



Activity report 2014

Editorial	Cheap food has too high a cost	1
Soil Sciences	Using microorganisms specifically for plant nutrition	2
Climate Sustainability	Sustainability assessment has market potential	4
Crop Sciences	Making urban parks and soccer fields “green”	6
Livestock Sciences	“Broad-leaved dock was a major surprise”	8
Socio-Economics	Food waste, world food supply: Reckonings of global issues	10
Extension, Training and Communication	Soil preparation: Less is ever more	12
International Cooperation	“Innovations? An insecticide made from oil and chilli peppers, for example”	14
Quality Assurance	Organic and from the region – for sure!	16
Environmental Education	Diversity at nursery schools	18
FiBL Austria – Projects	Organic excellence from field to fork	19
FiBL Switzerland	Chronology and finances	21
FiBL Switzerland	Foundation Council members	24
FiBL Switzerland	Clients and donors	26
FiBL Switzerland	Employees	28
FiBL Switzerland	Education	30
FiBL Germany	Chronology and finances	31
FiBL Germany	Board	33
FiBL Germany	Clients and donors	34
FiBL Austria	Chronology and finances	35
FiBL Austria	Board	36
FiBL Austria	Employees	37
FiBL Austria	Clients and donors	38
FiBL Switzerland, Germany and Austria	Support FiBL	39
Weblinks and Imprint		40

Cheap food has too high a cost

Dear Reader,

The topics the organic farming movement has been putting on the agenda for many years have now reached the core of general agricultural research. This is evident in areas such as soil fertility, biodiversity, groundwater protection, animal welfare, animal health, interrelationships between nature conservation and agriculture, and the enormous cost to society of intensive farming practices.

In defining their own standards, such as GlobalGAP, supermarket chains and their major suppliers have made it clear that pesticide residues in foods are undesirable, a stance that has very much accelerated developments in organic crop protection methods. Industry interest in the international Annual Bio-control Industry Meeting in Basel, Switzerland, which is organized by FiBL, has increased considerably.

Society's reaction to the dangers associated with the use of antibiotics in the farming sector remains inept, while medical doctors are already warning about the repercussions for human therapy of antibiotics-resistant pathogens. This is another area where FiBL has operational solutions at hand; in dairy farming for example, the best or-

ganic farms sport healthy cows with good milk yields without resorting to antibiotics.

Many labels placed on non-organically produced foods promise sustainable production; consumer awareness is high. Many of these label programmes are, however, too one-dimensional. In fact, they reveal that sustainability is more than just a question of production techniques: No-till cropping of genetically modified Roundup-ready soya beans in Brazil and Argentina, for example, may well combat soil erosion in the short term, but the gigantic monocultures continuously face new problems from pathogens, invincible weeds and soil compaction. And so the chemical warfare continues. Organic farming, in contrast, benefits from a holistic, systems approach. Robust production systems can only result from growing a diversity of crops, from integrating resting phases in the form of grass-clover leys for livestock, and from recycling organic material such as farmyard manure and compost back into the soil.

Global agriculture is in the process of discovering the organic farming model. If external costs are not taken into account, it appears at the surface to be a costly step to take. At the economic level, industrialization and specialization

in farming has been a model of success as classic economies of scale have dramatically lowered the cost base per unit of food produced. Other sectors of the economy also benefit from this development as people have more disposable income at hand to spend on consumer goods and services.

While the scientific community has already been anticipating many ecological concepts, progress in the world of commercial farming and food processing has been hesitant. In this respect, organic labels are an important tool for those consumers who do not want to wait any longer. But society at large can only progress if the external costs of cheap food are finally taken into account instead of the coming generations being burdened with them. According to a 2014 FiBL study on behalf of the FAO, the global full costs of food waste amount to about USD 2.6 trillion per year. The production of such "waste" also gives rise to external costs. A further study produced by FiBL Austria in 2013 has shown that organic farming can markedly reduce these costs. In the years to come, FiBL will be as concerned with the true cost of agriculture and thus with the cost of good, healthy diets as with scientific-technical innovation in organic farming.



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In her Master thesis project, Carla Mosimann developed an assay method for monitoring the persistence of the bacteria in the soil.

Using microorganisms specifically for plant nutrition

Soil microorganisms play a key role in plant nutrition. Bacteria and fungi are capable of making phosphorus and nitrogen available to plants. Microorganism preparations as well as plant and compost extracts, or "bioeffectors", are known as plant boosters in the industry. As part of an EU-funded project, FiBL soil scientist Cécile Thonar is investigating the potential of bioeffectors for organic agriculture.

What are the goals of the European "Biofactor" project?

Cécile Thonar: There are a great many plant boosters on the market nowadays. But when it comes to which crops and which soils these materials should be used on and how they work, we still do not know much. We want to find out what contribution such products can actually make towards a resource-conserving agriculture. The Biofactor project is broad in scope and is combining the know-how of research groups and manufacturers in Europe for the first time. Although we are working on the fundamentals and studying the modes of action, we are also testing products for maize, wheat and tomatoes under field conditions. Around forty products

will be studied in detail in the project as a whole. At FiBL we are focusing on seven materials.

To what extent are the products already being used in actual practice?

In Switzerland, such products are being used chiefly in vegetable production, in nurseries, or on golf courses at the present time. A few farmers are using them as well. The materials are still relatively expensive and their efficacy is dependent upon many factors which have yet to be studied systematically. A few dozen microorganism preparations and plant boosters are listed in the FiBL inputs list, meaning that they are approved for organic agriculture.

What roles does FiBL have in this project?

We are testing the products in container trials with maize in different soils. For example, one product turned out to have a clear yield-enhancing effect in soils with low pH values and low phosphorus levels. In the field trials, the differences that we obtained were less clear-cut than those obtained by our colleagues in Italy and Romania.

In the first year, in the scope of her Master thesis Carla Mosimann developed a molecular biology assay method with which the persistence of inoculated bacteria can be monitored in the soil. With this method it is possible to establish whether the inoculated bacteria can compete with the microorganisms originally present in the soil and whether they are effective. We are also investi-



FiBL is testing various bioeffectors in container and field experiments with maize.

gating whether the biodiversity of native mycorrhizal fungi is adversely impacted by the application of the bioeffectors.

What potential do bioeffectors have for organic agriculture?

I see good possibilities for the short-term, especially in nutrient-poor soils. A similar project under the name COM-PRO is being conducted in Africa under the direction of the International Institute of Tropical Agriculture (IITA). We are in close professional contact with them, and numerous products are being tested by us in Europe as well as in the IITA trials. In a recently started project with Swiss and Indian partners, we are testing the use of bacteria and mycorrhizal fungi in a pigeon pea and finger millet mixed cropping system. The important thing is that such products will always be used in combination with fertilization measures such as composting. There will not be a miracle product to replace standard fertilizers. *ta*

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Biochar: Charcoal is not just charcoal



Carbonized organic matter or charcoal was once used by farmers in the humid tropics of South America, Africa and Southeast Asia specifically to improve the soil, in which case it is also known as biochar. This traditional technique was eventually forgotten. A few years ago, however, it was rediscovered by researchers and is now being studied more closely. In addition to yield increase, the focus nowadays is on the contribution of biochar to reducing global warming. Once applied, biochar remains in the soil for

up to 2000 years and could thus serve as an efficient carbon sequesterer with positive impacts on soil fertility.

Biochar is obtained from plant residues with a comparatively low water content by means of industrial pyrolysis, which involves carbonization in the absence of oxygen and at temperatures up to 1000 degrees. On the other hand, biomass with a higher water content such as sewage sludge is carbonized in a vapour atmosphere at a pressure of 20 bar (hydrothermal carbonization, HTC).

In his PhD work at FiBL, Michael Scheifele set up container trials to compare these two types of charcoal in different soils. Using stable isotope analysis, it was shown that in contrast to HTC charcoal, pyrolysis charcoal (biochar) is hardly degraded at all within a 205 day period in all soils used. Pyrolysis charcoal is thus capable of making a greater contribution to carbon sequestration over the long term. Both types of charcoal were shown to increase the pH, especially in acid soils, and this effect was more pronounced with pyrolysis charcoal.

Via adsorption, both charcoal types led to lower nitrogen availability in the soil solution. Nevertheless the test plants were able to obtain more nitrogen from soils that were amended with charcoal. This phenomenon is attributed to greater symbiosis between plants and microorganisms. A distinctly greater effect was achieved with HTC charcoal, but owing to the faster degradation of that type of charcoal it was also of lesser duration than with pyrolysis charcoal.

These results show that both charcoal types must be used in accordance with the intended purpose and the desired benefits. Accordingly, for nutrient-loving plants one would use HTC charcoal with its two- to three-year effect duration rather than a slow-release fertilizer, whereas for long-term soil improvement one would use pyrolysis charcoal with its activity that lasts more than a hundred years.

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Sustainability assessment has market potential

Sustainability is a key issue for society and its assessment is one of the major challenges that FiBL, amongst others, is tackling. Matthias Meier and Christian Schader are two of FiBL's experts in this field. Matthias Meier works on Life Cycle Assessment while Christian Schader deals with comprehensive sustainability assessments. In this interview the two experts discuss differences and synergies between the two areas.

You are both working on assessing sustainability. Why do you need different tools?

Matthias Meier: Life Cycle Assessment addresses only one aspect of sustainability and that is the environment, but it does so in great detail. The precision inherent in a Life Cycle Assessment has its price, but especially for a single product it serves as a good basis for comparisons with the competition.

Christian Schader: Sustainability assessments using our SMART (Sustainability Monitoring and Assessment RouTine) method offer companies and farmers a cost-efficient opportunity to have all aspects of the sustainability of their enterprise – ecological, economic and social aspects as well as governance – assessed. We even have a third tool at hand, SOL-m, which is a systems model capable of analysing impacts at larger scales, on the global farming sector for example.

Which of the tools is the better one?

Meier: That is the wrong question. We are working together towards both improving the different assessment tools by themselves and towards combining them with a view to assessing sustainability in the food value chain more precisely and more comprehensively, for example in organic production systems. Our aim is to offer a robust decision-making basis for more sustainable agriculture, food processing and consumption.

Life Cycle Assessment is a research tool which captures information very precisely. For example, we assessed the
* See pages 10/11.



Matthias Meier (right) calculated the energy and climate cost of Samuel Spahn's organic pastured beef (Bio Weide-Beef) enterprise.



Christian Schader (FiBL, right) and Christian Thalmann (HAFL) at the BIOFACH Trade Fair.

climate impacts of a range of beef production systems as part of the *Bio Weide-Beef* (organic pastured beef) project established by FiBL and Migros. The results have enabled us to state for each of the different husbandry systems the climate impact per kilogram of beef produced.

Schader: The strength of SMART lies in the analysis of entire processes; we assess 58 different parameters ranging from working conditions to soil erosion caused. We don't dive quite so deeply into the details but instead we give a

good summary account, which of course is a lot cheaper than a Life Cycle Assessment for an entire holding. The fact that we work with different assessment tools at FiBL is beneficial in that it generates synergies. In the SMART section we benefit for example from Matthias' work on advancing the methodology for assessing biodiversity. Similarly, the global impact assessments we calculate using SOL-m can be a good basis for specific Life Cycle Assessments.

How great a potential do you think

your applications have for the private sector?

Schader: We reckon there is great potential. We have therefore established a spin-off called Sustainable Food Systems (SFS). Numerous companies have already expressed interest in our tool even though we have hardly advertised it so far because at present we are still primarily concerned with the development of SMART. Associations such as Bio Suisse have also expressed interest as they wish to gain greater insights into the sustainability of their food value chains.

Meier: The strength of Life Cycle Assessments is in the assessment of a single product with a view to setting it apart from competing products. But there is limited potential in this area. I see our role to be more in the area of developing complex models as a service to science.

What are the weaknesses of your tools?

Meier: The disadvantage of Life Cycle Assessments is their relatively high cost. One does, however, get very detailed results. Life Cycle Assessments originated in the industrial sector where there are closed systems; given that in open, natural systems it is more difficult to distinguish between inputs and outputs, we have not quite reached all our targets in terms of developing correct models.

Schader: We, too, still need to further develop our calculation models to ensure that each of our customers gets correct results in keeping with their requirements. *akr*

Climate: The role of organically managed soils



Colin Skinner, PhD candidate at FiBL, will continue to elucidate the linkages between GHG emissions and organic agriculture until the autumn of 2015 when he is set to complete his PhD thesis entitled "Determination of sources and sinks of greenhouse gases in Swiss arable soils".

In 2014 an international comparative study showed that organically managed lands can contribute to climate change mitigation as they emit less nitrous oxide and take up more atmospheric methane than non-organically managed soils do on average, but, as FiBL climate expert Andreas Gattinger points out, scientific evidence to this effect is still quite limited. Additional information is needed to determine more precisely the climate

efficiency of organic agriculture. To this end, Colin Skinner measures emissions and uptake of nitrous oxide, methane and carbon dioxide in plots planted under grass ley, maize, wheat and oilseed rape at the DOK trial site in Therwil.

There is great interest in the results, amongst others on the part of the Swiss Confederation which has provided significant financial support for this project through its Federal Offices for the Environment (FOEN) and Agriculture (FOAG). The FOAG Climate Section is working on a Swiss Climate Strategy for Agriculture and has similarly found that the current state of knowledge is insufficient, as a result of which too many of the parameters must be estimated. The FOEN for its part seeks to refine its greenhouse gas inventory – to which FiBL is also contributing – in order to have more detailed data at hand. *akr*



Trials on organic lawn fertilization in a park in Basel City. Left to right: Urban horticulturalist Gino Picciotto, Felix Rusterholz (Zurich University of Applied Sciences ZHAW), Franco Weibel and Ignazio Giordano (FiBL).

Making urban parks and soccer fields “green”

Urban green areas, although heavily stressed, can still contribute to the well-being of urban populations if elements of organic agriculture are used in managing them, despite widespread skepticism. Organic management can often even do the job better, as the Grünstadt Schweiz (Green City Switzerland) project in the partner cities of Basel, Lucerne and Winterthur demonstrates. Next on the agenda is the “greening” of athletic fields, as FiBL project co-director Franco Weibel explains in the interview.

Franco Weibel, as co-director with Martin Koller of the Grünstadt Schweiz project at FiBL, can you tell us a little about how it came about?

Franco Weibel: Around 2010, the folks at the Municipal Garden Department of Basel (Stadtgärtnerei Basel) started toying with the idea of going organic. A project was started in 2012, in which we and the Department have already celebrated the first successes: namely the conversion of the Weidenhof operation in Arlesheim and of the Brüglingen nursery in Basel to organic production.

What is being produced there?

The Weidenhof operation produces compost, grows groundcovers, and runs a tree nursery. Ornamental plants are grown in the greenhouses at Brüglingen to provide flowers for urban beautifica-

tion. Doing this under organic conditions is quite demanding and results in a greater workload, for instance in weed control. Martin Koller helps with that in an advisory capacity. We are glad and rather proud of the fact that Weidenhof has been fully certified to the Bio Suisse “Bud” label since 2014 and that the Brüglingen nursery is going organic.

What’s happening in the parks?

Also since 2012, we have been testing seven organic lawn fertilization methods, with two replications in each case, in four different parks in Basel. The basic idea is to cover the phosphorus and potash requirements, as determined by soil testing, primarily with compost. Many people expressed doubts as to whether this is feasible in parks subjected to such intensive use. But experience

has since shown that using compost poses no problems for the users of the facilities and that it has a very positive effect on soil and lawn quality. What is spectacular about these trials is that they took place during unrestricted use of the parks. This required precise coordination between the Garden Department and the independent lawn care businesses: Our total of fifty test plots, each one six by seven metres in area, had to be fertilized, managed and scientifically sampled in strict accordance with the experimental protocol for two years straight. After the successful conclusion of the plot trials, the Municipal Garden Department decided to fertilize nine of their parks in 2014, and 13 by 2015, in accordance with our recommendations. As a comparison standard, they will continue fertilizing a third of the

lawn area in four parks by conventional means. There were no visible differences between the organically fertilized and the conventionally fertilized areas at any time throughout 2014: vigour, turf grass density and colour were identical.

What's been going on with the project since then?

