



Activity report 2010

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Dear reader

Research into primary agricultural production and food processing, and extension services in these areas, are more relevant than ever. Both experts on the one hand and the general public and consumers on the other are asking how the rising demand for food can be met without detriment to the environment. At the same time, economic pressure is causing major problems for agriculture worldwide. Global free trade does not appear to be the right formula for farmers, leading as it does to the neglect of ecological and social issues in many countries and regions.

The challenge of identifying credible, well-thought-out and practicable ways forward in this situation is both demanding and exciting. This is just what a growing number of dedicated scientists and advisors have been doing under the name of FiBL for many years. As a pioneering strategy for comprehensive and long-term sustainability, organic agriculture has major appeal.

Sustainability is not a theoretical concept: it means practical action, hands on. That is why combining scientific research with advisory and educational work is so important. This, too, is a hallmark of FiBL's approach. Many – if not the majority – of our research projects are planned with practitioners and implemented under practical conditions, irrespective of whether the projects relate to farming, nature conservation, animal health, food processing or the market. This closeness between research and practice is also one of the key requirements highlighted in the 2008 IAASTD report (International Assessment of Agricultural Knowledge, Science and

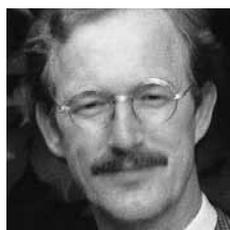
Technology for Development). Without it, progress in research becomes merely an end in itself. The IAASTD report calls for not just research *for* practitioners, but research *with* practitioners, to ensure that academic knowledge and knowledge gained from practical experience each inform the other. This approach was the inspiration behind the first FiBL team headed by Hartmut Vogtmann 37 years ago and it remains the driving force behind our work as we look to the future.

In the spring of 2010 the three FiBL organizations in Switzerland, Germany and Austria formed a closer alliance with three other institutes in the Czech Republic, Luxembourg and Slovenia, setting up a common umbrella organization: FiBL International. The underlying purpose is to pool knowledge and provide mutual support for research and extension. Organic farmers urgently need more innovation, but it must not come at an ecological or social price. And the natural qualities of the food they produce must not suffer – an issue that poses a major challenge to the processing industry. Close cooperation between the six institutes will help these objectives to be achieved.

In this activity report we aim to present a snapshot of FiBL's many and varied activities. We have selected 21 relevant projects of the three FiBLs. Overall, our projects number more than 200 – our website www.fibl.org provides a full overview. And we also take this opportunity to extend our warmest thanks to all our partners, clients and donors for their continuing support and cooperation.



*Martin Ott,
President of the Foundation Council of FiBL Switzerland*



*Felix Löwenstein,
Board Member of FiBL Germany*



*Werner Zollitsch,
Chairman of FiBL Austria*

Organic knowledge is more sought-after than ever

The relationship between agriculture and sustainability is not unlike the situation of the sorcerer's apprentice in Goethe's well-known ballad: "The spirits I have summoned / I now cannot dismiss." The term "sustainability" is bandied about too often and often inappropriately. Despite this, the FiBL team committed itself four years ago to "Excellence for Sustainability". This has been a source of considerable dynamism in recent years.

Close and efficient cooperation between research, advisory services and practice is one of the hallmarks of FiBL. Researchers and advisors work with farmers and their families on issues such as soil conservation, climate change mitigation, species diversity, landscape quality, animal welfare and healthy, distinctive food.

In the last two years this extensive experience of practice-related research and consultancy has proved to be eminently exportable. So it has come about that in India, working with the International Competence Centre for Organic Agriculture (ICCOA), FiBL is advising the states of Sikkim, Haryana

and Nagaland on the development of organic research and advisory services. The Pancivis foundation commissioned us to boost organic agriculture in Hungary by promoting major research projects. Other development assignments are under way in Turkey and Thailand.

