Bolk Institute argued that the robustness of the plant should not only be sought in the traditional manner in the direct genetic resistances, but also in other plant properties, such as wax layer, longer ear and less compact ear. The special project, *Wie zaait, zal oogsten* (Who sows, reaps), is an excellent example of participative research, with the Louis Bolk Institute as process supervisor. Working with growers and seed companies we have developed a long-term plan to broaden the available range of organically produced varieties and to interest more seed companies.

Soil quality in Drenthe

The Louis Bolk Institute carried out a soil quality assessment in Drenthe, on behalf of the Provincial Council and the Ministry of Housing, Spatial Planning and the Environment. The assessment involved testing a method of the National Institute of Public Health and the Environment (RIVM). Tests were carried out at ten livestock and arable farms and two nature reserves. In June 2007 the Louis Bolk Institute organised two field days for the farmers and nature managers. Measurements were presented, test pits were dug and practical measures discussed. The Louis Bolk Institute presented the end results of this research project at the *Bodem Breed* (Soil Wide) National Symposium.

Further information on these themes and a complete list of [Soil & Plant Research](#) publications can be found on our website: www.louisbolk.nl



Insight into cost price of organic goats milk

The Louis Bolk Institute worked in a business network with sheep and goat milk associations, NVPM and De Groene Geit, to determine the cost price of organic sheep and goat milks. With 100% organic concentrated feed the price for 100 litres of goats milk (7% fat and protein) excluding VAT, came out at € 72.34, and that of sheep milk at € 204.00. The cost price calculations led to a rise in the milk price. They also gave the farmers insight into the distribution of costs and points to consider to optimise their cost price.



Stier bij koe (The bull with the cow)

The second meeting of the Stier bij koe network, organised by the Louis Bolk Institute, was a great success. The theme was 'Building confidence'. Breeding with your own bulls is often a matter of gaining confidence with your own cattle. A number of breeders related enthusiastically how they bred their own ideal cows with proven strong maternal lines, their own bulls or tested AI bulls.

Further information on these themes and a full list of [Animal Research](#) publications can be found on our website: www.louisbolk.nl

Healthier dairy cattle

In the past year the Louis Bolk Institute organised a series of meetings on the general health of dairy cattle both in the northern Friese Wouden and among the Duinboeren in Brabant. For some twenty farmers this was the first step towards studying cows closely, in a group setting. In addition to locomotion,

Vigorous mixed crops

The Louis Bolk Institute is investigating the cultivation of pulses for animal nutrition in relation to regional feed production. Monoculture of pulses is unappealing because of weeds and the high harvesting risks. The solution is sought in mixed cultivation of pulses and cereals. The cereals ensure better weed suppression and, combined with the pulses, more stability in yield. There is also an advantage for the cereals: the protein levels in cereals from mixed crops are often 2% higher than in monocultures.



condition and skin problems in individual animals, attention was given to housing. The approach was designed to make farmers aware of operational problems and how they can cause stress in dairy cattle. The problems were identified and possible solutions were discussed.

Healthier fatty acids in organic milk

Many positive health effects are attributed to polyunsaturated fatty acids, which include CLA and Omega-3 fatty acids. The Louis Bolk Institute has investigated how organic farmers can increase the levels of these healthy fatty acids in bulk milk. As well as fresh grass, the addition of pelleted grass, red clover or oil to the diet proves to have a clearly positive effect on the level of healthy fatty acids. The quality of roughage also seems to affect the fatty acid composition. Pelleted grass is often the cheapest way of increasing the Omega-3 content of the milk, while oil has the greatest positive effect on the CLA-content.



Healthy laying hens

In 2007 the Louis Bolk Institute started a research project to study measures that lead to good veterinary health in laying hens. In the next two years fifty poultry holdings will be visited for this project. At each farm fifty birds will be assessed for diverse health characteristics, ranging from parasites to broken bones. Data will also be collected on housing, care, nutrition, use of outdoor runs, and the man-bird relationship, during both the laying and breeding periods. The findings from the first thirty-five farm visits suggest that feather-pecking has decreased recently. This is probably because hens are kept more active during the breeding period.