Jointly with the Zurich University of Applied Sciences (ZHAW), in 2011 we began to push for a federally funded project under the supervision of the Commission for Technology and Innovation (KTI). After a two years of preparations, the KTI gave us the go-ahead and we were thus able to start with the implementation phase in January 2013. In addition to Basel, the cities of Lucerne and Winterthur are also involved. The Association of Swiss Municipal Garden Departments (VSSG) and the firm nateco are the project leaders. The goal is certification to a three-step Grünstadt Schweiz (Green City Switzerland) label, similar to Energiestadt Schweiz (Energy City Switzerland). nateco AG will be in charge of monitoring and certification.

Have any cities been certified yet?

No, the action plan will not be ready until 2015. It is very comprehensive and comprises sixty measures, which will be evaluated after implementation. The plan covers everything from plant protection to the selection of suppliers. The cities will then be certified to the gold, silver and bronze levels. Having already implemented so many elements of organic agriculture, cities on the gold level would have relatively little trouble applying for Bio Suisse certification.

Has it been necessary to overcome any resistance to the greening of parks and municipal garden departments?

Absolutely, and that is completely understandable because the subject is truly new territory, internationally as well. In general the Swiss municipal garden departments are definitely willing to go organic. Doing so on the other hand is not so easy, in part due to the high pressure to cut back expenses prevailing in most cities. Employees often see greening

as an additional requirement that will make more work or even jeopardize the quality production currently demanded, for example because only natural plant protection products may be used henceforth.

Will organic management be able to keep pace economically?

We are aware that there is no upward leeway as far as costs are concerned. Through precision management, we have been able to keep overall costs down to the former level: For site-appropriate management, in all parks we prepared soil profiles and took samples for nutrient analysis, and then optimized both fertilizer rates and cultivation intensity, for instance in soil aeration, ac-

ordingly. In doing so we also optimized the costs. Another positive aspect is that the conversion has gone very smoothly and the municipal gardeners are very satisfied with the results.

What's next with the project?

In collaboration with the ZHAW in 2014, we started managing athletic fields in Lucerne organically. Although this was met with even greater resistance, the preliminary results from trials on five soccer fields are encouraging.

akr

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Control of spotted-wing drosophila requires new approaches



In 2014, spotted-wing drosophila *Drosophila suzukii* for the first time caused damage to soft fruit, stone fruit and grapes throughout Switzerland. Experience to date has shown that insecticides can not solve this problem, as this species of vinegar fly only moves into crops just before they are ready for harvesting. Moreover, their control is hampered by their habit of moving between wild plants (elderberry, blackberry) and crop plants. There are as yet significant knowledge gaps as to this species' crop and cultivar preferences.

Promising approaches to controlling spotted-wing drosophila include repellents such as clay earths and rock dust as well as enhanced effectiveness of insecticides compatible with organic production; the latter can be achieved by adding lures.

Over the coming years repellents and lure formulations are to be tested on commercial farms. Given the spotted-wing drosophilas' biology, it is evident that it will be futile to attempt control at the level of individual plots or farms. A landscape-wide control strategy will be needed. FiBL will develop and test approaches to such a control strategy in cooperation with research partners in Switzerland.

cd

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Better varieties for organic



Access to plant propagation material of a wide range of locally adapted crops and cultivars is of great importance for the future. For this reason, pioneers of organic plant breeding, like Getreidezüchtung Peter Kunz, Sativa Rheinau AG and PomaCulta, have been involved since decades to improve our crops. FiBL supports organic plant breeders via breeding research and cultivar trials under organic conditions. The overall goal is to provide high quality seed of cultivars adjusted to organic farming conditions

with improved yield stability, ecological and economic benefit and high nutritional quality derived from breeding techniques, which comply with the value of the organic sector (Bio Suisse Guidelines). FiBL is engaged in the improvement of (i) networking and recognition of organic farming (www.eco-pb.org), (ii) the legal framework for market introduction of organically bred cultivars (www.ifoam-eu.org), and (iii) the valorization of organic plant breeding (www.bioverita.org) on national and international level.

mm

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In Switzerland, more than a hundred species of medicinal plants are used as home remedies to treat ailing livestock.

“Broad-leaved dock was a major surprise”

Michael Walkenhorst, veterinarian and FiBL researcher, has been leading a project designed to safeguard traditional phytotherapeutical knowledge. The project aims to record farmers’ traditional knowledge still in existence on the use of medicinal plants and natural substances for the treatment of livestock illnesses, and to protect this knowledge from fading into oblivion.

How did the project come about?

Michael Walkenhorst: Organic advisor Eric Meier at the Strickhof Centre of Excellence for Education and Services in Agriculture and Food approached us and said he had 6000 Swiss Francs at his disposal which he would like to devote to a phytotherapy project. Around the same time we had made contact with

Professor Matthias Hamburger, Head of the Department of Pharmaceutical Sciences at the University of Basel, Switzerland. Veterinarians have largely removed medicinal plants from their therapy spectrum, but the pharmacologists have never let go off medicinal plants and research into their applications. Together with Professor Beat Meier of the

Swiss Medical Society for Phytotherapy and his colleague, veterinarian Dr. Franziska Klarer, we got the project rolling and advertised a number of pharmacological master thesis proposals.

How did this cooperation work out?

Very well indeed. It is a creative, interdisciplinary and transdisciplinary co-

LowInputBreeds: Breeding for animal health



In the past, an animal’s genetic potential could only be determined by assessing its own performance and that of animals related to it. In contrast, genomic selection allows for breeding value assessment based directly on the animal’s genome, which permits much faster genetic improvement.

This method has come into widespread use in dairy cattle breeding. As part of the EU-funded “LowInputBreeds” project, our researchers have shown that genomic selection is not only well suited to evaluating breeding value for performance traits but also to accurately determining, with reasonable accuracy, phenotypic functional traits such as milking temperament, general temperament, udder depth or teat conformation. This allows for more rapid and more targeted genetic improvement of dairy cow health.

The above is one of numerous results of the LowInputBreeds project, which was devoted to the study of key aspects of the breeding of dairy cows, laying hens, sheep and pigs under low-input management.

For laying hens, field trials have shown that white and brown

genotypes are equally suited to organic free-range systems, with optimum management being paramount. While most of the laying hen enterprises on Swiss organic farms already met this requirement, significant progress was made on farms in France and the Netherlands in the course of the project.

For sheep, the LowInputBreeds project has shown that Red Engadine Sheep are significantly less susceptible to gastrointestinal nematodes than Swiss White Alpines. Additionally it was shown that feeding of sainfoin can reduce both faecal egg count and gastrointestinal nematode burden. However, an additive effect could not be shown, i.e. it was not possible to achieve greater control efficiency by combining a less susceptible breed (Red Engadine Sheep) and the feeding of sainfoin. Therefore, gastro-intestinal nematode control will continue to involve the use of targeted wormers in highly infected animals. The alternatives named above can however contribute to limiting the use of these medication-based interventions.

After five years of research the LowInputBreeds project came to a successful conclusion. The project involved 25 institutions in 17 countries. Dr. Veronika Maurer of FiBL acted as academic coordinator of the project.

ta

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operation between veterinarians, pharmacologists and farmers which is rarely found elsewhere in this sort of configuration. And it has proven very effective because we are all walking down the same path – and in the same direction at that.

How did you approach the project ?

We aim at safeguarding experiential knowledge by interviewing farmers all over Switzerland. To date these interviews have been conducted as part of five individual master's theses. In addition we are able to draw on the results of a "sister" project in the Canton of Grisons and we are also awaiting results from a dissertation undertaken in Ticino. Our approach is to cover groups of cantons one after another. So far we have covered all the German-speaking cantons and in the remaining two years of the project we will conduct interviews in the Canton of Valais and in Romanche as part of three planned pharmacological master's theses.

How did you find your farmer interviewees?

That required quite a lot of effort. At first it seemed to us that no one was interested in being interviewed but eventually "snowball sampling" paid off; this is a sampling method used in ethnological research where existing interviewees

recruit potential future subjects from among their acquaintances. The cantonal advisers also gave us names of potential interviewees.

How did the farmers react to your inquiry?

Quite often their initial reaction was to ask: "Do you really want to know this or are you planning on poking fun at us?". But when they realized that our interest was very serious indeed most of them were enthusiastic.

What are the demographics of farmers who work with phytotherapy?

Male and female farmers are roughly equally represented. Statistically, they are on average 45–50 years of age but, interestingly, they are in fact either much younger or older than this; phytotherapy appears to have been forsaken by the generation in between.

Which plants did you find to be most frequently used in phytotherapy?

Well, the most frequently named treatments certainly did not involve mysterious potions made from mountain herbs but generally well-known plants such as chamomile, Calendula, fennel and anise. The farmers listed a total of about one hundred species, with twenty of these named frequently.

Did you learn something new nonetheless?

I take more enjoyment from the fiftieth recipe for chamomile tea than from some combination of rare mountain herbs. What surprised us was how widespread the use of broad-leaved dock is, both as an ointment and as a tea.

Which livestock illnesses are most frequently treated using phytotherapy?

We have found that phytotherapy is mostly used to treat skin problems and gastro-intestinal problems, the latter of course being kind of an "internal skin". Phytotherapy is very well suited for cutaneous applications: Plants must protect their surfaces, this is something we can exploit.

What are the next steps?

At the end of the project we will produce a ranking of the thirty to fifty most important plant species. It is very important to ensure that the project's results will find recognition with the authorities and the scientific community. Moreover it is important to us to be able to give farmers a compilation of the most important recipes at the end. We are still discussing what sort of form that will take – possibly something like a "Farmers' Wikipedia". *akr*

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Grassland-based milk production



It is important for successful dairy cattle nutrition with reduced concentrate inputs that farmers can correctly assess their animals' nutritional status. This is a prerequisite to the long-term maintenance of the cows' health and performance.

As part of the FiBL Grasmilch project, assessment approaches are being developed which consider the characteristics of both the feed and the animals. To this end, the researchers measure feeding and ruminating behaviour in cows with the aid of ruminating activity sensors (RumiWatch), and use different faecal analysis methods to measure feed digestibility. They link these results to feed nutrient analyses as well as efficiency, health and production parameters. Initial results demonstrate that feeding behaviour is characteristic to the individual cow, holding, and season. These data can therefore be used to assess the animals' nutritional status and can also be used for selection purposes. *ta*

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Red algae improve feed conversion in trout



Rainbow trout is the most popular culinary fish species in Switzerland. Approximately one third of all rainbow trout consumed in Switzerland originate in organic fish farms. Young trout are however very susceptible to diseases, as their immune system is not fully developed. As a result, pharmaceuticals must frequently be used.

Research has shown that certain plant-based and microbial feed additives help improve the fish immune system and increase their growth rate. At FiBL we were able to prove that the addition of a red algae species to the trout diet improves feed conversion and growth rates, which is likely to be due to immune system stimulation. In future the use of such substances has the potential to reduce the use of pharmaceuticals in fish farms, while increasing the fitness and thus productivity of juvenile trout. *ta*

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Food waste, world food supply: Reckonings of global issues

What would be the impacts of converting global meat production to organic methods? What is the global cost of food wastage? Can organic farming feed the world? – How an internship thesis grew into a research project lasting a number of years, in which FiBL developed a modelling method to answer global questions like these.

“Food wastage costs the world 2.6 trillion dollars each year” proclaimed a FiBL media release from autumn 2014. The headline refers to the presentation of an FAO study produced using the expert knowledge at Frick. On the basis of this study the world food organization was able for the first time to publish a reliable figure for the immense global cost of food waste. We destroy around four per cent of the gross world product through food waste.

How was this calculation made possible? The project leaders Adrian Müller and Christian Schader from FiBL’s Department of Socio-Economic Sciences explain: “In 2011 the Natural Resource

es Department of the FAO, the UN Food and Agriculture Organization, approached us. People there wanted the impacts of converting global meat production to organic methods to be investigated in an internship thesis.” Schader and Müller soon saw that this brief would by far exceed the scope of an internship thesis, so they took on the task. Following a project application to the FAO a collaborative partnership was set up, the initial result of which was the Sustainability and Organic Livestock model (SOL-m) developed at FiBL. The thesis expanded into a project lasting several years.

The SOL model permits the appraisal of food availability, greenhouse gas emissions, energy consumption, nitrogen and phosphorus balances, deforestation rates and pesticide use intensity. According to Schader, part of its complexity is that “it is about more than organic or non-organic”. One key question is that of the use of concentrated feed. It is generally assumed that livestock production using concentrated feed is more efficient and therefore more sustainable. However, he goes on, they were able to disprove this received wisdom with the first SOL-m aided calculations. Findings presented by FiBL at the 9th International Conference on Life Cycle Assessment

Food wastage costs USD 2.6 trillion per year



Approximately one third of the food produced worldwide is not actually consumed but is either thrown away or lost somewhere along the food value chain. This not only represents enormous wastage of food but also gives rise to considerable adverse environmental impacts and social costs. FiBL, in

cooperation with the Food and Agriculture Organisation (FAO) and researchers at the London School of Economics, calculated the cost to society of food wastage. The study reveals that the global full costs of food wastage amount to about USD 2.6 trillion per year, including USD 1 trillion of direct economic costs resulting from lost production, USD 700 billion of environmental costs and USD 900 billion of social costs. This is roughly equivalent to four percent of annual global gross national product. The environmental costs primarily relate to greenhouse gas emissions and water consumption, while social costs arise from health impacts, conflicts, and adverse effects on people’s well-being due to natural resource degradation.

While it was possible to arrive at reasonably reliable estimates of direct economic costs, the calculation of environmental costs is strongly dependent on underlying assumptions such as damage costs per ton of GHG emissions or water scarcity in different regions. To account for social costs was particularly challenging; the estimates are based on the loss of well-being in a range of sample populations. While the best available data were used for the study, there are still significant gaps. The actual cost of food wastage are likely to be higher than the estimate arrived at in the study.

In addition, the costs and benefits of a range of different measures to reduce food losses and waste were compared. It was shown that food waste avoidance should remain the primary objective: The performance of measures designed to avoid food wastage tends to be better than that of action to recycle food, even if recycling efforts are efficiently organized. *ta*

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in the Agri-Food Sector (LCA Food 2014) in San Francisco in October 2014 show that not using concentrated feed results in a more sustainable life-cycle impact inventory. However, less meat and milk in total is produced in this way – the environmental advantage can only be realised if consumers are prepared to make corresponding changes to their dietary habits. In the view of Schader and Müller, if that were to happen, it would not only reduce the negative effects on the environment, but it would also make more calories and protein available for human consumption – and a diet with a lower proportion of animal foods would be healthier, too.

SOL-m has subsequently also been used to determine the cost of food waste. A further application is a model calculation for converting agriculture worldwide to organic production. The FiBL researchers see the great advantage of the calculation model in objectifying debates that in the past have often been conducted emotionally and without differentiated arguments, such as those on whether or not organic farming can feed the world. Schader is convinced that “questions of global relevance like these can be settled with the aid of SOL-m”.



FiBL modelling shows that rearing livestock on pasture and without concentrates reduces global environmental impact.

Schader and Müller say that the aim is to integrate all data collected with SOL-m in a global repository. This databank would then enable every agricultural system to be analysed for its environmental sustainability, whether it be the production of asparagus in Peru

or organic grass-fed beef in Switzerland. However, Müller and Schader are agreed that standardization of worldwide life-cycle assessment methods and with this the global comparability of results is still a long way off.

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Learning and innovation networks



Traditional linear processes of knowledge transfer from the research community as a source of knowledge via education and advisory services to the farming community is no longer sufficient to meet the challenges of multifunctional, sustainable development in agriculture and rural areas.

Innovations arise from the combination of scientific findings with practitioners' experiential knowledge. From 2011 to 2014, the EU-funded SOLINSA project developed new approaches to linking research, education, advisory services and agricultural practice in the most beneficial way. The project looked at networks as drivers of innovation and developed the Learning and Innovation Networks for Sustainable Agriculture (LINSA) concept. This approach allows for the support of innovation processes within the farming community and among other rural stakeholders. FiBL acted as coordinator of the SOLINSA project which involved eleven research partners in eight countries.