The potential of organic agriculture in the developing world

In development cooperation work Africa is a new focal point. In 2009 the Bill & Melinda Gates Foundation launched its very first organic farming project. Through that project we are working with African teachers and advisors to produce

Important events in 2009

January	New EU project Ecropolis: sensory profiles of various organic products from all over Europe. New advisory project: sustainability analysis of farms in the Canton of Aargau.
February	Agroscope, ETH and FiBL organize the 10th scientific conference on organic agriculture (Wissenschaftstagung) at the ETH in Zurich. The EU Standing Committee on Agricultural Research (SCAR) publishes its second Foresight Exercise Report (co-author: Otto Schmid of FiBL). Participation in the BioFach organic trade fair in Nuremberg with a stand, presentations and workshops.
March	FiBL laboratory provided with new analysis equipment (FOAG innovation fund). The Johann Heinrich von Thünen Institute (vTI) in Braunschweig appoints Urs Niggli to the Advisory Council.
April	Conclusion of the pro-Q project on the reduction of antibiotics in dairy farming and a project on the promotion of organic seed (Coop Sustainability Fund).
May	Conclusion of the EU project QualityLowInputFood. New EU project ForestSpecs: use of extracts and by-products of Arctic forestry for plant protection and composting. New EU project NUE-crops: breeding nutrient-efficient crops.
June	Ten-part series on West Swiss Television "Gardening on your balcony" in which FiBL was involved.
July	FAO, FiBL and Tufts University (USA) set up the Organic Research Centres Alliance (ORCA) to promote closer cooperation between research institutions in developing countries.
August	Open day: 35th anniversary of FiBL, 10th anniversary of bio.inspecta with farmers from the surrounding area.
September	Two new projects: climate-neutral crop cultivation and vegetable production, minimization of concentrated feed in cattle feeding (Coop Sustainability Fund). New project: organic agriculture and climate change (Mercator Foundation Switzerland). Opinion on the British Food Standards Agency's study of the quality of organic products.
October	New EU project: LowInputBreeds on livestock breeding in organic agriculture. During the FAO conference in Rome, FiBL, IFOAM, FAO and the Federal Office for Agriculture (FOAG) organize an information event on the subject of genetic resources.
November	Official visit to New Zealand by Manfred Bötsch, Director of FOAG, and Urs Niggli.
December	FiBL and IFOAM take part in the Copenhagen climate conference; founding of the Round Table on Organic Agriculture and Climate Change (RTOACC). Urs Niggli is appointed honorary professor at the University of Kassel, Witzenhausen.



February 2009: 10th scientific conference on organic agriculture at ETH Zurich.

a manual for trainers and farmers that will cover all the different climatic and sociocultural regions of Africa. A major research project in West Africa dealing with organic cotton was approved in 2010; this project is coordinated by FiBL and financed by the EU.

The Organic Research Centre Alliance (ORCA) grew out of cooperation with the Food and Agriculture Organization of the United Nations (FAO) on tackling poverty through research into organic farming systems and the development of organic food chains with a higher profit margin for farmers' families. ORCA aims to achieve better coordination of the range of individual initiatives funded by European, American and other donors and to attract new donors to finance the development of organic agriculture in the tropics and subtropics. ORCA's website (www.orca-research.org) is run by FiBL. Our system comparison experiments in Kenya, and similar experiments in Bolivia and India, fit this strategy well



August 2009: open day and 35th anniversary in Frick.

and are highly regarded internationally. There is a significant shortage of precise research data on the capacity and viability of organic agriculture in the developing world. The question of whether organic agriculture is merely a niche activity for particularly successful farming families or whether it can improve food security on a large scale is one to which many people are keen to find the answer.

Climate change and the need to combat it attracted much public attention in 2009. Since organic agriculture can play a significant part in mitigating climate change, FiBL works closely with the FAO, the International Federation of Organic Agriculture Movements (IFOAM) and the Mercator Foundation. At the Copenhagen climate conference in December 2009 FiBL and IFOAM were able to ensure that the voice of organic agriculture was heard. FiBL coordinates the international Round Table on Organic Agriculture and Climate Change (<http://www.organicandclimate.org/>), which was founded at that conference.

