Healthy growth from the soil  Annual report 2011
Looking ahead in all directions

Looking back on a past year offers the opportunity to evaluate results and assess whether objectives have been achieved. However, particularly in this rapidly changing world, organisations must also look ahead, to anticipate for future developments. In our annual report of 2011 we do both. We are looking back on a successful year in which we as an institute have achieved our objectives, and more. We further increased the internal efficiency of our organisation, we appointed a new managing director to succeed the interim director, and we achieved a positive financial result – which is not a given considering the economic crisis. And, together with you, we are also looking ahead to the future. In this annual report you can read about a diversity of projects, which we started in 2011 and will continue during the next few years. All these projects are bursting with ambitions – of both our clients and our employees.

In 2011 we also celebrated our 35th anniversary. From the start in the 1970s we have based our work on an integrated systems approach, with a keen awareness of whether objectives have been achieved. However, particularly in this rapidly changing world, organisations must also look ahead, to anticipate for future developments. In our annual report of 2011 we do both. We are looking back on a successful year in which we as an institute have achieved our objectives, and more. We further increased the internal efficiency of our organisation, we appointed a new managing director to succeed the interim director, and we achieved a positive financial result – which is not a given considering the economic crisis. And, together with you, we are also looking ahead to the future. In this annual report you can read about a diversity of projects, which we started in 2011 and will continue during the next few years. All these projects are bursting with ambitions – of both our clients and our employees.

As of 2012 the funding landscape for research institutes in the Netherlands has changed profoundly. Starting this year, national budgets for many research themes will be allocated to several ‘research clusters’. We believe that, also in this new setting, we will be able to offer added value to businesses and governments, based on our expertise and experience. Our close collaboration with agricultural entrepreneurs and agribusinesses provides an excellent starting position.

Finally, we would like to express our sincere thanks to our clients and funding agencies for their trust in our organisation.

Prof. Jan Willem Erisman
Managing Director as of 1 February 2012
Organic farmers have to reduce their use of conventionally produced animal manure. In 2011 they were allowed to source 50% from conventional farms, but this will be gradually reduced to 0% by 2020. To be able to meet these requirements, alternative fertilizers are needed, particularly on organic arable farms. In 2011, at the request of the organic arable sector, the Louis Bolk Institute started a study on ‘internal farm optimization’. The specific aim of this project is to increase on-farm nutrient use efficiency, mainly through optimizing crop production schemes, crop choice and the use of green manures. The main focus of 2011 was to conduct field trials with cut green manures, a new method based on grass-clover and alfalfa. Geert-Jan van der Burgt: "Usually grass-clover and alfalfa are ploughed into the soil, right where they were grown. A new method is to mow these crops and use the foliage to fertilize other fields. This allows a more targeted and balanced application of nutrients. The drawback is that you need a large tractor and trailer for transport."

Farmer & researcher

The objective of 2011 was to develop an efficient method for the application of cut green manures. The field trial was designed by the farmer (Joost van Strien) and researchers together. The farmer subsequently carried out the field operations, while the researchers monitored the trial and collected crop and soil samples. Geert-Jan: "Our conclusion is that this new method is perfectly feasible. The first crop and soil data also look very promising." Whether the application of cut green manures is also profitable depends on the price of animal manure and transport. Geert-Jan: "We are close to the break-even point. If the costs of animal manure and transport increase further, the use of cut green manures quickly becomes a viable option. Furthermore, this method allows to optimize nutrient cycles at farm level, which is a key objective of organic agriculture."

"Our collaboration is very effective: the researchers are motivated, committed to organic agriculture, and thoroughly familiar with the practice of farming."  Joost van Strien, biodynamic arable farmer in Ens, about the Green Manures project.
Cultivation of saline crops

Due to sea level rise and soil subsidence, large areas of agricultural land in the Netherlands are threatened by soil salinization. During droughts, such as in spring 2011, the freshwater lens floating on saline groundwater is depleted, leading to salt intrusions and damage to crops and soils. During the next decade at least 125,000 hectares (6.5% of total agricultural land) will to same degree be affected by soil salinization. Some soils already have accumulated so much salt that they are no longer suitable for growing common crops. Bart Timmermans: “Soil salinity at our experimental site in Friesland is so high that regular crops no longer grow there, but on Texel some of our plots are less saline. We investigate how farmers can keep these soils in production by growing salt-tolerant crops and saline (halophytic) plants.”