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Market potential of traditional grains



Cereal production in Europe is dominated by wheat and barley. Continuous breeding efforts have aimed at ever higher yields of these species. In contrast, very little breeding work has focused on spelt, rye, oats, einkorn or emmer wheat even though these cereals are well-adapted to growing in less nutrient-rich soils and are popular with consumers due to their digestibility, flavour and the micronutrients they contain.

Under the HealthyMinorCereals EU project, breeding work is being conducted from 2013 to 2018 on oats, rye and spelt to improve their agronomic characteristics and nutritional/processing qualities.

As part of the project, FiBL is assessing the market opportunities for these minor cereals. Initial results have shown that, in conjunction with consumer trends towards health considerations, regionality and tradition, these cereals do indeed have market potential. However, the benefits of these traditional grains only come into play in niche markets and with targeted consumer information. Processors should be involved at an early stage to ensure the successful introduction of cereal cultivars. Networks can help with genotype acquisition and improve the exchange of expertise on processing characteristics.

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Suitable machinery is important for reduced tillage: A discussion on a shallow cultivator's pros and cons on the Breiter-Meier cooperative holding in Flaach in the Canton of Zurich, Switzerland.

Soil preparation: Less is ever more

In the practical part of a large-scale reduced tillage project, FiBL created a network of trial farms that are working with direct drilling and mulch drilling. These farms are testing and improving the techniques. The project received additional impetus thanks to the Swiss government's new direct payment scheme for resource-conserving soil tillage.

The organic sector and FiBL have been working with reduced tillage for some time. According to a widely accepted maxim in organic farming, the soil structure and profile should be disturbed as little as possible and remain as intact as possible so that soil organisms can thrive and are free to foster the decomposition of organic matter. In contradiction to this, however, the plough is often a substitute for the lacking herbicides in organic management.

Resolving this contradiction is one of the goals of FiBL agronomy consultants Hansueli Dierauer, Django Hegglin, Daniel Böhler and Maurice Clerc. Over the last two years they created a network of fifteen model farms in the key farming regions, which are to serve as vehicles for promoting reduced tillage in organic

agriculture. Through intensive interaction with one another on the occasion of joint seminars and field days, they provide each other with mutual support and work on improving the techniques. Hegglin views these pilot farms as key promoters of progress: "All of these folks are highly motivated farm managers. Most of them have been working for a long time on improvements, and some have even designed or co-designed their own equipment," states the FiBL agent. Wherever there is a need, he and Dierauer help design experiments. Two techniques are employed, namely: direct drilling and mulch drilling. Strip tillage is considered too labour- and cost-intensive and is therefore not being developed any further for organic agriculture. By far the most demanding,

and therefore also the best compensated (250 Swiss francs per hectare plus an additional 400 francs per ha for not using herbicides) technique is direct drilling. Unlike their conventional colleagues, organic farmers do not have a broad spectrum glyphosate-based herbicide at their disposal to "wipe the slate clean" prior to sowing. They therefore need implements that will mechanically damage the previous crop (for instance a green manure crop) in such a way that it cannot hinder the emergence of the successive crop. This is no easy undertaking, hence Hegglin rates weed control as the number one challenge in reduced tillage systems.

The technique most often used in organic agriculture is mulch drilling. Although it nets a "mere" 150 francs worth

of direct payments per hectare (plus 400 for not using herbicides), it permits minimum soil tillage of all of the land area and thus more efficient weed control. Under the new agricultural policy regulations, all implements that only work the soil to a maximum depth of ten centimetres are permissible. These not only include the skimmer plough, the stubble plough and the blade cultivator, but also normal ploughs with support wheels that limit the cultivation depth to ten centimetres. However, even mulch drilling has its limits in weed-sensitive crops such as potatoes, sugar beets and field vegetables.

The pilot farm network is part of a wider soil conservation and climate change mitigation project in arable farming, which is chiefly supported by Coop. Because the farmers' interest in reduced tillage is considerable and the interaction among farmers is of key importance, Bio Suisse and the Cantons of Aargau and Zurich are now also involved in this project and are making substantial contributions to it.

akr

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Reduced tillage spares earthworms. Plant roots can more easily grow down into the soil through earthworm channels.

New paths in business development



their operations in areas where potential exists.

Farm managers are continually finding themselves confronted with new regulations, directives and inspections. The amount of record keeping required is rising and the cost of inspections is increasing. Mere enthusiasm for organic agriculture, confidence in one's own decisions and enjoyment of the job are no longer enough to ensure the continuing development of organic operations. Instead of changes being imposed solely by associations and the federal government, farmers need to be motivated to further develop

To this end, FiBL and the School of Agricultural, Forest and Food Sciences (HAFL) have jointly developed a sustainability check. This check shows farm managers where the strengths and weaknesses of their operations lie in the areas of ecology, economy and social sustainability. A consensus on the fields of action and the next steps to take is then reached in the scope of an advisory discussion.

Stimulating further developments that come from the farm families themselves and which are adapted to their actual situation likewise requires a paradigm shift in advisory methodology.

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Knowledge transfer via all channels



The rapid transfer of research findings to actual practice is a key task of the FiBL communication team. Along with the popular courses and fact sheets and the newsletter bioaktuell, in recent years we have stepped up the online communication channels. With more than 1000 hits per day, the bioaktuell.ch website has become the central information platform of the Swiss organic production sector. Through Facebook and Twitter we provide insights into ongoing projects, introduce the people behind them, and distribute our own media releases and briefings as well as other news of importance to the organic scene from partner institutions or authorities. We have thus been steadily expanding our network in the social media. While the performance indicators are not yet overwhelming, they are nevertheless promising. Although it is hard to put a figure on the benefits, it is important to have a presence in these channels so that we can respond to developments in real time and have a voice in all that is going on.

There are presently more than a hundred short videos available on our YouTube channel. We use videos to present findings from research and practical experience in a concise, authentic and straightforward manner. Especially popular, for example, are videos of various weed control and soil cultivation devices in use, which we film during field days. Many FiBL videos are also available in French, Italian, English or Spanish, hence we reach not only the Swiss agricultural community but also an international audience via YouTube.

ta/akr

The organic world in numbers: A successful standard reference work



FiBL AND IFOAM
THE WORLD OF ORGANIC AGRICULTURE
 STATISTICS & EMERGING TRENDS 2015

FiBL and IFOAM (International Federation of Organic Agriculture Movements) have jointly been compiling worldwide organic agriculture statistics for more than ten years. The standard reference work, "The World of Organic Agriculture", is updated every year and presented to the public at the Biofach trade fair in Nuremberg.

The book documents the significance of organic agriculture worldwide and has since become an indispensable tool for associations, authorities and professionals in the organic sector. It has statistics from 170 countries. Examples of key indicators include the worldwide land area in organic production (43 million hectares) or the volume of retail trade in organic products (55 billion euros). The statistical surveys are funded by the International Trade Centre ITC and the Swiss State Secretariat for Economic Affairs SECO. As part of the EU-funded OrganicDataNetwork project, FiBL has upgraded the data collection for Europe.

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Gian Nicolay in conversation with cotton farmers in Ghana.

“Innovations? An insecticide made from oil and chilli peppers, for example”

SYPROBIO stands for diversified biological production systems. In this project mobile phones are just as important as the cooperation between researchers, farmers and development organizations. SYPROBIO focuses on soil fertility as well as on innovations in production technology and improvements in know-how in organic cotton production in West Africa.

How did FiBL get its bid accepted for the SYPROBIO project, which is funded by the EU?

EuropeAid, the EU’s development organization, initially invited tenders for this project directly from research institutes. The invitation focused on food security and the impacts of climate change. We made our submission in close cooperation with the aid organiza-

tion Helvetas, which has been running organic cotton projects in West Africa since 1999, but as an aid organization did not meet the required profile. Our bid was then accepted in 2010.

What did Helvetas hope to gain from the collaboration with FiBL?

Although the organization has been involved in organic cotton growing for al-

most twenty years, it has not got to grips with the problem of declining soil fertility. That is why soil fertility is central to our joint submission.

How did you organize the project?

In each of the countries of Mali, Burkina Faso and Benin three partner organizations are working together: the national agricultural research institutes, the na-

Ukraine: Developing the organic market in difficult times



Ukraine’s fertile black soil (chernozem) is world-famous and offers optimum conditions for organic agriculture. Since 2004 FiBL has been supporting the development of organic farming in Ukraine on behalf of SECO, the Swiss State Secretariat for Economic Affairs. This support includes conserving the valuable soil, creating jobs and promoting development in rural regions.

In recent years FiBL has collaborated with the local partner organizations to put in place the necessary market development structures at the production, processing and retail stages and to devise a certification system. In addition FiBL has helped the authorities to establish the statutory frameworks. The aim is both to make it easier for Ukrainian organic arable farms to access the international market and to promote the organic market at home, especially in the dairy products sector.

Owing to the very difficult political and economic situation since

2014, more and more farms are looking to convert to organic methods and to produce for export, as this offers better sales potential. Organic Standard, the local certification organization, which FiBL established on behalf of SECO, reports a record increase in organically produced grain and soya for the 2014 harvest.

The crucial factor for succeeding in the export market, besides advice on cultivation, is first and foremost direct personal contact between producers and international buyers. In this respect it was an important step for Ukrainian producers, processing companies and retailers to have their first joint stand at Biofach 2014, the world’s leading trade fair for organic food, supported by SECO and FiBL. We anticipate that the land area under organic cultivation, currently around 270,000 hectares, will increase substantially in the coming years.

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tional cotton producers' unions and the local Helvetas programmes. Synergies arise here, because the project can make use of the researchers' know-how and influence as well as the farming organizations' value creation programmes.

In the first year we asked around among the farmers to get ideas for innovations. In Mali, for example, we came across a biological insecticide made from oil and chilli peppers that can be produced simply and cheaply on every farm. We also looked at the innovative on-farm crop trials of a range of varieties not bred specifically for organic farming. Then we selected nine innovations in each country and trialled them over two to three years in collaboration with the national research institutes.

How did you go about selecting the farmers?

In each of ten regions (four in Mali and three each in Burkina Faso and Benin) we asked the cooperatives to choose ten farmers to provide a field for on-farm research for a period of three to four years. We had no problem finding farmers to participate: they regard it as an honour to host this project. Meanwhile, on-station research is taking place in the three countries. In the largest trial we are comparing the humus content, yields and other parameters of organic and conventional cultivation systems,

based on the model of our long-term DOK (biodynamic, organic and conventional) trial in Switzerland.

Are you achieving a widespread impact with the project?

Yes, there are frequent reports about it in the media as well. We always aim to show that organic cotton is viable, even though it can potentially be attacked by around 2000 insect species. We also had the opportunity, in Burkina Faso in fact, to compare organic cultivation with the cultivation of genetically modified Bt cotton. We haven't got conclusive results yet, but we can demonstrate that you can achieve a comparable gross margin with organic cotton to that with the production of genetically modified cotton. However, that is only true of farms of up to four hectares; larger farms need additional mechanization for weed control. The necessary equipment is hard to come by, because the normal practice is still to manage the weed problem with herbicides.

How did the collaboration between farmers and researchers go?

The researchers were delighted by how much the farmers know. For their part, the farmers were delighted to receive a visit from researchers; they are usually a rare sight in rural areas, as it is a long way to travel and transport costs are high.

You also work with mobile phones: how are these used?

For just such things as communication between researchers and farmers. For example, a farmer can take a photo of a pest and send it to a researcher, who can then advise him how to control it. We also discovered that farmers use Bluetooth to swap music and entertainment. We tried to capitalize on that by making short information films on topics such as producing organic pesticides and compost and passing them on to our farmers. So we see the main use for phones as being for advisory services and for informing the farmers about the innovations. That means that we can avoid expensive and bureaucratic solutions.

And how successful have you been?

We have found that they shared these films with six other farmers on average, often even with ones who don't farm organically. Although these farmers are interested in organic farming they don't want to give up conventional aids. We can hope that in a few years' time we will have reached 100,000 farmers in the West African region with our new and tested innovations. *akr*

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www.syprobio.net

FiBL's Department of International Cooperation operates in the following areas:

● Agriculture in the Tropics and Agroforestry Systems:

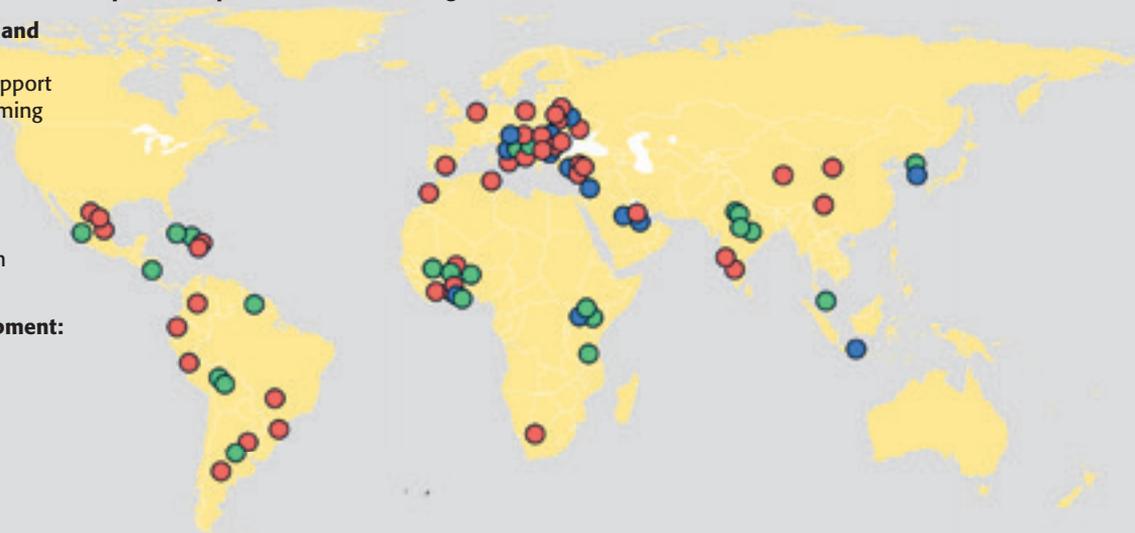
Research and extension in support of environmentally sound farming methods

● Market Development:

Development and support of sustainable business ideas along the value creation chains

● Policy and Sector Development:

Promotion and improvement of statutory and institutional frameworks for high-grade agricultural production



Organic and from the region – for sure!

Growth in the organic sector goes hand in hand with an increasing demand for certainty and professionalism. The more popular organic products become, the greater the risk of fraud. While producers can score well on confidence and transparency, this comes at high monetary cost and requires a great deal of expertise. In cooperation with partner institutes, FiBL Germany is working on practical solutions for suppliers to improve the traceability of the goods they offer.

“We are providing specialist support for a whole range of projects around the issue of safety and traceability right throughout the entire value chain from production to inspection”, Rolf Mäder, FiBL Germany’s expert on quality assurance and genetic engineering explains. This begins with the seed. The organicXseeds seed database (www.organicXseeds.de) has been in operation for more than a decade now. It’s an up-to-date platform for anyone offering or looking for organic, non-GM seed and planting material certified to EU Organic Regulation standard. Moreover, a German-language manual entitled “Bioprodukte ohne Gentechnik” (Organic products without genetic engineering) was produced; it outlines how producers and traders can avoid inadvertent contamination of organic products with genetically modified organisms. (www.bioXgen.de).

No genetic engineering through the back door

Critics have termed CMS technology (cytoplasmic male sterility) as “Genetic Engineering Lite”. This is a technology used in modern plant breeding which makes it simpler to produce hybrid crop plant seed, e.g. for cabbage or chicory cultivars. Legal provisions, including the EU Organic Regulation, allow for the use of CMS cultivars and there is no labelling requirement. Growers therefore have no certainty of knowing whether or not seed they buy was produced using this method. German inspection and certification bodies such as Demeter, Bioland and Naturland have

voluntarily committed to only using CMS-free seed. To ensure this commitment can be honoured, FiBL Germany developed a database (www.iqseeds.eu) listing cultivars produced without CMS technology. This database helps growers and farmers in selecting suitable cultivars, regardless of whether the seed was produced organically or conventionally. Production is the next step in the food value chain. FiBL has been producing an annual list of permitted agricultural inputs for organic farms in Germany (“Betriebsmittelliste für den ökologischen Landbau in Deutschland”) since 2006. This positive list creates transparency and certainty as to the legality of the use of agricultural inputs on organic farms. It includes for example fertilizers, plant protection products, plant tonics and composts (www.betriebsmittelliste.de).