Important events in 2010

January	Bronya Dehlinger and Alfred Schädeli are new tenants on the FiBL farm and they convert to biodynamic farming methods. Joint projects with Bio Suisse and Coop for the United Nations Year of Biodiversity. TP Organics publishes Strategic Research Agenda (Otto Schmid).
February	Involvement in the special organic agriculture show at the agricultural and livestock fair, St. Gallen. Participation in the BioFach organic trade fair in Nuremberg with a stand, presentations and workshops. Founding of FiBL International (FiBL Switzerland, Germany, Austria; Bioinstitut, Czech Republic; L'Institut fir biologesch Landwirtschaft an Agrarkultur (IBLA), Luxembourg; Institute for Sustainable Development, Slovenia). Participation in NATUR congress in Basel.
March	Continuation of CORE Organic II: transnational promotion of the organic research of 22 European countries.
May	Prince Charles meets sustainability experts (including Urs Niggli) at Highgrove.
June	The Swiss radio station DRS 1 broadcasts a 2-hour live programme from FiBL on the subject of "Soil – the undervalued foundation of life". First RTOACC workshop at FiBL.
July	10th Bioacademy in Lednice (CZ), organized jointly by Bioinstitut and FiBL. Organic farm open day on the FiBL farm.
August	New project to promote organic agriculture research in Hungary.
October	FiBL staff appointed to the EU group for technical advice on organic production (Ursula Kretzschmar, Bernhard Speiser).
November	FiBL staff appointed to the EU group for technical advice on organic production (Ursula Kretzschmar, Bernhard Speiser).
December	Conclusion of project NFP 59: benefits and risks of the deliberate release of genetically modified plants.

Problem-solving in Switzerland

The many international activities also benefit Swiss farming families. Thanks to international research funding we are also able to provide solutions to many practical problems that affect Switzerland. For example, we have been working on non-chemical deworming procedures for sheep and cattle, the reduction of copper treatment in potato farming and viticulture, improving the protection of organic products against undesirable GMO residues and the development of methods of measuring soil fertility.

We organized a number of conferences with Agroscope research stations. The highlight was the 10th scientific conference on organic agriculture, the Wissenschaftstagung, held at the Swiss Federal Institute of Technology (ETHZ) in Zurich in February 2009, which was attended by more than 400 delegates from German-speaking countries. Cooperation with the Swiss Federal Office for Agriculture (FOAG), the Federal Veterinary Office (FVO) and the Federal Office for the Environment (FOEN) has also been extended. FiBL brings to the table its expertise in the areas of climate, the development of direct payment schemes, and animal health. Our work is also

widely supported by Swiss environmental organizations such as Pro Natura and WWF.

Some very relevant but costly research is financed by Coop. In the project “Feed no Food”, FiBL veterinarians are tackling a controversial topic – the feeding of grain to cattle. Our aim is a healthy, productive cow that achieves its production through appropriate and environmentally friendly feed that does not compete with human food. Equally exciting is the challenge to develop a system of climate-neutral, “solar” organic agriculture which Coop has enabled us to address.

A broad funding base

Although Swiss federal funding has not increased, our financial position is healthy. This is due to the much-valued involvement of 800 private and public institutions, companies and individuals (see page £££ XX £££). Our partners not only take an interest in our work – they spur us on by hammering out ideas for new projects with us and then funding them. It is this broad support that makes FiBL unique. Together we can do so much!

Urs Niggli, Director of FiBL Switzerland

Income and expenditure of FiBL Switzerland in 2009 and 2008

(in Swiss francs)	2009	2008
Income		
Research projects	6 402 015.44	5 868 304.69
Service mandate for Swiss federal agencies	4 720 000.00	4 720 000.00
Advisory service and training	1 244 635.78	1 079 445.89
Communication	879 175.37	811 485.53
Development and cooperation	2 615 069.61	2 760 907.95
Pilot farm	53 593.68	55 343.69
Catering, housekeeping	480 299.05	444 837.93
Donations, miscellaneous income	523 604.83	499 430.35
Total income	16 918 393.76	16 239 756.03
Expenditure		
Personnel expenses	10 554 912.10	10 287 776.35
Material expenses		
Experimental/trial material, laboratory, analytics, projects	4 651 890.83	4 270 544.44
Premises, office supplies, other administrative, information technology, advertising	1 256 753.55	1 222 373.19
Financial result	255 892.98	279 238.10
Depreciation	315 564.85	374 702.15
Total expenditure	17 035 014.31	16 434 634.23
Non-recurring income/expenditure	119 221.30	196 504.50
Net profit for the year	2600.75	1626.30



FiBL Switzerland: a thumbnail sketch

The Research Institute of Organic Agriculture (FiBL) was founded in 1973 and has been based in Frick since 1997. FiBL Switzerland currently employs around 130 staff. Their specialisms include sustainable soil management, crop production, holistic animal health, animal ethology and animal husbandry appropriate to local conditions, socioeconomics, analysis of the organic market and organic food processing. Many of the projects and surveys take place on more than 200 farms throughout Switzerland. The close links between different areas of research and the extensive exchange of knowledge between research and practice are regarded as particular strengths of FiBL.