Laboratory and field

In the project ‘Prospects for saline agriculture’ three institutes are working together, sharing their unique expertise. The VU University conducts greenhouse, laboratory, and small-scale field trials to determine salt tolerance levels of various crops. PRI (part of Wageningen University and Research centre) focuses on product quality. Bart: “And the Louis Bolk Institute supports the farmers with applied research at field scale. Last year we determined the growth rates, and fertilizer and water requirements, of sea kale and sea beet under different conditions. We also did tests to establish the maximum salinity level at which these crops do well. Sea kale, for instance, will survive temporary salt peaks but does not tolerate continuously high salt levels in the soil.”

Soil life

Soil salinization is a problem particularly in low-lying coastal regions such as the Netherlands. It also occurs in deserts, but there it is caused by evaporation exceeding precipitation. Bart: “In our country the soils most prone to salinization are often located close to sensitive nature areas. This is all the more reason to focus on sustainable crop production. Hence we are looking at ways to stimulate soil life on limited nitrogen leaching.”

During the 2012 growing season the Louis Bolk Institute will continue its field trials with sea kale, sea beet, barley and quinoa. Bart: “Our ultimate goal is to develop crop rotation schemes for brackish and saline soils. We need a range of salt-tolerant crops to make crop rotation and organic production possible. We are making progress, but a lot remains to be done.”

Sustainable cocoa

In addition to being one of the world’s largest cocoa producers, Ghana is also a biodiversity ‘hot spot’. Amajaro Trading, one of the most important cocoa buyers in the African West Coast, has made the conservation of Ghana’s rich flora and fauna a key priority in its responsible trading practices. Last year, in eleven districts of Ghana, the company started to prepare cocoa farmers for Rainforest-Alliance certification. The Agro Eco-Louis Bolk Institute was asked to provide guidance and expertise. Willem-Albert Toose: “We are working towards group certification, where dozens of small farms are certified together. To achieve this goal we’ve set up a training cascade. Starting at the top, we are training about twenty-five Amajaro staff members. In turn they provide ‘train-the-trainers’ courses to hundreds of key contact farmers and buyers, who subsequently train thousands of farmers on location. In the field we monitor how the information is applied by the farmers in their farms. Based on these insights we fine-tune the instructions at the top of the cascade. Furthermore we train people of the internal quality control system in checking and documenting compliance with the certification requirements. And finally we report to the senior management, for they have to keep an overview of all links in the production chain.”

Motivated farmers

Farmers not only fetch a better price for Rainforest Alliance certified cocoa, they also increase their harvests by 20-50% thanks to the training they receive. Willem-Albert: “This sure helps to motivate them. It’s great to see them so enthusiastic.” An important lesson last year was that, in addition to training, you also need to provide the right materials. Willem-Albert: “You can teach farmers how to prune, but then they’ll need pruning tools at all the locations.”

“Here the Agro Eco-Louis Bolk Institute is a core competence, sharing their unique expertise. Willem-Albert Toose (MSc. Agro Eco-Louis Bolk Institute) focuses on product quality. Bart Timmermans (Ph.D. Louis Bolk Institute) supports the farmers with applied research at field scale. Last year we determined the growth rates, and fertilizer and water requirements, of sea kale and sea beet under different conditions. We also did tests to establish the maximum salinity level at which these crops do well. Sea kale, for instance, will survive temporary salt peaks but does not tolerate continuously high salt levels in the soil.”

Project leader: Willem-Albert Toose MSc. Agro Eco-Louis Bolk Institute

“Their staff are professional and courteous, and go the extra mile because they have a clear understanding of the client’s needs. Willem-Albert has been happy with their service and would recommend them to others.”