Undoubtedly regional

More and more consumers wish to purchase foods produced and processed in the region in which they reside. FiBL Germany is currently conducting two projects on the efficient assessment of the geographical provenance of foods.

Each region experiences very specific growing conditions which are reflected in the foods’ chemical composition. Was this wheat produced in the Taunus region? Did these potatoes grow in the Rhön? Laboratory analyses can already answer these questions with great confidence for some foods. To this end, a database of reference values is required. For the “Wasserzeichen” (Watermark) project reference values were estab-



Sampling in the field.

lished for a range of foods, from wheat to apples to meats and milk, originating in different, defined regions of the state of Hesse. Thereafter a range of provenance-labelled sample products were purchased at retailers and assessed as to their provenance. The result: “Isotope analysis already allows manufacturers and traders to efficiently check and guarantee a product’s regional origin”, Rolf Mäder explains. The downside is that it is quite expensive and onerous to establish the reference data for a region. In a new project called Isotrace a cheaper variant is being trialled. Under this model, producers of provenance-labelled foods submit reference samples which can be used to authenticate random samples of raw materials and products attributed to the same producer.

Onwards and upwards in the value chain we move on to processing: The FiBL list titled “Ökoverarbeitung” (www.oeko-verarbeitung.de) is an aid for processors, allowing them to check, for example, whether disinfectants, auxiliary inputs or additives have been used in the production process in keeping with legal requirements.

Always up-to-date on certification

Does my supplier still hold a valid certificate? There have been cases of operators continuing to supply products for six or even twelve months after losing certification. It is for this reason that FiBL Germany in cooperation with a range of organic certifiers and IFOAM is maintaining the bioC directory (www.bioc.info/de). The directory allows processors to check at any time whether their suppliers hold authentic, validated certificates. In a password-protected

area, processors and traders can compile supplier lists. If a supplier’s certification status changes, the list owner will receive an e-mail notification to this effect, thus lessening the administrative burden on processors by removing the need to collect and manage certificate copies, and always keeping buyers up-to-date.

Creating trust

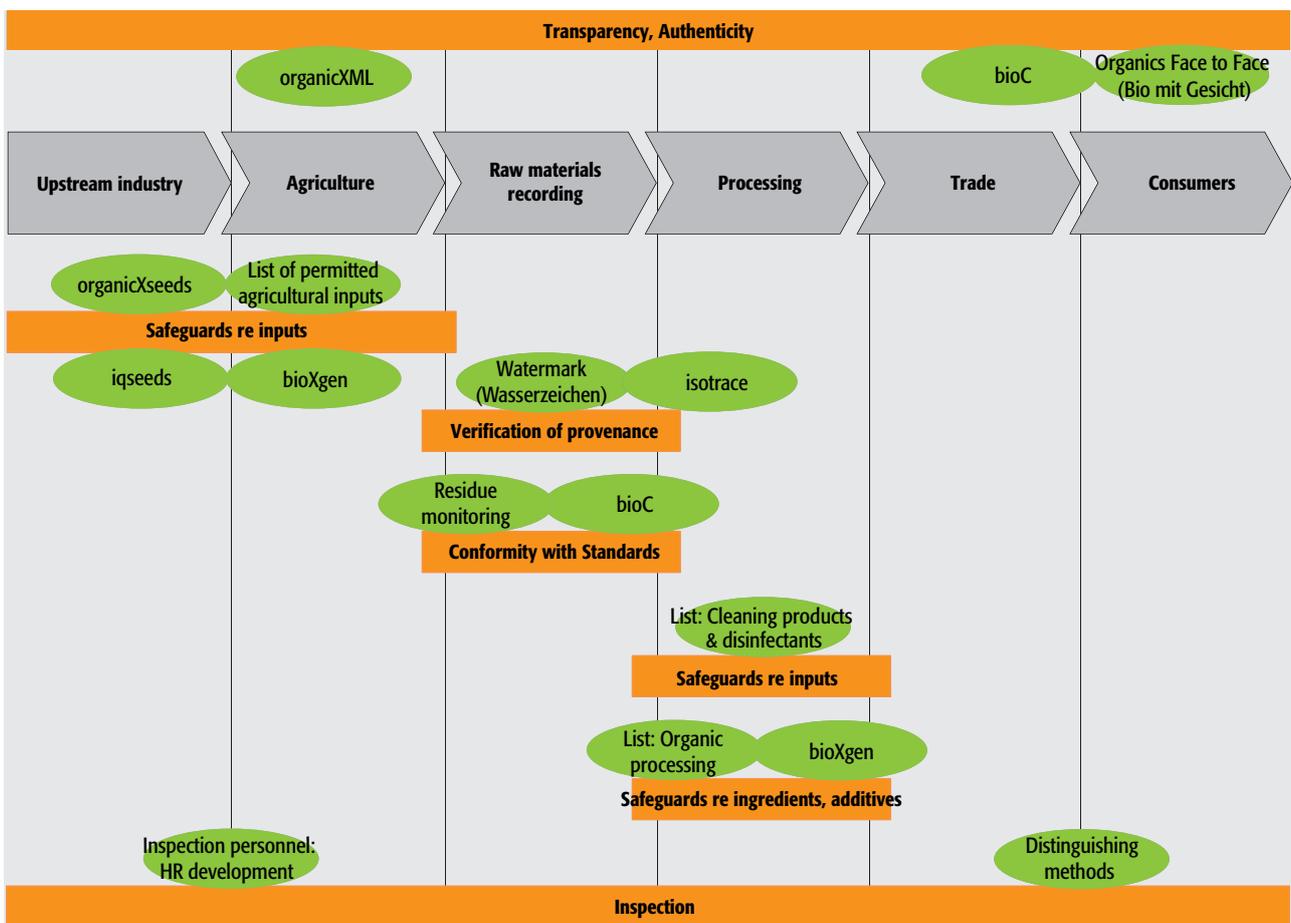
FiBL Germany has developed a technical solution for complete traceability to ensure certainty across all links in the value chain. It allows for the identification of all those involved in the value chain right back to the producer and also covers composite products such as fruit yoghurts or beer. The all-encompassing system is rigorously used, for example, by the Allgäu-based Feneberg supermarket chain for their regional organic “Von Hier” (From here) product range. The “Bio mit Gesicht” (Organics

face to face) initiative (www.bio-mit-gesicht.de) allows consumers to check on who produced their potatoes, beer, or cheese for example and also allows for composite products to be traced right down to the level of individual raw materials. An “Organics face to face” portrait furnished with meaningful photographs gives consumers the opportunity of a virtual visit to the farm holding or processor.

FiBL Germany, in cooperation with its partners, has thus developed into a centre of excellence for quality assurance in the organic food sector. Rolf Mäder summarizes the situation: “Our aim for the future is to establish a comprehensive system of safeguards, based on the components we have already set up, which will allow quality assurance personnel and the certification bodies to efficiently safeguard the value chain”.

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Activities and projects in the area of quality assurance.

Diversity at nursery schools

Children are little explorers, as well as being the gardeners, farmers and consumers of tomorrow. That is why the gardening for nursery schools project “Kinder-Garten im Kindergarten – Gemeinsam Vielfalt entdecken” aims to get children excited about nature and species conservation. FiBL Germany has set up a nationwide network of 200 nursery schools.



In a garden designed to approximate natural conditions, children discover the diversity that makes up the plant and animal kingdoms and how in an ecosystem everything is interrelated. Within the network of participating nursery schools the good ideas already in practice are collated and organised to make them available to all interested parties.



The project offers half-day workshops on the topics of gardens, nature study and food to teachers in the network and from nearby nursery schools. The emphasis is on structural measures that are easy to implement and environmentally valuable – from planting a wildflower bed, making a log pile for beetles or constructing a raised vegetable bed to building a wild bee house.



What’s that creepy-crawly? Children want to, and should, experience the diversity of nature without formal teaching. The workshop shows teachers how that can be done, with the focus always on the children’s spirit of discovery.



Eating and drinking is about more than just providing nutrients. If children are learning about food, then the best way to go about it is to use all their senses. At the food workshops the participants are given ideas on how to help the children to appreciate the vast array of foods and tastes.



There is a monthly newsletter with information about dates of workshops and examples of best practice. For instance, nursery schools in the network report how they have funded their gardens, how they cope with having a bumblebee’s nest right next to the sandpit, or how they are building an insect house.

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Organic excellence from field to fork

For FiBL Austria the integration of research, advisory services and practice, and the target group-specific preparation of materials, are of equal importance in creating the essential conditions for successful exchange of knowledge.

Knowledge is in the field



For some years the Bionet and MUBIL projects have formed the main pillars of project activities in arable crop production at FiBL Austria. The MUBIL project monitors and analyses the long-term impacts of converting a 140-hectare arable farm with no livestock to organic farming methods. The project involves close cooperation with the

University of Natural Resources and Life Sciences (BOKU), using selected indicators (soil fertility, nutrient, humus and water balance, species diversity, etc.). This represents important basic research by FiBL Austria, BOKU and their other project partners.

The Bionet training project focuses on an ever-growing network of organic arable farmers and vegetable growers. Working closely with farm managers, consultants and scientists, it examines the latest research findings and farmers' experiences for their practical value, initiates field trials and delivers comprehensive training services (www.bio-net.at). The efficient exchange of knowledge is also a priority for the Biokompetenzzentrum Schlägl centre of organic excellence in Upper Austria, which was founded by FiBL Austria, the Bioschule Schlägl organic school and the school's alumni association. It provides practical training courses and carries out growing trials, the results of which are made available to the Bioregion Mühlviertel eco-region.

Bio-Wissen (organic knowledge): diverse, exciting, unconventional



Organic farming involves not only science, technology and practical skills, but also a philosophy of life and a dietary style. That is why it is complex and knowledge-intensive. Consumers look for reliable information and sound knowledge about organic production. The consumer information team aims to get the special nature of organic farming across at several levels:

Reports on the latest research projects and interviews with celebrities in the Bio-Fibel magazine show the range of solutions that organic farming can offer, including to current social issues and problems.

Of bees and wildflower strips



One aspect of the project to extend and improve sown wildflower strips and biodiversity areas was to study the suitability of the strips for encouraging pollinating insects. Project manager Peter Meindl and his team conducted a telephone survey of 400 predominantly conventional farms, studied around seventy wildflower strips on thirty farms for their botanical

composition and recorded the numbers of individuals and species of wild bees on selected plots. The results show that these areas are often established very half-heartedly and provide too few flowers for wild bees.

In order to develop and optimize these areas, the project team conducted trials of seeds, planting techniques and management of the strips, and developed a "FiBL wildflower strip mixture". Factors in successful cultivation are a higher number of plant species in the wildflower strip, the use of local seed and better distribution of the strips across farmland. FiBL Austria is firmly committed to raising awareness among farmers and plans to use training schemes and information material to provide practical guidance and advice on promoting biodiversity on agricultural land.

In over forty tasting forums to date people were able to taste the special quality of organic foods in a wide range of categories and at varying degrees of processing.

In the Bio-Wissen project, FiBL Austria has been working with cultural scientists and designers for a number of years to create visualizations of agricultural knowledge. A series of sixteen posters, exhibitions, unconventional events and the website www.bio-wissen.org are some of the highlights of the project. Schoolteachers often incorporate the material on the Bio-Wissen website in their lessons, as it deals with relevant issues surrounding organic farming – and beyond – comprehensively and in an original way.

Children and young people are also targeted through a "School of Food" and a project to research individual eating habits.

Young people in research



Bringing science and school closer together was one of the main intentions of the McKioto project, in which pupils, teachers and scientists (BOKU Division of Organic Farming, FiBL Austria, gutessen consulting, Pädagogische Hochschule [University of Education] Vienna) spent an academic year working together on a study of the impacts of young people's eating habits on health and climate.

The pupils from two Year 8 classes were both the subjects of the research and the researchers in the study. They documented their consumption habits and the cultural framework that influences eating habits. They used questionnaires to ask other pupils about their eating habits, whether they thought that our diet affected the climate, and if so, how. Data was collected from around 800 young people, and the findings were analysed descriptively and discussed. On the basis of the survey, carbon footprints for selected products were calculated and discussed, to establish how individual eating habits impact on the climate and other global aspects of sustainability. A carbon calculator developed by the group allowed a very practical approach to the subject matter. "We can use it with selected foods to identify hotspots of greenhouse gas emissions in food and to calculate simplified individual carbon footprints," Elisabeth Klingbacher and Theresia Markut, who were responsible for the climate part of the project, explain. The young people gained an insight into scientific evaluation of sustainability and product-related carbon footprinting, with the aim that they will understand the long-term impacts of individual dietary styles at a personal as well as global level. The findings were made public, including in the form of short videos produced by the young people. The project received a 2013 EDUARD Education Award.

"Schule des Essens" (School of Food)



The vision of the "Schule des Essens" project is to establish a food studies department in Austrian schools. "We want to make children enthusiastic about sustainable food. No finger-wagging - just lots of 'eureka moments' from the enjoyment of trying things, the experience of taste and fascination for good food," stresses Theres Rathmanner, who is responsible for the project.

In order to allow wider access to the subject of food, the project includes the dimensions of health, the environment, industry and society. The children should cook, taste and enjoy. They should learn how, when and where something grows, what sets organic food apart, how important quality is and how it can be recognized. In an initial one-year phase of the project, existing school activities with similar points of access will be identified, the syllabus and organization of the School of Food drafted and its feasibility assessed.

Project: MUBIL (monitoring of the impacts of converting to organic farming);

Funding: Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management

Project: Bionet;

Funding: Austrian Rural Development Programme (RDP) 2007–13, supported by the Austrian federal government, Austrian provinces and the European Union

Project: Development and improvement of requirements under the Austrian Agri-environmental Programme (ÖPUL) project "Wildflower strips and biodiversity areas";

Funding: Austrian Rural Development Programme (RDP) 2007–13, supported by the Austrian federal government, Austrian provinces and the European Union

Project: McKioto – biocultural diversity, impacts of young people's eating culture on climate and health;

Funding: Austrian Federal Ministry of Science, Research and Economy ("Sparkling Science" research programme)

Projects: FiBL Tasting Forum, Bio-Wissen, School of Food;

Funding: Austrian Rural Development Programme (RDP) 2007–13, supported by the Austrian federal government, Austrian provinces and the European Union

Lots of new solutions in the making

In-depth discussions on future pathways for global organic agriculture commenced in 2013 under the title of “Organic 3.0.” FiBL very actively engaged in these debates and even more strongly advanced its international commitment in the areas of research and advice. As a result of FiBL’s creativity and capacity for innovation, lots of tangible new solutions are now in the pipeline. It is due to FiBL’s creative force that 2014 saw the institute become more firmly established in the research community and also saw a strengthening of its financial position.

In 2013, discussions on the future development of the organic sector commenced all over Europe under the title of “Organic 3.0”. These discussions were triggered by the

discrepancy between healthy organic sector market growth in many European countries on the one hand, e.g. in Switzerland, Austria, Denmark and Germany, and a reluctance of organic farmers in those countries to convert to organic farming on the other hand.

Increases in organic imports from Eastern Europe and from developing countries have been evident everywhere, prompting intense discussions on re-

gional production. Similarly, experts became concerned with the minor significance of organic agriculture in developing countries. Would organic farming not be particularly advantageous in the tropics or in dryland areas where sustainable increases in food production could be achieved without the risks associated with industrial-style intensive production? These different contexts brought about an in-depth discussion on future pathways for the sector, and FiBL was in the midst of it, not just in Switzerland but at the global level. The discussions addressed both the rediscovery of traditional farming knowl-

edge and the application of the latest research findings as well as new practical solutions. FiBL’s maxim of “Nature plus high-tech” at times caused some friction in the discussions; the two aspects may appear to be as difficult to reconcile as the “delicatessen niche” with “feeding the world”. While organic agriculture offers good opportunities for both, there are also conflicting challenges to be addressed.