FiBL is also committed to the development of organic agriculture at international level. The development of ecological research services and of advisory and certification services is being addressed in numerous projects in eastern Europe, India, Latin America and Africa.

Statistics of FiBL Switzerland	2009	2010
Visitor groups (individuals)	42 (1093)	48 (1140)
No. of courses (participants)	30 (557)	31 (869)
Number of trainees	22	25
Events at FiBL	10	11
Visitors to FiBL open day	3 800	–
Visitors to www.fibl.org	189105	195712
Visitors to www.bioaktuell.ch	127166	250955

FiBL Germany reinvents itself

The German research and extension services scene in the organic food industry is highly diverse – or fragmented, depending on one’s point of view. In any case, due to the structure of the scene, it is difficult to provide streamlined, one-stop service packages. The solution lies in the establishment of integrated networks.

FiBL Germany was founded in 2000, originally as “FiBL Berlin”, with animal health as its focus. After it had very quickly become clear that even under the altered framework conditions – namely the major shift in agricultural policy towards sustainability known as the Agrarwende – there was no question of institutional sponsorship, the German FiBL branch concentrated on gaining contracts for projects which enabled it to build an infrastructure and a staff base.

This was a success, as the figures show: since we started we have been able to raise more than ten million euros, the number of personnel has grown from five in 2002 to the current eighteen, and reserves of around 150,000 euros ensure our liquidity and will permit future investments.

Despite the lack of institutional sponsorship FiBL Germany is on a sound financial footing: a broad client base prevents dependency and ensures that we work continuously to capacity. As well as sponsorship of projects by public-sector bod-

ies, the amount of income from services to the organic food industry has increased steadily in recent years.

Forming networks – building capacity

However, competition has become more intense; it is no longer just traditional organic agencies and institutes who are interested in this field, but in view of the considerable budgets newcomers are taking an interest. Our response to this challenge is to form networks with other credible structures and improve our efficiency without reducing the network partners’ integrity. As part of this strategy the following measures were implemented in 2010:

- › FiBL International was founded at the Biofach World Organic Trade Fair with the aim of strengthening cooperation between FiBL structures.
- › We set up FiBL Projekte GmbH in conjunction with Foundation Ecology and Agriculture (SÖL), so that we

Important events in 2009

February	Presentation of the German Federal Organic Farming Scheme (BÖL) at the Zurich science conference; relaunch of the knowledge platform www.forschung.oekolandbau.de .
March	Action plan for the “Protecting groundwater by farming organically” initiative in Lower Franconia.
April	Launch of the Alnatura Initiative “More organic farmers”.
May	Executive gives go-ahead for involvement with www.bioc.info .
June	Internal meeting on job satisfaction.
September	Launch of peer advisory service for “green zone” managers in workshops for people with disabilities.
October	“Soil fertility and groundwater protection” conference as part of Lower Franconian groundwater protection initiative.
November	tegut board meeting, go-ahead for participation in FiBL International.
December	Decision in favour of move to “Öko-Haus” building in Frankfurt am Main.

Important events in 2010

January	Responsibility for BÖL “Methods for distinguishing between organic and conventional products” project moves from Frick to Frankfurt.
February	Founding of FiBL International at the BioFach organic trade fair.
March	Move to “Öko-Haus”.
April	Rentenbank promotes “Employment of people with disabilities in agriculture” network.
May	Contract for GTZ project on organic farming in Saudi Arabia; Julia Klöckner, parliamentary Secretary of State, lays the foundation stone for a workshop building as part of the pilot scheme “Networking workshops for people with disabilities”.
June	Executive gives go-ahead for the founding, jointly with SÖL, of the FiBL Projekte GmbH project services company.
July	Successful bid for “Protecting Lower Franconia’s Groundwater by Farming Organically”.
August	Successful bid for “Organic Farming and Biomass” for the Office of Technology Assessment at the German Bundestag.
September	Founding of the association of practical organic research group (Verbund ökologische Praxisforschung, VÖP) with Bioland, Naturland and SÖL.
November	Agrobiodiversity conference as part of Lower Franconia’s groundwater protection initiative.
December	Office open day; founding of FiBL Projekte GmbH with SÖL; founding of bioc.info GmbH.

can jointly provide still more efficient services for the organic food sector.