Minister Verburg receives the report *Organic More Healthy?* from Machteld Huber.

Organic food affects the immune system

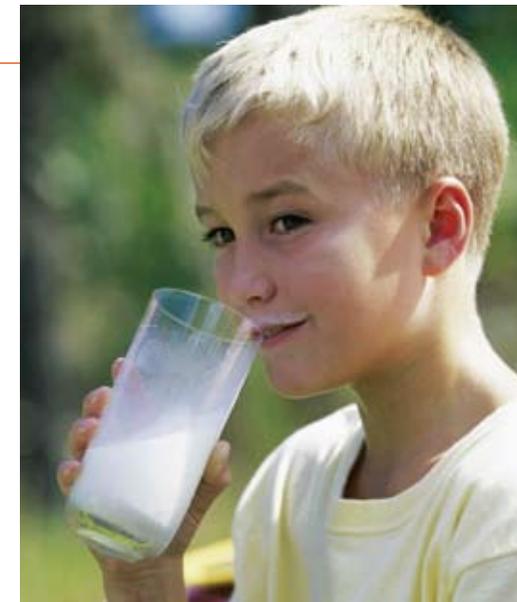
On 13 December 2007 the research report *Organic, More Healthy?* was presented to Gerda Verburg, Minister of Agriculture, Nature and Food Quality (LNV). This report was the culmination of the largest intervention study to date into the health effects of organic nutrition in animals. The findings indicate that organic food leads to a more alert immune system; organically-fed chickens weighed less and were better able to recover from disorders than chickens fed on conventionally-grown feed. The chicken research was a preparation for a study to be performed in humans. The Louis Bolk Institute took the role of project leader and worked closely in the study with Wageningen University and Research Centre, RIKILT – Food Safety Institute and TNO (Organisation for Applied Scientific Research).

Insight into effect of 'green care'

Psychiatric patients and clients with intellectual impairment are increasingly offered 'green care'. However, as yet there is no clear evidence about the effect of this method of treatment. The Louis Bolk Institute therefore worked with the Wageningen Research Centre to develop an instrument which would rapidly provide insight into the health status of a client, and which could be used to determine the effect of intervention at the level of the individual client. The method is already being used at the Hoge Born care farm in Wageningen. Initial results are very promising. The project will be completed in 2008.

Organic milk protects against eczema

Children who consume only organic dairy foods are 30% less likely to suffer from eczema, according to the *KOALA-study*, which was a collaboration between the Louis Bolk Institute and the University of Maastricht. This phenomenon may be explained by the higher levels of beneficial fatty acids in organic milk and the breast milk of mothers who eat organic food. The same study showed that eating organic food has a positive effect on the composition of breast milk. Two important articles on this research were published in 2007 in the *British Journal of Nutrition*. The research findings attracted a great deal of attention from both the national and international press. This was also the first time that an effect of organic food on child health could be scientifically substantiated. In the coming years the Louis Bolk Institute will continue to monitor the children to study the health effects of an organic diet.



Crystallisation to determine food quality

Crystallisation pictures are gaining recognition as an extra method to determine the quality of food. In 2007 the Louis Bolk Institute used this method in a large number of projects. The effect of processing a product proves to be clearly visible in the crystallisation picture. In the *Organic More Healthy?* project, despite relatively small differences in nutritional composition, the crystallisation pictures showed a clear difference between the organic and conventionally grown chicken feed ingredients. We have since made a start on two European studies: one into carrot quality and processing, and one into the effect of homeopathic dilutions. The results are expected in 2008.