Capacity and consistency

With its 145 scientific and technical staff at the end of 2014, FiBL Switzerland

Income and expenditure of FiBL Switzerland in 2013 und 2012 (in Swiss Francs)

	2013	2012
Income		
Research	7'224'052	6'756'774
Federal contribution	4'720'000	4'720'000
Advice and training/education	1'667'916	1'498'837
Communication	769'843	719'057
International	3'646'224	3'378'389
Research farm	44'030	46'288
Restaurant, internal services	549'054	591'791
Donations, miscellaneous income	527'239	530'035
Total income	19'148'358	18'241'171
Expenditure		
Expenditure on personnel	11'782'587	11'941'008
Operational costs		
Materials for trials, consumables laboratory, analytics, project costs	5'814'207	4'674'698
Expenditure on premises, office supplies, other administrative and IT expenditure, advertising	1'450'934	1'306'256
Financial expenses	98'535	210'131
Depreciation	574'448	434'362
Total expenditure	19'720'711	18'566'455
Extraordinary revenue	607'308	327'833
Surplus for the year	34'955	2'549



The history and future of organic agriculture: Urs Niggli being interviewed by Swiss television.

offers strong and comprehensive expertise for the work on Organic 3.0. Many organic farmers are already looking for innovative solutions. FiBL has more tangible new solutions in the making than ever before. FiBL's consistency and persistence in its work is bearing fruit. However, as a result of the high proportion of project-related funding, FiBL is vulnerable. Only 25% of the institute's funding are provided by its consecutive four-year performance contracts with the Swiss Federal Office for Agriculture (FOAG). In 2013 for example the EU's Seventh Framework Programme for research and innovation ended under which FiBL had drawn down significant project funding in competition with numerous European universities. This funding was used, for example, to develop bark and other plant extracts for the natural control of fungal infections in potatoes, grapevine and vegetables, as well as drug-free treatments for gastro-intestinal nematodes in pastured livestock. The FOAG applied to the Swiss parliament for a supplement grant and increased FiBL's funding – without this, the institute would not have been in a position to continue its work on these

and numerous other issues. Further important research partners, such as Coop, also safeguarded FiBL's research work by providing significant additional funding in 2013. FiBL is most grateful for these investments in its work, not least because it meant that a "brain drain" could be averted and activities did not have to be curtailed.

FiBL's position in the research community strengthened

The year 2014 was marked by negotiations with the FOAG on FiBL's future position in agricultural research. This process of clarification was prompted by the submission made by Stefan Müller-Altermatt (of CVP, the Christian Democratic People's Party of Switzerland) to the National Council of a motion calling for an increase in the federal financial contribution to FiBL. In an FOAG working group it quickly became clear that FiBL's entrepreneurial dynamic, its great research freedom and creativity offered significant advantages to the Swiss agricultural research community. As a result, the Federal Council decided in December 2014 to continue

funding for FiBL and to substantially increase the institute's baseline funding. As part of the same decision, research and innovation in organic agriculture in general were given a boost – a clear commitment to the Swiss farming sector. Due to its small-scale structures and close linkages with local communities and consumers, organic agriculture is of great benefit to the sector.

Our activities gained greatly from our cooperation with some 300 minor and major donor organizations. It allowed for progress to be made in family farm practices, with manufacturers of environmentally-friendly aids and appliances, in processing and packaging, and in trade in organic products. In addition to the authorities, associations, trusts and companies who provided funding for FiBL's work, many individuals also contributed. We hold the greatest appreciation for our supporters and patrons and we are also looking at crowdfunding to extend the circle of our private supporters. With the support of many individuals, wild ideas capable of transforming society can be turned into reality!

*Urs Niggli,
Director of FiBL Switzerland*

Significant events in 2013

January	New EU project SOLMACC (Strategies for Organic and Low-input Farming to Mitigate and Adapt to Climate Change). Start of preliminary work on a modern teaching aid on organic agriculture for agricultural colleges (Bio Suisse, FiBL, Coop and publisher of teaching aids Edition LMZ).
February	Establishment of the Technology Innovation Platform of IFOAM (TIPI) at the occasion of the Biofach organic fair in Nuremberg. Discussion on a global research agenda to support organic agriculture. Urs Niggli and Helga Willer are members of the TIPI board. In Brussels, EU Agriculture Commissioner Dacian Ciolo and Research Commissioner Máire Geoghegan-Quinn launch the new European Innovation Partnership programme at the interface of agricultural research and practice. Urs Niggli is a member of the steering committee. Cooperation agreement between Moroccan organic association Amabio, Ministry of Agriculture and FiBL.
March	Negotiations with FOAG and discussion with Federal Councillor Schneider-Ammann on the federal contribution.
April	Agreement with the <i>Haute école du paysage, d'ingénierie et d'architecture de Genève</i> (Hepia) on close cooperation in research and education of horticulturalists specialized on vegetable production.
May	Establishment of the company Sustainable Food Systems (SFS) by the "three FiBLs" (Germany, Austria and Switzerland). The company will continue the development of software for sustainability assessments of food and farming operations.
June	Signing of the contract with the Korean National Academy of Agricultural Science for a research project on promoting beneficials in fruit production. This is the first FiBL project with a Korean research partner.
July	IFOAM organizes the first Organic Leadership Course at FiBL.
August	FiBL's 40th anniversary. Open day attracts 4000 visitors. FiBL is co-organizer of the third national agroforestry congress in Bolivia.
September	Closing event for the Coop project on sustainable feeding of culinary fish. Joint media conference with UNCTAD in Geneva on the publication of the "Wake Up Before it is Too Late" study on the situation of global agriculture and the environment. Urs Niggli visits Chinese tea research institute in Hangzhou and deepens cooperation agreement.
October	Publication of global analysis of the contribution of organic agriculture to climate change mitigation. Fourth Scientific Conference on Organic Agriculture in Central and Eastern Europe (ICOAS) in Hungary, organized by ÖMKI and FiBL. Opening of the conference at the Hungarian Parliament by Dora Drexler and Urs Niggli.
November	ProEcoOrganicAfrica project on cost-effectiveness of organic agriculture commences in Ghana and Kenya.
December	Publication of results of long-term comparative trial of cotton in India (Madhya Pradesh).

Significant events in 2014

January	FiBL restructuring: The former eight divisions are restructured into six new departments.
February	Nine Ukrainian organic companies take part in the Biofach fair in Nuremberg (FiBL's Ukraine project) for the first time. FiBL kicks off the discussion on the future development of organic agriculture (Organic 3.0). Urs Niggli gives presentations on same at a range of conferences and gives interviews to professional journals.
March	FAO Ministerial Conference in Budapest on the International Year of Family Farming with a keynote by Urs Niggli.
April	For the International Year of Soils (2015) FiBL cooperates with the international Save our Soils campaign.
June	FiBL becomes a partner of the journal <i>Agrarforschung Schweiz</i> .
July	Successful conclusion to one-week peer review. Publication of comparative study of organically and conventionally produced arable crops in British Journal of Food Science (project managed by the University of Newcastle).
August	Conference at the Swiss Federal Institute of Technology (ETH) on on-farm and participatory research in agriculture.
September	Swiss TV documentary (SRF) on <i>Bioland Schweiz</i> (Switzerland as a hub of organic farming) with Urs Niggli and others
October	Publication of "Food Waste" study commissioned by the FAO. Completion of project on promoting organic agriculture at universities in south-eastern Europe. 18 th IFOAM World Congress in Istanbul with numerous presentations by FiBL staff. Annual international conference of manufacturers of organic plant protection products (ABIM) in Basel with 800 participants.
November	Federal Councillor Schneider-Ammann presents the results of the FiBL evaluation to the Agricultural Research Council. Joint research conference at Changins by Agroscope and FiBL on organic arable farming.
December	Decision by the National Council on the submission by Councillor Stefan Müller-Altermatt of his motion calling for a CHF 3 million increase in the federal financial contribution to FiBL and the provision of a further CHF 2 million for promotion of organic farming research through open invitations to tender. Negotiations with the EU on five new EU projects to run from 2015 onwards.

Interests and aims of FiBL Switzerland's Foundation Council members



Martin Ott

President of the FiBL Foundation Council, biodynamic farmer, Stiftung Fintan (Fintan Foundation)

«On the Foundation Council I advocate

that FiBL and its staff are provided with the human, financial and infrastructural conditions that it needs for the continuing development of organic agriculture. It should remain a dependable partner for farmers on the key issues of agriculture.»



Urs Brändli

President of Bio Suisse

«As the President of Bio Suisse it is enormously important to me to participate actively in shaping the partnership with FiBL.

Together we have already achieved a great deal, but a great deal also remains to be done. As an organic farmer I want to bring in the concerns and wishes of farmers and, at the same time, ensure that practice-based research continues to be pursued directly on the farms.»



Nikolai Fuchs

Management Board of GLS Treuhand

«On the Foundation Council I advocate sufficient public financing of the work FiBL does with a

public-benefit emphasis. Alongside this I am committed to a balanced relationship between scientific research excellence and transdisciplinary research; I consider this mixture to be FiBL's 'growth formula'. Last but not least, we on the Foundation Council want to listen carefully to staff concerns; staff motivation is one of FiBL's valued assets.»



Erol Bilecen

Head of Communication for Investment Solutions and Specialist in Sustainable Investments, Notenstein Privatbank AG, Basel



Dr. Peter Felser

Lecturer on branding, consultant, business owner

«Many challenges of our time call for genuine innovations. Top-level research can

help to change the world in a positive way. However, for this to happen, it is essential that new insights filter through into practice. FiBL combines solution-focused top-level research and rapid knowledge transfer in an exemplary way.»



Susanna Küffer Heer

Board of the Demeter Federation Switzerland, the Association for Biodynamic Agriculture and of Demeter International e.V., Member of the Agricultural Research Council

«FiBL is a unique, excellent research institute with a superb reputation which understands how to combine research and practice. For the continuing development of organic agriculture, its comprehensive and forward-looking research is indispensable. This is only possible, however, if FiBL and its staff have the necessary economic resources at their disposal. Ensuring this is one of the tasks of the Foundation Council.»



Manfred Bötsch

Head of QM/ Sustainability, Federation of Migros Cooperatives

«On the principle that 'not going forwards is going backwards'

I want to contribute to the continuing development of organic agriculture. This substantive debate under the banner of Organic 3.0 presents an upcoming challenge. Otherwise, constructive dialogue with Migros and consolidation of cooperation on the research side are important matters to me.»



Dr. Claudia Friedl

Vice President of the Foundation Council, National Councillor, environmental scientist

«FiBL is the only research centre in Switzerland that

has specialized completely in organic agriculture. This is the secret of the high quality of its research. I especially appreciate that aside from its scientific publications, the results are passed on to farmers quickly and comprehensibly in the form of technical guidance papers. The financial foundations must continue to be strengthened for the future, including support from public budgets.»



Rudolf Locher

*Journalist,
nutritional consultant*

«My special interests are the dissemination of knowledge about organic agriculture and raising public

awareness of the necessity of this production method, every aspect of which is environmentally sound and conserves soil quality. The same principles apply to species-appropriate livestock management and consumer-friendly marketing.»



Dr. Rolf Gerling

President of the Gerling Foundation

«At FiBL the future of organic agriculture is taking shape right now. Far from sticking to a narrow focus, its

approach encompasses many different fields of knowledge. Thus, thinking and acting within complex systems is becoming a key strategy. Furthermore, FiBL must be largely self-financing. All together, that is a major challenge which deserves support.»



Dr. Urs Gantner

President of Bioterra

«As a member of the Foundation Council it is important to me that FiBL develops sustainable and practically relevant

solutions for the agricultural and food sector in general and the organic sector in particular. In that regard it is especially relevant that the Foundation Council and FiBL periodically rethink their research and implementation strategies, and reaffirm or reorientate them in response to changing external conditions. For FiBL should stay at the forefront of research, development and implementation!»



Dr. Ulrich Siegrist

Former Canton of Aargau State Councillor, former National Councillor



Dr. Felix Wehrle

Projects for the CEO, Coop

«Organics are successful in the long run if large numbers of consumers consciously choose organics.

Therefore at FiBL we mainly commission research projects which contribute to the quality and enjoyment of foods and/or open up new sources supplying organic quality produce. It follows that the linkage of research and practical implementation is especially important to me on the Foundation Council.»



Rolf Gerber

Head of the Landscape and Nature Office of the Canton of Zurich

«I speak up for the interests and needs of consumers in Zurich, Switzerland's

most highly populated Canton. The Canton of Zurich has always been an important supporter of organic agriculture. Furthermore I want to make an important contribution to optimizing FiBL's allocation of work in coordination with the Agroscope research organization, the agricultural schools and the Agridea extension service. Along with others I help to ensure that FiBL receives the necessary resources to be operated on a healthy financial basis.»

Clients and donors of FiBL Switzerland 2012/2013

Administration des Services,
LU-Luxembourg

AGNI, Remetschwil
AGNI, Schinznach
AGRANA, AT-Pichelsdorf
AGRANA, AT-Vienna
Agrarmarkt Informations-Gesellschaft
GmbH, Bonn
Agridea, Lausanne
Alnatura, DE-Bickenbach
Ammann Werner, Gontenschwil
Amt für Landwirtschaft, Pfäffikon
Amt für Umwelt und Energie, St. Gallen
Andermatt Biocontrol AG, Grossdietwil
ARGE FiBL Türkei, Frankfurt
Ariza B.V, NL-Helmond

Balsinger M., Riggisberg
Barilier J.P., Romanel
Barry Callebaut, BE-Lebbeke
BBZ Arenenberg, Salenstein
Beratungs- und Gesundheitsdienst
für Kleinwiederkäuer (BGK),
Herzogenbuchsee
Berner Fachhochschule, Zollikofen
Bezirksgericht, Arlesheim
Bio Austria, AT-Linz
Bio Austria, AT-Vienna
Bio Genève, Bellevue
Bio Genève, Vandoeuves
Bio Grischun, Scharans
Bio Suisse, Basel
bio.inspecta, Frick
Biofarm Genossenschaft, Kleindietwil
Bio-Ferm GmbH, DE-Constance
Bioforsk, NO-Ås
Bioinstitut, CZ-Olomouc
Biokompetenzzentrum, AT-Schlägl
Bioland e.V., DE-Augsburg
Bioland e.V., DE-Mainz
Bioma Agro AG, Adliswil
Bio-Protect, DE-Constance
Bioring Appenzellerland, Appenzell
Bioterra, Zurich
Biovision, Zurich
Bovicare, DE-Potsdam
Bundesamt für Berufsbildung und
Technologie (BBT), Bern
Bundesamt für Energie, Bern
Bundesamt für Landwirtschaft (BLW),
Bern
Bundesamt für Umwelt (BAFU), Bern
Bundesamt für Veterinärwesen (BVET),
Bern
Bundeskasse, DE-Halle

Cambridge Ltd., GB-Cambridge
Canton de Vaud, Morges
Centre de Recherche, Belvaux
Centre de Recherche, Conthey
Centro Inderdipartimentale, IT-Pisa

CFPPA, FR-Montmorot
CFPPA, FR-Rouffach
CIP, Peru
Comvet.ch, Kloten
Coop Genossenschaft, Basel
CSCF, Neuenburg

Departement Volkswirtschaft und
Inneres, Aarau
Departement Volkswirtschaft und Inneres,
Glarus
Desbiolles P. & Ph., Meinier
Dienststelle für Landwirtschaft, Sion
Direktion für Entwicklung und
Zusammenarbeit (DEZA), Bern
Domaine de la Treille, Founex

Ei AG, Sursee
Eidgenössisches Institut für geistiges
Eigentum, Bern
EPFL, Lausanne
Estonian Waste, EE-Tallinn
ETH, Zurich
European Commission, BE-Brussels
European Consortium, Frick
Evolvo SA, Reinach
Executive Agency for Plant Variety,
BG-Sofia

Fachstellen Landwirtschaft, Gränichen
FAO, IT-Rome
Fenaco, Puidoux
FiBL Deutschland, DE-Frankfurt
FiBL Österreich, AT-Vienna
FiBL Projekte GmbH, DE-Frankfurt
Flemish Government, LU-Brussels
Fondation Philanthropia, Lausanne
Fondation Rurale Interjurassienne,
Loveresse
Fondation Sur-la-Croix, Basel
FUTURE GmbH, Buchs
FUTURE GmbH, Felben