Vince McKear, Armajaro Head of Development & Sustainability, Africa, about the Agro Eco-Louis Bolk Institute

“I got to know the researchers of the Louis Bolk Institute as highly motivated people and good listeners. They make use of natural processes and look for solutions that really work in practice. I really like their approach.” Mark van Rijsselberge, project leader of ‘Prospects for Saline Agriculture’
The organic poultry, pig, goat and dairy farmers of the Netherlands have expressed their ambition to reduce the use of antibiotics. The dairy farmers even aim for antibiotic-free production. To reach those goals the use of antibiotics in the organic livestock sector has been monitored in various projects – for instance, by analyzing veterinarian bills of dairy farms, and by screening pig farms for resistant MRSA bacteria. In addition, research is being conducted on the effect of herb-rich pastures and herbal remedies on the health of cows and goats. The results of these scientific studies are actually discussed in various farmers’ study groups. Kees van Veluw: “This way the reports don’t end up in a drawer. The farmers adopt new insights right away to improve their farm management practices.”

Learn from each other

Kees van Veluw is the facilitator for the organic dairy farmers’ study group: “It is my job to get the discussion going. I create a safe atmosphere where farmers are comfortable to talk freely. It is important that everyone can be open about their antibiotics use, without creating losers or winners. It is also very helpful to exchange experiences, for instance on the use of herbal remedies. Scientific papers and reports provide invaluable information, but in the end farmers learn the most from each other.” The conclusions of the study group are communicated to other dairy farmers: Kees: “This way we reach 220 out of the 300 organic dairy farmers in the Netherlands.”

The Louis Bolk Institute is a strong supporter of the participatory approach. Kees: “The key is that farmers see themselves as problem owners. Researchers collect data and provide advice, but ultimately the problem has to be solved in practice, on the farms. As soon as farmers realize this, they become eager to learn and act. Data show that participants of the farmers’ study group have reduced their antibiotics use in recent years. We’re on the right track!”

 fracking Farm

The collaborative project ‘Flourishing Farm’ made a flying start in early 2011. Only one month after the Field Margin Management government subsidy scheme had been launched, 300 farmers from all over the Netherlands had joined in a collective application for funding. To sow 200 hectares of field margins required 5,500 kilograms of seed. Based on many years of international research, the seed mixtures contained as many as 20 species to ensure flowering from May through November. Merijn Bos: “The fact that flowering field margins are beautiful is a bonus, but it’s not what we are after. The main objective is to increase the availability of nectar and pollen in the landscape, as a food supply for hoverflies, parasitic wasps and other beneficial insects.” This “functional agrobiodiversity” provides a natural means of pest control, which should help to reduce the use of insecticides. The role of the Louis Bolk Institute in this project is to support farmers with biodiversity monitoring, advice and expertise.

50 field days

“The initial enthusiasm of the participants grew only stronger during the year. The 50 field study days and 20 evaluation meetings were all very well attended: I’ve met just about all participants during these meetings,” says Merijn. “We teach the farmers to inspect their crops for the presence of beneficial insects. Based on their own observations of pests and natural enemies, 52% of participating conventional farmers stopped using insecticides along field margins, and another 25% reduced their insecticide use. Working in harmony with nature increases job satisfaction. I’ve noticed that it has a real uplifting, empowering effect on the farmers.” Meanwhile, more than 500 farmers applied to participate in 2012. Merijn: “It is an enormous challenge for us and our project partners to get this organized; we offer the farmers all the support we can. If this collaborative project a success, we will have shown that the agricultural sector is able to collectively take on any other nature conservation or water management scheme, for example as part of the greening of the Common Agricultural Programme.”
Multi-ethnic Bruistuin

The Bruistuin (‘Lively Garden’) project was launched in November 2011. The garden is to become part of the Bruishuis community centre, a meeting place for residents of the multi-ethnic neighbourhood Malburgen that opened its doors in 2009. The design of the communal garden is based on three workshops held in December 2011, where more than 80 adults and children contributed their ideas and wishes. Lucy van de Vijver: “I was touched by how happy the local residents were that they were listened to. Regardless of their different cultural backgrounds they were united in their ideas about what is beautiful and important for the neighbourhood. Everyone agrees that children like to play with water and climb on logs. And they all want picnic tables, school gardens, a communal vegetable and fruit garden and a fitness track.” The Bruistuin will be officially opened in May 2012.