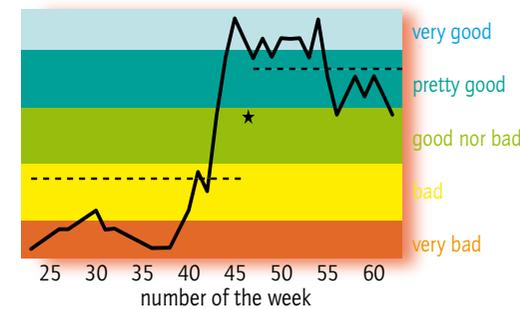


Further information on these topics and a complete list of **Human Research** publications can be found on our website www.louisbolk.nl



Bolk's Companions popular

A mini-symposium was held on 22 February 2007 on completion of the series of *Bolk's Companions for the Study of Medicine*. Representatives from the world of university education and research were present. It was abundantly clear that these booklets are greatly appreciated by students of medicine and students of anthroposophical therapy alike. Over eight thousand booklets have now been sent out or downloaded, and are used in over eighty countries. The first issues of the follow-up series - *Bolk's Companions for the Practice of Medicine* - will be completed in 2008.



Effect of treatment on wellbeing of a client at Hoge Born care farm.



*Frans Smeding,
senior researcher in Nature and Agriculture:
Nature and agriculture: a strong team*

"We link together the interest of farmers and nature organisations to arrive at solutions that benefit both parties", says Frans Smeding, senior researcher in Nature and Agriculture, enthusiastically. "The Flevoland *Nature and Use* project in collaboration with Flevoland Landscape Management, is an example of this approach. In this project vegetation of a wetland was composted in situ. Natuurmonumenten, the natural heritage association that owns the land, was happy to see a beneficial management of the area. An a local farmer was glad to receive the compost, that he could put to immediate use. This project shows that nature and agriculture, rather than conflicting, can be mutually beneficial. Our institute tries to facilitate this collaboration by providing the knowledge and ensuring that the necessary people are on hand and that they actually work together to achieve the desired result. In this way we not only contribute to really practical solutions for farmers and nature managers, but also provide policy pointers for the various organisations. And this makes me really proud. Even though we work from a scientific angle, we strive for models and solutions that work in practice, and for which there is an actual need. That's why we always work in response to a specific need on the part of the farmer or nature manager, and set up a research project together with the other parties on that basis. A project is successful if we manage to use modern methods to intermix nature and agriculture to produce a cultural landscape including nature values."

*Sjef Staps,
project manager of Sustainable Soil Management:
A conscious look at the soil*

"Our research set-up is practice oriented. The results are translated into improvements for the sector, and often also serve as input for policy development", says Sjef Staps, senior researcher and project manager of Sustainable Soil Management. "Our project *Umbrella 100% organic fertiliser* is a good example. In this project we investigate how the cycles within the organic sector could be made increasingly organic. In fact we are aiming for the use of fertiliser which is of 100% organic origin. Representatives of different agricultural sectors are gradually involved in the project. This culminates in policy recommendations which are presented to the Ministry of Agriculture, Nature and Food Quality by the Biologica (Organic chain organisation) Expert Group and the LTO (Federation of Agricultural and Horticultural Organisations). Our staff also have a lot of contact with policy-makers, often on their own initiative, as in the case of the soil symposium we organised, called *Sustainable soil management; get a head start!*. Current problems in agriculture can partly be traced back to the fact that man has distanced himself both literally and figuratively from the soil. We believe that it is important for people to have more direct contact with the soil. One of the highlights of the symposium was a workshop in which participants could handle clods of earth of various origins, and assess the structure. This raised great enthusiasm and afterwards authorities asked us to organise a similar activity to get policy officials closer to the soil. Personal observations and experiences lead to a renewed awareness of the state of our soil. Farmers confirm the need for this. One said: "Before I came into contact with the Louis Bolk Institute, I spent € 20,000 on better tractor tyres, but I had never assessed my own soil profile."