Gartenbauamt, St. Gallen
Gärtnerei Gensetter, Landquart
Gauch A. & B., Niederwil
Gemeinde Arlesheim
Gesellschaft für Ressourcenschutz,
DE-Göttingen
GFA Consulting Group GmbH,
DE-Hamburg
GIZ GmbH, DE-Eschborn
Global Sustainability AG, Lucerne
Greenpeace, Zurich
Gut Rheinau, Rheinau
GVZ Rossat AG, Otelfingen

Huert AG, Grossaffoltern
Helmholtzzentrum, Neuherberg
Hiscia, Verein für Krebsforschung,
Arlesheim

HIVOS, DK-Den Haag
Hofmann AG, Butzberg

IBLA Luxemburg, LU-Munsbach
IBMA, Basel
IFOAM, DE-Bonn
IGCP, PT-Lisbon
Imhofbio AG, Volketswil
Imhofbio, Schwerzenbach
Impact Events Inc., USA
Inforama Rütli, Zollikofen
INRA, FR-Nantes
INRA, FR-Paris
Institut for Agricultural, BE-Merelbeke
Institute for Sustainable Development,
SI-Ljubljana
IP-Suisse, Zollikofen
Isara, FR-Lyon
ISCB Indo-Swiss Collaboration in
Biotechnology, Lausanne

Kalkfabrik Netstal AG, Netstal
Kantonale Psychiatrische Dienste, Wil
KIKOM, Bern
Knecht Max, Vouvry
Kysil Andrii, UA-Kiev

Landwirtschaftliche Schule Strickhof,
Lindau
Landwirtschaftliches Zentrum Ebenrain,
Sissach
Landwirtschaftsamt, Glarus
Landwirtschaftsamt, Neuhausen
Landwirtschaftsamt, St. Gallen
LBBZ Schluechthof, Cham
LED, FL-Vaduz
Liegenschaftsamt St. Gallen
Life Circle Nutrition, Wangen
Louis Bolk Institut, NL-Driebergen

Mäder Kräuter, Boppelsen
MAVA Fondation pour la Nature,
Montricher
Meier Hanspeter, Full
Migros-Genossenschafts-Bund, Zurich
Ministry of Agriculture, BG-Sofia

Naturkost Weber, DE-Munich

ORC Elm Farm, GB-Newbury

Papst AG, Hefenhofen
Philipp A., Zuckenriet
Pro Natura, Basel
ProSpecieRara, Aarau
PROTABACO AG, Burg
PSR, St. Gallen

Rathgeb Biolog AG, Unterstammheim
RHJ International, Zurich
Ricola AG, Laufen

Rural, South Korea

S.C.KDF Energy, RO-Bucharest
 Sahli Fritz, Uetligen
 Sampo, Initiative zur Förderung
 anthroposophischer Forschung und
 Kunst, Dornach
 Sandoz, AT-Kundl
 SAV, Bern
 Schaette GmbH, DE-Bad Waldsee
 Schöni Finefood, Oberbipp
 Schweizer Bauer, Bern
 Schweizer Braunvieh Genossenschaft, Zug
 Schweizer Nationalfonds (SNF), Bern
 Schweizerische Vogelwarte, Sempach
 Scuola Sant'Anna, IT-Pisa
 Scuola Superiore, IT-Pisa
 Service Public Wallonie (SPW), BE-Namur
 SLU, SE-Uppsala
 SMGP, Lucerne
 SMGP, Wädenswil
 SNV-Netherlands, AL-Tirana
 Software AG, DE-Darmstadt
 Soil Association, GB-Bristol
 SÖL, DE-Bad Dürkheim
 SPW, BE-Namur
 Staatssekretariat für Wirtschaft (SECO),
 Bern
 Stadtgärtnerei, Basel
 Stadtgärtnerei, Lucerne
 Stadtplanungsamt, St. Gallen
 Stähler Suisse SA, Zofingen
 Stalder R., Vandoeuvres
 Stiftung Avina, Hurden
 Stiftung Binding, Basel
 Stiftung BioRe, Rotkreuz
 Stiftung Corymbo, Uetliberg
 Stiftung Dreiklang, Basel
 Stiftung Endress, Reinach

Stiftung Ernst Göhner, Zug
 Stiftung für Eidgenössische
 Zusammenarbeit, Solothurn
 Stiftung für Menschen mit Behinderung,
 Stein
 Stiftung Gerling, Zurich
 Stiftung Haldimann, Aarau
 Stiftung Mahle, DE-Stuttgart
 Stiftung Malou, Zurich
 Stiftung Mava, Gland
 Stiftung Mercator Schweiz, Zurich
 Stiftung Pancavis, FL-Vaduz
 Stiftung Parrotia, Zurich
 Stiftung Paul Schiller, Laden
 Stiftung Singenberg, Basel
 Stiftung Werner Steiger, Untersiggenthal
 Stiftung zur internationalen Erhaltung der
 Pflanzenvielfalt, Brunnen
 Stiftung zur Pflege von Mensch, Mitwelt
 und Erde, Münsingen
 Strafin Foundation, Basel
 SubstainTec GmbH, Frick
 Swisssgenetics. Zollikofen
 Swissem Saatgut Produzenten-Verband,
 Delley
 Swisssur GmbH, Uster
 SZV, Bern
 SZZV, Bern

The Progressive Farming Trust,
 GB-Newbury
 Thünen Institut, DE-Braunschweig
 Troyan Cherry LTD, BG-Debnevo

Unipoint AG, Ossingen
 United Nations Office, Geneva
 Universidad de Barcelona, ES-Barcelona
 Università Rome, IT-Rome
 Università Bologna, IT-Bologna

Universität Hannover, DE-Hannover
 Universität Hohenheim, DE-Stuttgart
 Universität Innsbruck, AT-Innsbruck
 Universität Kassel, DE-Grebenstein
 Universität Kassel, DE-Witzenhausen
 Universität Lausanne, Lausanne
 Universität Vienna AT-Vienna
 Universität Arhus, DK-Arhus
 University Estonian, EE-Tartu
 University Newcastle, GB-Newcastle
 University of Wageningen, NL-Wageningen
 Università Ancona, IT-Ancona

Verein biologischer Produkte, NL-Zeist
 Verein Bio-Ostschweiz, Flawil
 Verein Fair-Fisch, Winterthur
 Verein für biologisch-dynamische
 Landwirtschaft, Liestal
 Veterinärmedizinische Universität,
 AT-Vienna
 Videncentret, DK-Aarhus
 Vier Pfoten, AT-Vienna
 Vier Pfoten, Zurich
 Ville de Lausanne, Lausanne
 Vogt Obstbau, Remigen
 VSGP, Bern
 Vykumy Ustav Rostl., CZ-Prague

Weleda AG, Arlesheim
 Weleda, DE-Schwäbisch-Gmünd

Zalf, Müncheberg
 Zeltner E., Niederbuchsiten
 ZHAW, Wädenswil
 Zuckerforschung Tulln GmbH, AT-Tulln
 Zwetou Georgie, Lugano

Direction and administration



From left: Urs Niggli (Director), Dominique Barjolle (Deputy Director), Beat Droll, Sabine Götschi, Stefan Williner, Carmen Winter, Rudolf Rickenbach, Carolin Möller, Anne Merz, Erika Bayer, Stefanie Leu, Roman Friedrich, Beat Rickenbacher. Missing: Erkut Agac, Ulrich Hoffmann.

Restaurant and conference centre



From left: Ahmo Hajdarpasic, Iris Hummel, Immacolata Cafaro, Ivanka Stocker-Kristo, Celia Salinas Hohl, Thomas Amsler, Anita Ackermann, Erika Bircher-Herzog, Sibylle Finsterwald, Daniel Sandmeier, Nicole Hochreuter. Missing: Lisbeth Schär.

FiBL Farm and wine production



From left: Alfred Schädeli, Lina Suter, Samuel Martin, Bronya Dehlinger, Philip Gallati, Andreas Tuchs Schmid, Dominik Schaffner.

Department of Soil Sciences



From left: Cécile Thonar, Adolphe Munyangabe, Sarah Symanczik, Andreas Fliessbach, Anton Kuhn, Simon Tresch, Andreas Gattinger, Hans-Martin Krause, Frédéric Perrochet, Maike Krauss, Paul Mäder, Colin Skinner, Mathimaran Natarajan, Alfred Berner, Michael Scheifele. Missing: Martina Lori.

Department of Crop Sciences



From left: Henryk Luka, Claudia Daniel, Dominique Léville, Ignazio Giordano, Bernhard Speiser, Monika Messmer, Lucius Tamm, Barbara Thürig, Lukas Pfiffner, Joelle Herforth-Rahmé, Christine Arncken, Jacques Fuchs, Mathias Ludwig, Hans-Jakob Schärer. Missing: Guendalina Barloggio, Thomas Oberhänsli, Sibylle Stöckli, Franco Weibel, Veronika Hofer, Beatrice Steinemann, Milena van der Molen.

Department of Livestock Sciences



From left: Steffen Werne, Anet Spengler Neff, Ilse Krenmayr, Anne Isensee, Erika Perler, Ariane Maeschli, Johanna Probst, Mirjam Holinger, Ulrike Biegel, Maren Bludau, Michael Walkenhorst, Zivile Amsler-Kepalaite, Felix Heckendorn, Barbara Gerber, Andreas Stamer, Timo Stadtländer, Uwe Krug, Veronika Maurer, Florian Leiber. Missing: Hannah Ayrle, Anna Bieber, Ophélie Christen, Bianka Lutz, Jens Wohlfahrt.

Department of Socio-Economic Sciences



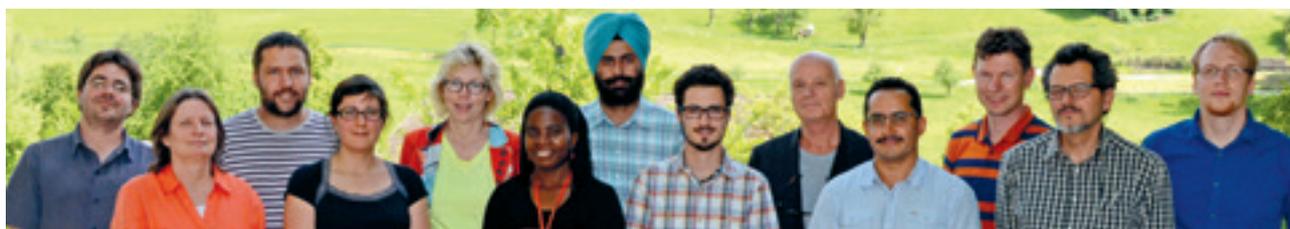
From left: Sylvain Quiédeville, Hanna Stolz, Matthias Stolze, Emilia Schmitt, Ingrid Jahrl, Matthias Meier, Jan Landert, Heidrun Moschitz, Robert Home, Bernadette Oehen, Moritz Teriete, Otto Schmid. Missing: Lukas Baumgart, Regula Bickel, Vanessa Gabel, Judith Hecht, Adrian Müller, Klavdija Ramsak-Noemi, Raphaël Rossier, Christian Schader, Brian Robert Ssebunya.

Department of Extension, Training and Communication



From left: Andreas Häseli, Martin Koller, Gilles Weidmann, Django Hegglin, Stefan Schürmann, Helga Willer, Robert Obrist, Barbara Früh, Matthias Klaiss, Claudia Schneider, Adrian Krebs, Héléne Bougouin, Daniel Gorba, Eric Meili, Christophe Notz, Maurice Clerc, Bernhard Schlatter, Véronique Chevillat, Hansueli Dierauer, Res Schmutz, Thomas Alfvöldi. Missing: Richard Bircher, Simone Bissig, Daniel Böhler, Kathrin Huber, Julia Lernoud, Theresa Reholz, Jean-Luc Tschabold, David Vulliemin.

Department of International Cooperation



From left: Tobias Eisenring, Monika Schneider, Stefan Schürmann, Nora Kägi, Beate Huber, Irene Kadzere, Gurbir Bhullar, Christian Andres, Paul van den Berge, Salvador Garibay, Toralf Richter, Gian L. Nicolay, David Bautze. Missing: Noah Adamtey, Laura Armengot, Thomas Bernet, Tetiana Sigg, Jiří Urban.

Education from 2012 to 2014

Internships

Alexandridou Lisa
 Armangot Laura
 Arndt Marie
 Ayrle Hannah
 Ballesteros Redondo Maria Isabel
 Barendegt Christoph
 Baumgartner Livia
 Baumgartner Micha
 Bautze David
 Bautze Liv
 Beerli Olivia
 Bickel Samuel
 Boisbras Angele
 Borràs Gelonch Gisela
 Brainard Scott
 Braun Thomas
 Buser Andrea
 Castro Castro Iria
 Cravero Virginia
 De Goff Ulysse
 De Gregorio Julia
 Dezsény Zoltán
 Dorn Katharina
 Emmerth David
 Fenn Alexander
 Flubacher Moritz
 Gerber Barbara
 Graas Noémie
 Gratteau Laurette
 Grohmann Markus
 Grohmann Marlene
 Hauenstein Samuel
 Hertig Tal
 Hobi Andrea
 Hofer Sheila
 Hong Sung Jun
 Hudelist Philipp
 Janz Céline
 Kaplan Friederike
 Keck Hannes
 Kreuzer Sarah
 Kündig Christoph
 Lèbre Amélie
 Léchet Jonas

Lee Byungmo
 Ly Jeannine
 Marbach Simone
 Mark Jennifer
 Martinez Haruco Uechi
 Mátray Silvia
 Maureaud Clémentine
 Möller Carolin
 Mosimann Carla
 Mutschler Lisa Maria
 Nae Seo Sung
 Navjoks Cheyenne
 Nepužlan Jana
 Paláez Sarah
 Pancheco Matilla Enrique David
 Park Jongho
 Richner Dominik
 Rossier Raphaël
 Rudin Sophia
 Rudolf von Rohr Ramona
 Saratsis Anastasios
 Schmid Fabian
 Schraner Marissa
 Seitz Benjamin
 Shim Chang-Ki
 Studerus Kevin
 Tanquerey-Cado Anaëlle
 Tkaczick Ann Christin
 Tonn Claudia
 Wenzel Leonore
 Wondemagegnehu Bekele Eshetu
 Wurtz Marion

Students producing diploma thesis

Bachmann Florian
 Baumgartner Anne-Cathrin
 Beerli Anna
 Bischoff Tinetta
 Bougouin Hélène
 Bradley Kathinka
 Bulliard Sarah
 Buol Amanda
 Cravero Virginia Maria

Dallo Aline
 Dorn Katharina
 Govednik Anton
 Graas Noemi
 Häfliger Janine
 Hobi Andrea
 Hofer Veronika
 Hofmeijer Merel
 Holzner Laura
 Jacquot Grégoire
 Jorch Veronika
 Kaspar Michael
 Kochlik Bastian
 Kreft Cordelia Sophie
 Kuntz Marianne
 Lehmann Katrin
 Lorimer Matthias
 Mair Lisa
 Mannigel Christiane
 Margreiter Simon
 Marty Laura
 Meier Rahel
 Mertenat Doréane
 Millner Dominik
 Moos Sebastian
 Mosimann Carla
 Mosimann Pia
 Niedermann Silvana
 Nigsch Laura
 Ostermaier Miriam
 Reuge Stefan
 Reusser Jolanda
 Ries Elke
 Rissi Marion
 Rüegg Johanna
 Schenk Isabel
 Schmalz Hanna
 Schmidt Uta
 Schmitt Emilia
 Schulz Veronika
 Schwab Seraina
 Schwegler Patrizia
 Schweizer Steffen
 Siegenthaler Martina
 Siegwart Muriel
 Spangler Simone

Stucki Karin
 Studer Fernando
 Tanquerey-Cado Anaëlle
 Veronika Jorch
 Vorley Thomas
 Widmer Miriam
 Wolf Christina
 Wong Oi Yi
 Zbinden Mirjam

Student guests

Aebischer Alice
 Chapalay Isabelle
 Grand Gregor
 Horvat Andreja
 Kollmann Stefanie
 Krug Uwe
 Müller Emanuel
 Munyangabe Adolphe
 Nussbaumer Meryl
 Ramel Christina
 Roggli Martin
 Steinemann Beatrice
 Thiers Katharina
 Tschanz Anna
 Walder Florian
 Weiss Eduard

Trainees

Agac Erkut
 Schaffner Dominik
 van der Molen Milena

Visiting Scientists

Bonefeld Peterson Majbritt
 Hansen Sissel
 Jacobi Johanna
 Mayer Maria
 Verma Rajeev
 Stocker Christian

Community services

Ackermann Nick
 Basler Andreas
 Urech Christian



Team FiBL Germany (from left to right): Andreas Möstl, Susanne Hermanowski, Benjamin Volz, Axel Wirtz, Carsten Veller, Julia Meier, Ann-Sofie Henryson, Hella Hansen, Beatrice Grieb, Robert Hermanowski, Uli Zerger, Rolf Mäder; sitting: Freya Schäfer, Sigrid Giese, Nadja Kasperczyk, Nicole Weik, Boris Liebl, Natalie Kleine-Herzbruch. Not in the photograph: Jochen Leopold, Ludwig Asam, Jasmin Snigula, Lukas Baumgart, Carola Hess, Gerd Eymann, Ann-Kathrin Spiegel, Birgit Schreiter, Klaus-Peter Wilbois, Vera Bruder, Hille Gräber, Gundula Jahn, Kerstin Spory, Caroline Zapf, Andreas Gattinger, Ingrid Jahrl, Julia Schmack, Simone Windhagen. External staff: Alexander Beck, Rebecca Kleinheitz.