Tackling ‘western diseases’

The Louis Bolk Institute investigates whether the presence of a communal garden encourages a healthier lifestyle. The study focuses on Turkish and Moroccan families. The incidence of ‘western diseases’ such as obesity and diabetes is relatively high in these groups compared to native Dutch families. In 2011 interviews were held to collect baseline data. Lucy: “We looked at how much time each family member spends on exercise and sports, what they eat, and what are their ideas about healthy nutrition.” In the next project phase various cooking workshops and sports activities will be organised for the study group families.

Garden promotes social cohesion

Lucy expects that the garden will strengthen the local community. “I’ve already noticed that people have gotten to know each other better. This increases their mutual understanding and sense of security. I hope that the Bruistuin will become a lively place where people like to do gardening work or take a walk. This way the garden will be a natural invitation to get more exercise. The greatest challenge is to help people adopt healthier eating habits. Working together in the garden and in workshops should give people a better understanding of a healthy lifestyle, which they will hopefully apply in their daily lives.”

Mind-Body Medicine

Over the years the Louis Bolk Institute has built considerable expertise in Mind-Body Medicine. This area of research deals with the interaction between body and mind, and how this can be used to stimulate the body’s own healing capacity. A good example is the PROPAV project. This four-year study has shown that guided imagery (visualization) and relaxation exercises can help to decrease the need for pain medication. The study was conducted with patients undergoing surgery for gall bladder removal. This is generally a painful procedure, requiring a high level of post-operative pain control. Miek Jong: “Before surgery the patients received a CD with instructions on how to prepare for surgery using positive imagery and self-suggestion; for instance by imagining that your body is strong and resilient, and able to heal itself after surgery.” The study was carried out by a team of anesthesiologists, surgeons and nurses. Miek: “Our role was to provide guidance and research expertise throughout the project, including the preparation of a scientific journal article.”

The effect of stress

The study shows that pain and the need for medication can be reduced with simple techniques like guided imagery. Miek: “The more often patients had done the exercises before surgery, the less pain medication they needed after the operation. Less medication means fewer side effects and lower costs.” Miek spoke with several patients herself: “What struck me was that, while they were exercising the surgery, the patients were pleased that they could do something about it. The exercises helped them to regain a sense of control.” The study also showed that just having out the CDs is not enough. Miek: “You also have to explain how stress and anxiety influences the body. When people understand that they will be less sensitive to pain if they relax, it really motivates them to practise the exercises regularly. Without that awareness the CDs easily end up unused in a cabinet.”
Evidence-based curative health promotion. A systems biology-orientated treatment of seasonal allergic rhinitis with Citrus/Cydonia comp.


The Louis Bolk Institute has had a good year. After three years of negative financial results the organisation has recovered on its own, closing 2011 with a net surplus. The Supervisory Board is very pleased with this accomplishment, as well as with the research results and projects achieved by the employees in 2011. Nevertheless there are some clouds on the horizon. The effects of the economic crisis are becoming increasingly noticeable. One of the most important clients of the Louis Bolk Institute, the Dutch government, is making substantial budget cuts. Fortunately, the institute is taking decisive action to acquire new projects and locate new funding sources.

The Supervisory Board would like to express its thanks to interim director Bendert van Gijzel MSc. During the past two years he has implemented various organizational improvements that have contributed to the positive financial result of 2011. Commercial awareness has clearly increased, and project acquisition skills of employees have been further improved. We would also like to thank Tom Peetoom, who has been a board member for many years, and who resigned in December 2011 in accordance with the board’s resignation scheme. In 2012 we will recruit two new members to bring the Board back to full strength.

The recruitment and selection process for the new managing director has been carried out with utmost care and attention. Collaboration with various employees during this process was pleasant and effective. We are therefore very pleased with the appointment of Prof. Jan Willem Erisman as the new managing director, starting 1 February 2012. We are confident that he will be able to further strengthen the position and societal significance of the institute.

Despite the faltering economy there is a growing movement pressing for more support for organic and sustainable agriculture, nutrition and health. And this is exactly what the Louis Bolk Institute has been dedicated to for more than 35 years.

H. J. Niemeijer, MSc.
Chair of the Supervisory Board
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