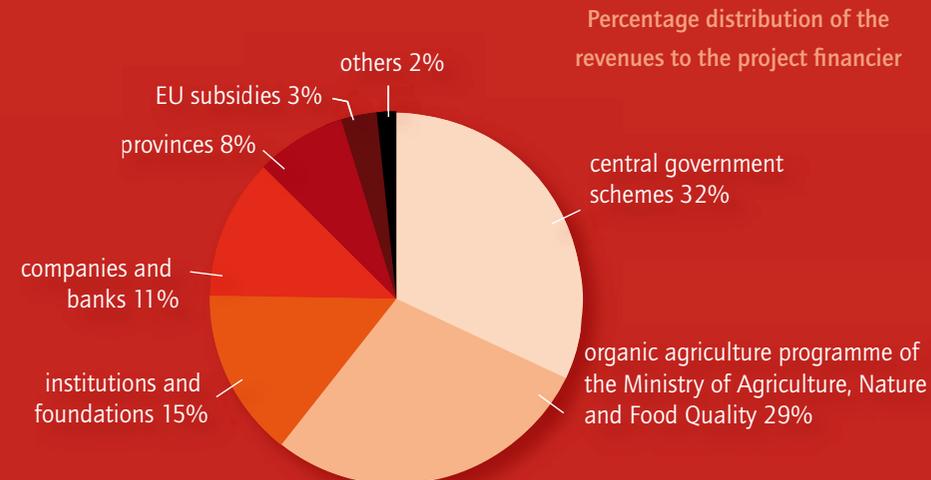
Statement of expenditure and revenue (x € 1,000)

	budget 2008	account 2007	budget 2007	account 2006	(revised) budget 2006
Revenues					
projects	3,334	3,829	3,742	3,651	3,545
donations	15	16	5	7	70
miscellaneous		5		14	
total revenues	3,349	3,850	3,747	3,672	3,615
Expenditure					
personnel	1,922	1,871	1,945	1,712	1,817
housing	136	86	150	131	135
general costs	279	378	263	314	272
non-personnel project costs	907	1,076	1,154	1,122	1,025
total expenditure	3,244	3,411	3,512	3,279	3,249
Balance from normal business operations	105	439	235	393	366
Provision for anticipated project losses		-8		-38	
Result	105	431	235	355	366

In the 2007 financial year €185,000 from own resources was spent on project financing. Expenditure of €151,000 was included in the budget for 2007 for staff expansion. Not all the posts have been filled.

**Supervisory Board
of the Louis Bolk Institute Foundation**

Chair: A.F. (Bram) van de Klundert
 Members: A. (Antoine) van den Burg
 A.C. (Kees) van der Linden
 H.J. (Hanno) Niemeijer
 T.N. (Tom) Peetoom



Auditors' report

Introduction We have audited whether the accompanying abbreviated profit and loss accounts of Stichting Louis Bolk Institute, Driebergen, The Netherlands, for the years 2007 and 2006 have been derived consistently from the audited financial statements of Stichting Louis Bolk Institute, for the year 2007. In our auditors' report dated April 22, 2008 we expressed an unqualified opinion on these financial statements. Management is responsible for the preparation of the abbreviated financial statements in accordance with the accounting policies as applied in the 2007 financial statements of Stichting Louis Bolk Institute. Our responsibility is to express an opinion on these abbreviated financial statements.

Scope We conducted our audit in accordance with Dutch law. This law requires that we plan and perform the audit to obtain reasonable assurance that the abbreviated financial statements have been derived consistently from the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion In our opinion, these abbreviated profit and loss accounts have been derived consistently, in all material respects, from the financial statements.

Emphasis of matter For a better understanding of the company's financial position and results and the scope of our audit, we emphasize that the abbreviated profit and loss accounts should be read in conjunction with the unabridged financial statements, from which the abbreviated financial statements were derived and our unqualified auditors' report thereon dated April 22, 2008. Our opinion is not qualified in respect of this matter.

Utrecht, April 29, 2008
 for Ernst & Young Accountants

J.W. van Oostrum