Networks: Teamwork for success

FiBL Germany often deals with projects encompassing several links of the value chain. Such tasks can best be addressed if we establish networks with other players in the sector.

Networks facilitate optimum utilization of knowledge, resources and personnel. In cases where FiBL coordinates such cooperation we can offer our clients “one-stop-shop” services. Our experience with this kind of networking has been very good over the years and we can rightly say that teamwork is our strength. We differentiate between networking at the following levels:

› Informal networks are not assured through contractual agreements and

are not always visible from the outside. Nonetheless such networks can be very successful and marked by strong commitment. A handshake agreement with a partner one has known for years or even decades and whom one trusts can create as binding a commitment as a multi-page contract.

› Formal networks without new legal structures, a good example of which is the FiBL network itself: there is close and continuous cooperation between

the institutes in Switzerland, Austria and Germany respectively. They are also connected by their common name and joint vision, without there being a higher level legal structure. Another such example is the Network for Practical Research in Organic Farming (*Verbund Ökologische Praxisforschung, VÖP*) which was jointly established by the Foundation Ecology & Agriculture (*Stiftung Ökologie & Landbau, SÖL*) and the organic associations Bioland, Deme-

Income and expenditure of FiBL Germany (FiBL Deutschland e.V. and FiBL Projekte GmbH)

(in euros)	2012		2013	
	FiBL Deutschland e.V.	FiBL Deutschland e.V.	FiBL Projekte GmbH	FiBL Projekte GmbH
Income				
Research and development	1'498'012	1'627'211	691'831	917'820
Other	28'977	5'274		216'330
Total income	1'526'989	1'632'485	691'831	1'134'150
Expenditure				
Personnel expenses	704'824	823'894	243'299	291'675
Material expenses				
Project costs	620'665	704'774	410'603	712'773
Premises, offices supplies, other administration expenses, IT and advertising	179'112	92'432	24'563	109'960
Depreciation	12'890	10'350	344	1'204
Total expenditure	1'517'491	1'631'450	678'809	1'115'612
Operating result	9'498	1'035	13'022	18'538

ter and Naturland. The objectives of this network are to coordinate research activities and to improve knowledge transfer from the research community to the farming sector and vice versa.

► Networks with new structures. Especially when there is a need to set out rights and obligations within a network with a business orientation, the formation of a limited liability company, i.e. a GmbH in the German context, is warranted. *FiBL Projekte GmbH* is of particular significance in this context. The business activities of the non-profit FiBL e.V. were transferred into this company so as not to compromise the association's charitable status. The shareholders include FiBL, SÖL and the organic associations Bioland, Demeter and Naturland. FiBL Germany and FiBL Switzerland both hold a 13 percent share in the *Bio mit Gesicht GmbH* (Organics face to face), with the other shareholders being Naturland, Marktgesellschaft der Naturland Betriebe, Bioland Markt, Bioland,

Demeter, tegut..., Feneberg and ecoinform. The objective of "Organics face to face" is to use the internet to generate transparency as to the provenance of organic products, their production and processing.

FiBL Germany in cooperation with its sister organizations in Switzerland and Austria established sfs Sustainable Food Systems Society GmbH which is going to be a service provider in the field of sustainability assessment. FiBL Switzerland holds 55 percent of sfs shares, with the remainder being equally shared by FiBL Austria and FiBL Germany.

While FiBL only holds 14 percent of bioC GmbH, its offices are co-located with FiBL in Frankfurt, Germany. bioC GmbH maintains a directory of certified organic operators. Its customers can compile password-protected supplier lists and can consult the bio-C directory to check whether a supplier holds a valid certificate.

The Regio.Marketing GmbH was established with a view to offering services in the area of regional marketing. Its shareholders are *FiBL Projekte GmbH* (40%), the marketing company Gutes aus Hessen (40%) and Regionalfenster e.V. (10%).

It is a significant challenge, given these diverse structures, to generate synergies and ensure that the overall structure acts in concert. It is for this reason that the activities are under the central control of FiBL Deutschland e.V. (FiBL Germany), the executive board of which represents a major proportion of the organic food industry and the organic farming research community. Moreover, when managerial positions are filled, care is taken to ensure that the person hired is concerned not just with the well-being of the individual company but works towards the benefit of the structure as a whole.

*Robert Hermanowski,
Managing Director, FiBL Germany*

Significant events in 2013

January	Contract awarded for the trainee programme.
February	<i>Regionalfenster</i> (a label for food of regional provenance) at the Biofach fair.
March	Organizational support for the <i>Wissenschaftstagung Ökologischer Landbau</i> , the German-language scientific conference on organic agriculture, in Bonn.
April	Bioland, Demeter and Naturland become shareholders in FiBL Projekte GmbH.
May	The <i>Kinder-Garten im Kindergarten</i> project (Children's garden at the kindergarten) commences.
June	Continuation of the "Pastures of the Wetterau" project
July	First PhD completed at FiBL Germany: Dr. Albrecht Flake.
August	KonKom project on training and staff development for organic inspectors commenced.
September	Presentation of results of evaluation of the <i>Regionalfenster</i> label in Berlin.
October	Commencement of <i>Wasserzeichen</i> (Watermark) project
November	Presentation of SMART tool at a special event held at the Ökohaus Frankfurt.
December	EU Project SOLMACC and project on climate mitigation on organic farms commenced.

Significant events in 2014

January	Re-launch of organicXseeds completed.
February	Project SUSTAINGAS: Manual published.
March	FiBL Deutschland e.V. becomes a member of the German Agricultural Research Alliance (DAFA).
April	Won tender for <i>Tierschutz-Kompetenzzentrum</i> (Centre of Excellence in Animal Welfare).
May	Forum on regional marketing in Saxony.
June	Legume project by German Federal Agency for Nature Conservation (BfN): Manual published.
July	Practitioners' day in Lower Franconia.
August	Project on cleaning and hygiene management commenced.
September	Grant application approved for support facility for organic plant breeding research.
October	Won tender for training programmes in food production.
November	Establishment of Regio.Marketing GmbH.



Dr. Alexander Gerber

CEO of Demeter e.V.

«Organic agriculture and organic food represent sustainable innovations. Farming practice needs strong service providers and

partners for research and development projects. This is where FiBL plays a prominent role. On the FiBL Board I speak from the perspective of Demeter farmers, processors and traders in order to support FiBL in its strategic approach to questions about the future.»



Wolfgang Gutberlet

Chair of the Supervisory Board of W-E-G Stiftung & Co., KG

«Organic is the only quality designation that not only evaluates the finished product but also pays due

regard to how it was produced. For this reason, FiBL's research fills an important gap. For we are increasingly conscious of the influence of species-appropriate production on quality, in its impact on our vitality and on that of animals and plants.»



Beate Huber

FiBL Switzerland, Head of Department of International Cooperation

«Organic agriculture provides approaches to improve food

security and to combat poverty and undernourishment in developing countries and emerging economies. My interest is that FiBL enhances this potential of organic agriculture.»



Jörg Große-Lochtman

Managing Director of Marktgesellschaft mbH, part of Naturland Betriebe

«Organic agriculture's competence to solve our society's problems

can best be developed if organic farming and practice-oriented research join forces to contribute effectively to dialogue within society. FiBL plays a central part here in terms of both its competence and its network.»



Dr. Robert Hermanowski

Director of FiBL Germany

«The challenges in agriculture are ever-increasing in scale and complexity – FiBL with

its international network is the answer. Particularly in questions of livestock management, we have to pursue new paths because society is becoming increasingly critical in this regard.»



Prof. Dr. Urs Niggli

Director of FiBL Frick, Chairman of the Board

«The networking of FiBL's three entities is a major interest of mine. It is our privilege as a private institute to be able to pull together

across borders towards our common aims.»



Jan Plagge

Bioland President

«Supporting FiBL, the largest institutional network of private organic agriculture research worldwide, and

taking responsibility for its future are my interests. The more significant organic agriculture becomes in society, the readier the organic movement must be to answer questions about the future, from systemic questions to the use of new technologies. For this we need a research institute with international aspirations and an international network, working jointly with stakeholders to develop answers for Organic 3.0.»



Prof. Dr. Jürgen Hess

Head of Department of Organic Farming and Cropping Systems at the University of Kassel (Faculty of Organic Agricultural Sciences)



Dr. Felix Prinz zu Löwenstein

Chairman of the Board of the German Organic Food Industry Federation BÖLW, farmer

«In view of the low level of resources that have been dedicated to research into organic agriculture and food production in recent decades, it is likely that our production practices still offer considerable undiscovered development potential. FiBL must lead the way with projects which build networks among researchers from a wide range of disciplines and farming practitioners. And it must contribute to giving such projects more weight within the breadth of agricultural research.»



Prof. Dr. Gerold Rahmann

Director of the Institute for Organic Farming at the Thünen Institute, President of ISO FAR, member of the World Board of IFOAM

«I like to bring the viewpoint of government-department research into Board discussions and be a reliable partner in furthering the progress of organic farming. This calls for more resources, and strategic alliances which function on the basis of trust.»



Dr. Uli Zerger

Executive Director of the Foundation Ecology & Agriculture

«Our most important goal of the next few years, as I see it, is the task of strengthening and improving efforts towards the future sustainability of organic agriculture. We urgently need to come up with new yet convincing solutions for responding to society's expectations of agriculture.»

Clients and donors of FiBL Deutschland e.V.

averdis Rainer Roehl & Dr. Carola Strassner GbR, Münster
Abtei Münsterschwarzach, Münsterschwarzach
Anja Erhart Agentur für Ernährungsfragen, Frankfurt am Main
ARGE FiBL Türkei, Frankfurt am Main
Assoziation ökologischer Lebensmittelhersteller e.V., Bad Brückenau

Behinderten-Werk Main-Kinzig e.V., Gelnhausen
Bio mit Gesicht GmbH, Frankfurt am Main
bioC GmbH, Frankfurt am Main
Biokreis e.V., Verband für ökologischen Landbau und gesunde Ernährung, Passau
Bioland Beratung GmbH, Mainz
Bioland e.V., Mainz
Biopark e.V., Güstrow
BioTropic GmbH, Duisburg
Bund Ökologische Lebensmittelwirtschaft e.V., Berlin
Bundesamt für Naturschutz, Bonn
Bundesanstalt für Landwirtschaft und Ernährung, Bonn
Bundesministerium für Ernährung und Landwirtschaft, Bonn
Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit, Berlin
Bundesverband Naturkost Naturwaren e.V., Berlin
Büro Lebensmittelkunde & Qualität, Bad Brückenau

Demeter e.V., Darmstadt
Deutsche Bundesstiftung Umwelt, Osnabrück
Deutsche Gesellschaft für Internationale Zusammenarbeit, Bonn
Deutscher Sojaförderring beim Landw. Technologiezentrum Augustenberg

Ecoland e.V., Wolpertshausen
ECOVIN Bundesverband Ökologischer Weinbau e.V., Oppenheim
Europäische Kommission, Brussels

Fachagentur Nachwachsende Rohstoffe e.V., Gülzow-Prüzen
FiBL Projekte GmbH, Frankfurt am Main
Forschungsinstitut für biologischen Landbau, Frick

Gäa e.V. - Vereinigung ökologischer Landbau, Dresden
Greenpeace e.V., Hamburg

HA Hessen Agentur GmbH, Wiesbaden
Hessisches Ministerium für Umwelt, Klimaschutz, Landwirtschaft und Verbraucherschutz, Wiesbaden
Hochschule für nachhaltige Entwicklung Eberswalde, Eberswalde

International Federation of Organic Agriculture Movements EU Group, Brussels

Landwirtschaftskammer Nordrhein-Westfalen, Münster

m&p: public relations GmbH, Bonn
Marktgemeinschaft mbH der Naturland Betriebe, Hohenkammer
MGH GUTES AUS HESSEN GmbH, Friedberg

Naturkost Ernst Weber, München
Naturland – Verband für ökologischen Landbau e.V., Gräfelting

Öko-BeratungsGesellschaft mbH, Hohenkammer

Regierung von Unterfranken, Würzburg
Regionalfenster e.V., Friedberg
riha WeserGold Getränke GmbH & Co. KG, Rinteln

Sächsisches Staatsministerium für Umwelt und Landwirtschaft, Dresden
Software AG-Stiftung, Darmstadt
St. Josefs Haus Herten, Rheinfelden
Stiftung Nieder-Ramstädter-Diakonie, Mühlthal
Stiftung Ökologie & Landbau, Bad Dürkheim
Stiftung Warentest, Berlin

Universität Göttingen, Göttingen

Verbund Ökohöfe e.V., Stadt Wanzeleben-Börde

Wetteraukreis, Friedberg

Zukunftsstiftung Landwirtschaft, Bochum

Finances and chronology of FiBL Austria

In 2014 FiBL Austria celebrated ten years since its foundation. The Institute currently employs 24 people and is funded entirely through projects. Economically, 2012 was a positive year.

FiBL Austria is a non-profit association and is funded exclusively through projects and the provision of services. Economically, 2012 was a positive year with income in the order of € 948'000 and expenditure of about € 936'000. In the 2013 financial year, income and expenditure came to € 960'635 and € 962'425 respectively.

Since 2005, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management has been funding projects in the areas of innovation, research and education. The state governments of Lower Austria and Upper Austria as well as the Chamber of Agriculture of Lower Austria supported education and on-farm research for the advancement of crop production methods and for research into aspects of livestock feeding in organic systems. Sustainability assessments of foods were

funded by private clients while public sector funding was made available for work on promoting biodiversity with the aid of flowering strips for beneficials as well as on more general aspects of organic agriculture.

We would like to express our gratitude to our public sector clients at the federal

and state levels, the food retail trade, the Chambers of Agriculture, and the organic farming bodies. We are also very grateful to our Swiss and German colleagues for their active support of FiBL Austria.

*Andreas Kranzler,
Managing Director FiBL Austria*

Income and expenditure of FiBL Austria in 2012 and 2013

(in Euros)	2012	2013
Income		
Research and innovation	563'772	579'387
Education	310'452	301'214
Other	74'087	80'034
Total income	948'311	960'635
Expenditure		
Expenditure on personnel	533'775	558'688
Other expenditure	39'094	16'633
Non-personnel project expenditure	310'772	327'991
Office expenditure	53'233	59'113
Total expenditure	936'874	962'425
Operating result	11'437	-1'790

Significant events in 2013

February	Bionet: Symposium on flowering strips for beneficials and symposium on grain legumes; Project on sustainability in the AMA Quality Seal programme (Nachhaltigkeit im AMA-Gütesiegelprogramm): Completion of Part 1, Qualitative assessment of existing AMA Quality Seal standards and production rules with a view to sustainability.
April	EDUARD 2013 Education Award for the McKioto project.
May	CORE Organic project IMPROVE-P (improved phosphorus resource efficiency in organic agriculture) commences.
June	Closing event of the McKioto project; MUBIL field day: Results on winter wheat and nature conservation.
September	20 th FREILAND Conference on "The freedom to exercise good animal husbandry".
October	MUBIL field day: Soil fertility on an organic crop farm; Symposium Biodiversity Assessment on Agricultural Farms.
November	Bionet seminar on arable farming.
December	2013 Bionet conference on vegetable production; Publication on the macro-economic benefits of organic agriculture for Austria; Project on sustainability in AMA Quality Seal programme (Nachhaltigkeit im AMA-Gütesiegelprogramm): Completion of Part 2: Key areas and measures for greater sustainability in the AMA Quality Seal programme.

Significant events in 2014

January	Concluding workshop with farmers on biodiversity as part of the EU project SOLID.
February	Bionet symposium on organic soy; Final project report on the further development and improvement of existing conditions for sown wildflower strips and biodiversity areas under the Austrian agri-environmental programme (ÖPUL).
March	Website re-launch: www.bio-wissen.org ; Schule des Essens (Culinary school) project commences.
April	Project activities commence in the area of sustainability assessments with a socio-economic and regional focus.
May	Launch of website for Biokompetenzzentrum Schlägl www.biokompetenzzentrum.at .
June	Concluding event in the Haubensache Bio series of exclusive organic culinary events.
August	Sustainability assessment of horticultural operations using the FiBL SMART tool.
September	21st FREILAND Conference on "Animal husbandry and enrichment".
October	2014 Bionet conference on vegetable production; Presentation of MUBIL project results.
December	10th anniversary of FiBL Austria; Sustainability assessment of tillage farms in Upper Austria using the SMART tool.



Prof. Dr. Werner Zollitsch

Vienna University of Natural Resources and Life Sciences, Chairman of the Board of FiBL Austria

«I am convinced that common efforts by research and practice are necessary for the continuing development of organic agriculture. FiBL assumes important functions in this regard: applied research projects produce knowledge directly, which is implemented practically. The continuation and development of the functions that FiBL carries out in this area are especially important to me.»



Eva Hieret

Organic farmer

«My task at FiBL Austria is to bring in farmers' viewpoints and to help develop and inspire creative new ideas in the interplay between organic agriculture – research – rural development and social work on the farm.»



Mag. Andreas Kranzler

Director of FiBL Austria

«My task at FiBL Austria is to make organic agriculture in Austria part of international networks. We would like to lay the foundations to support the exchange of knowledge, experience and interests between farmers, researchers and consumers.»



Dr. Urs Niggli

Director of FiBL Switzerland

«Currently there is mounting excitement over the modernization of organic agriculture under the catchword 'Organic 3.0'. The three FiBL organizations can contribute to this by means of their innovative projects.»



Alexandra Pohl

Quality Management at the firm Landgarten

«Organic agriculture is dynamic – and FiBL keeps it dynamic. Over and above organic agriculture, over the years it has dealt with far-reaching themes which include all aspects of organic production and their importance for solving societal problems, and which also serve as a basis for political decisions.»



Martin Preineder

Federal Councillor, Head of the LFI Rural Training Institute, Lower Austria

«In years to come, FiBL should continue to fulfil its bridging function between practice and research. I would like to encourage and support developments and establish and improve contact with state organizations.»



Dr. Elisabeth Stöger

Veterinarian

«FiBL makes the connection between science and practice, and I therefore give my full backing to the work of FiBL Austria. The theme of sustainability is highly relevant now and creates the opportunity to take a look at the complex factors that influence production.»



Mag. Josef Renner

Director of Bio Ernte Steiermark, the Styrian organic farmers' organization

«My greatest interest is to further the development of organic agriculture by building networks among the most diverse organic organizations. Thanks to my work on the Board of FiBL Austria, I see the possibility of forging a stronger link between Bio Ernte Steiermark, the Styrian chamber of commerce and FiBL. In Styria we are planning to establish an 'organic impulse hub' for farmers and consumers at the Alt Grottenhof organic agricultural school. In this enterprise I hope for strong cooperation with FiBL within the framework of joint projects.»



Gerhard Zoubek

Organic farmer

«On our organic farm in the Vienna metropolitan area we run a direct marketing operation by delivering organic boxes to subscribers and attending markets. This keeps us in very close contact with consumers. We are also connected with them through our commitment to sustainable agriculture that will serve future generations, and equally sustainable forms of marketing. As a FiBL Board member I would like to work for the ongoing development of these objectives nationally as well as internationally.»

Staff of FiBL Austria

Management



*Andreas Kranzler,
Director,
Birgit Pelikan,
Assistant.*

Biokompetenzzentrum Schlägl

At the Biokompetenzzentrum Schlägl centre of excellence for organic farming, which is co-located with the Bioschule Schlägl organic agricultural college in Upper Austria, the emphasis is on applied research.



*Florian Gadermaier, Martina Follner.
Johannes Steinmayr and Christian Stöbich
are not in the photo.*

Sustainability Assessment and Climate Protection

The Sustainability Assessment and Climate Protection Team analyses and assesses aspects of sustainability in food production and identifies potential for optimization. As part of life-cycle assessments of food products, the team identifies areas where action is needed, from production right through to trade. They also determine where savings and reductions can be achieved, e.g. with respect to greenhouse gas emissions and water usage. Moreover, the team analyses the biodiversity potential of agricultural holdings.



*Left to right: Rainer Weisshaidinger,
Theresia Markut, Richard Petrasek,
Michaela Theurl, Thomas Drapela, Ruth
Bartel-Kratochvil, Thomas Lindenthal,
Isabella Gusenbauer. Stefan Hörtenhuber
is not in the photo.*

Crop and Vegetable Production

The Crop and Vegetable Production Team addresses topics with strongly practical applications. The team is working on a very diverse range of projects in arable crop and vegetable production in the context of which networks of representatives from the farming, advisory and research sectors are formed, practical issues of current interest in the field are tackled and field trials initiated (Bionet project). The team is also conducting long-term monitoring of the impacts of converting to organic farming (MUBIL project), works on developing reduced tillage methods for organic production (TILMAN-ORG project), and delivers comprehensive education services.



*Andreas Kranzler, Sieglinde Pollan,
Markus Heinzinger, Thomas Lindenthal,
Florian Gadermaier, Peter Meindl, Martina
Follner, Andreas Surböck. Johannes
Steinmayr and Christian Stöbich are not
in the photo.*

Biodiversity and Nature Conservation

Maintaining and increasing biodiversity on farms and improving the contribution of farms to nature conservation are important objectives in organic agriculture. In the area of biodiversity and nature conservation, FiBL Austria aims at raising awareness among farmers by delivering training courses and providing information material as well by helping farmers with practical advice on how they can promote biodiversity in the agricultural landscape.



*Theresia Markut, Thomas Drapela,
Peter Meindl.*

Consumer Information and Sustainable Nutrition

At various different levels, the Consumer Information Team aims at getting interested consumers to appreciate just how special and unique organic agriculture is. The team publishes a variety of media (e.g. the Bio-Fibel magazine on organic farming knowledge, the Bio-Wissen series of consumer-oriented posters, and other media), conceives and organizes a range of events (tastings, conferences, exhibitions), visualizes agricultural knowledge and puts it up for discussion (www.bio-wissen.org). “Schule des Essens” (School of Food) is a new project addressing children, i.e. tomorrow’s consumers.



Reinhard Gessl, Elisabeth Klingbacher, Theres Rathmanner.

International

The International Team provides agricultural extension services and conducts applied research projects in developing and newly industrialized countries. The team strives to improve both the living conditions of the local people and the conservation of natural resources. The focus is on establishing sustainable farming methods and approaches, especially with a view to holistic land use and regional development. Tools include on-farm trials, participatory research, knowledge transfer and stakeholder networking. The team also cooperates closely with FiBL Switzerland’s International Cooperation Department.



Andreas Kranzler, Rainer Weisshaidinger.

Animal Husbandry Team

In addition to practice-oriented projects, e.g. on organic broiler production, FiBL Austria and the FREILAND Association jointly host the annual FREILAND Conference, one of the leading conferences on applied livestock ethology in the German-speaking world.



Reinhard Geßl.

Computer administration Ferdinand Altnöder.

FiBL Austria’s clients and financial backers

Agrarmarkt Austria Marketing GesmbH,
Vienna

Association for Animal Welfare Education
(Tierschutz macht Schule), Vienna

BIO AUSTRIA, Vienna
Biohof ADAMAH, Glinzendorf

Delacon Biotechnik GesmbH

European Union, Federal Government
and Federal States

Federal Ministry of Health, Vienna
Federal Ministry of Agriculture, Forestry,
Environment and Water Management,
Vienna

Federal Ministry of Science, Research and
Economy, Vienna

FiBL Germany, Frankfurt
FiBL Switzerland, Frick
Freiland Association, Vienna

Hofer KG, Sattledt

Ja! Natürlich Naturprodukte Ges.m.b.H.,
Wiener Neudorf

Lower Austrian Chamber of Agriculture,
St. Pölten
Lower Austrian State Government Offices,
St. Pölten

Ombuds Office for Animal
Protection of the City of Vienna
(Tierschutzombudsstelle Wien)

Pädagogische Hochschulen (teacher
training colleges) in Vienna and Upper
Austria

PUR Bioprodukte VertriebsgmbH,
Waidhofen/Thaya

Rural Further Training Institute
Burgenland (Ländliches
Fortbildungsinstitut Burgenland),
Eisenstadt

Rural Further Training Institute Austria
(Ländliches Fortbildungsinstitut
Österreich), Vienna

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SPAR Österreichische Warenhandels-AG,
Salzburg

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Toni’s Handels GmbH, Glein

University of Applied Sciences Wiener
Neustadt, Wieselburg
University of Natural Resources and
Applied Life Sciences, Vienna
Upper Austrian State Government Offices,
Linz

Vienna Institute for
Economic Development
(Wirtschaftsförderungsinstitut Wien,
WIFI Wien)

Werner Lampert Beratungsges.m.b.H.,
Vienna

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Charitable donations and contributions to FiBL Switzerland and FiBL Germany are tax deductible, and can also be made online via our homepage (<http://www.fibl.org/en/about-us/donate.html>). A receipt for donations can be issued on request.

Your donations and legacies to all three FiBL organizations are used as follows

- › To fund innovative research and consultancy projects for which funding sources have not yet been found.
- › Donations and legacies are also important in providing FiBL with the freedom and independence to address vital issues of major relevance to society. Such issues include the contribution made by organic farming to climate change mitigation, the conservation of nature and biodiversity thanks to sustainable management practices, matters of animal welfare, nutritional habits and human health.
- › Financing state-of-the-art research infrastructure and trial systems without taking recourse to banks.

If you have any queries relating to donations and legacies, the directors of FiBL Switzerland, Germany and Austria will be pleased to help (see contact details below).

FiBL Switzerland

The Swiss Foundation for the Promotion of Organic Agriculture (Schweizerische Stiftung zur Förderung des biologischen Landbaus) has charitable status in a number of cantons. The Research Institute of Organic Agriculture (FiBL), too, is registered as a charitable organization in the canton of Aargau. The Swiss Foundation for the Promotion of Organic Agriculture handles donations and legacies for FiBL activities. These donations are tax-exempt.

Details of the charitable donations account of FiBL Switzerland are as follows: Swiss Foundation for the Promotion of Organic Agriculture, CH-5070 Frick, Account No: 80-40697-0

Transfers from abroad (euro area) to the Swiss Foundation for the Promotion of Organic Agriculture in Frick may be made free of charge via:

Swiss Post, PostFinance, Nordring 8, CH-3030 Berne

IBAN CH93 0900 0000 8004 0697 0

SWIFT: POFICHBE

Contact: Prof. Dr. Urs Niggli,

Director FiBL,

Tel. +41 62 865 72 70,

e-mail urs.niggli@fibl.org

FiBL Germany

Details of the charitable donations account for FiBL Germany are:

FiBL Deutschland e.V.

Account No: 0200334620

Frankfurter Sparkasse,

Bank sort code 5050201

Transfers from abroad (euro area) to

FiBL Germany should be addressed to FiBL Deutschland e.V.:

Swift-Bic: HELADEF 1822

IBAN: DE49 5005 0201 0200 3346 20

Contact: Dr. Robert Hermanowski,

Director, FiBL Germany,

Tel. +49 69 713 76 99-73,

e-mail robert.hermanowski@fibl.org

FiBL Austria

Bank details for FiBL Austria are:

Account No:676.452, BLZ 32000

Raiffeisenlandesbank NÖ-Wien AG

Transfers from abroad (euro area) to

FiBL Austria should be addressed to:

IBAN: AT333200000000676452

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Please address any queries relating to

tax deductibility to Andreas Kranzler,

Director, FiBL Austria,

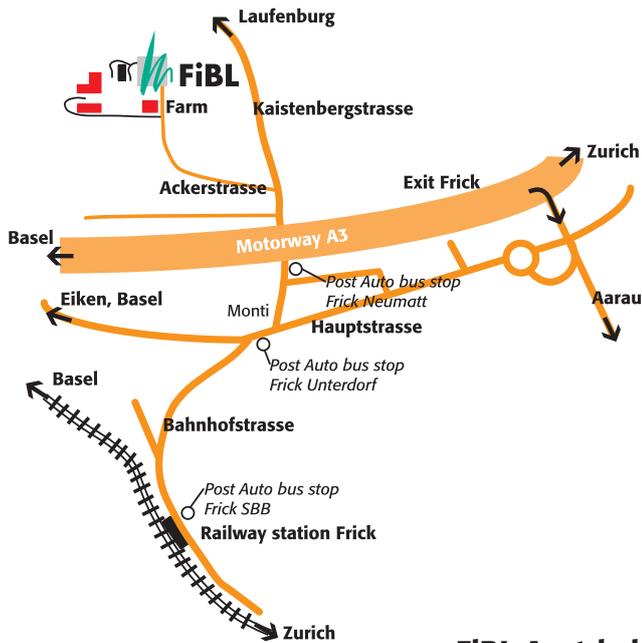
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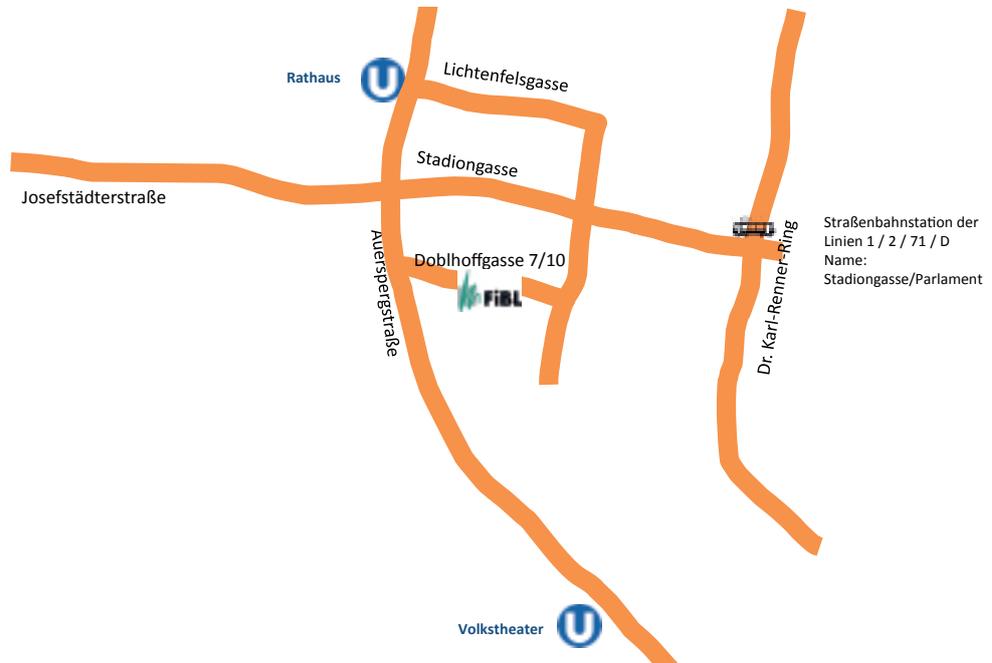
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