- › By becoming a member of the “Verbund ökologische Praxisforschung” (the practical organic research group) with Bioland, Naturland and SÖL, FiBL is registering its claim to being the institute for agricultural practice – not just practice-oriented, but inextricably linked to practice.

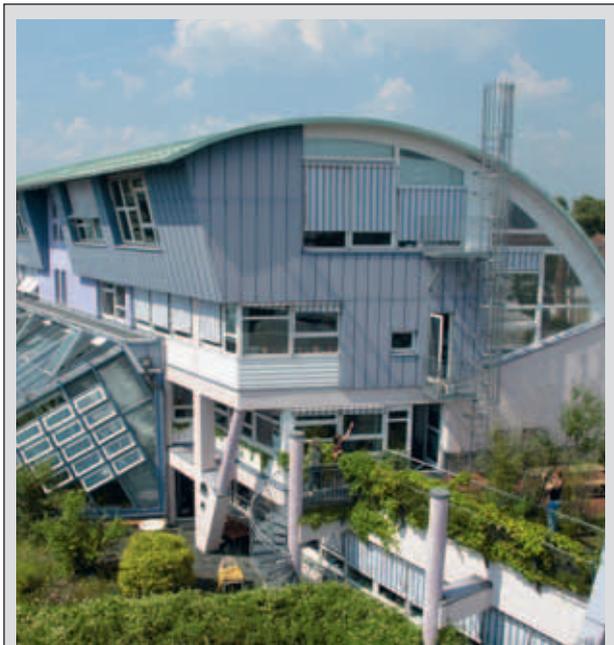
These structural decisions have been accompanied by investment in premises and technology in the “Ökohaus” building in Frankfurt am Main, so that the new structures can mesh and operate under one roof.

What belongs together will come together

However, justifying this change only in terms of efficiency and better market development would fall short of the mark. More importantly, there is an emotional component, since the people who work in the organisations feel that “what belongs together is now coming together”.

Many of the staff at FiBL have previously worked in association structures and are therefore pleased to be collaborating more closely. Colleagues in agricultural practice also welcome the fact that not only is knowledge transferred through FiBL, but that they themselves can introduce and take part in investigations and research projects; a win-win situation forming the basis of the work for the next ten years.

Robert Hermanowski, Director FiBL Germany



FiBL Germany: a thumbnail sketch

FiBL Germany provides scientific services to organic farming and the food industry. Areas of activity are: research and development, knowledge transfer, devising programmes to strengthen organic farming, scientific support of and work with stakeholders and the promotion of networking among stakeholders. FiBL Germany is funded essentially through projects and services and currently employs eighteen members of staff.

Income and expenditure of FiBL Germany in 2009 und 2008

(in euros)	2009	2008
Income		
Research and development	1 348 289	1 091 941
Other	16 340	28 385
Total income	1 364 629	1 120 326
Expenditure		
Personnel expenses	571 655	568 384
Material expenses		
Project costs	632 966	398 447
Premises, office supplies, other admin. expenses, IT and advertising	130 847	118 574
Depreciation	9350	9540
Total expenditure	1 344 818	1 094 945
Operating result	19 811	25 381

Exchange of knowledge at all levels

FiBL Austria's very successful development in the six years since it was founded is the result of many fortunate circumstances and, in particular, strong support from many people in politics, administration, research and farming.

For the last two years climate change mitigation has been a core area of FiBL Austria's work. We have calculated the carbon footprint of the "Zurück zum Ursprung" range of organic foods sold by the supermarket chain Hofer KG; the comprehensive climate model that we use takes all climate-relevant gases into account. We are pleased to report that organic foods score better in terms of climate impact than comparable conventional products. The provision of appropriate information on the packaging means that consumers can now see how they are helping nature and the environment by buying these organic products.

A panel of experts and viewers of the Austrian television station ORF awarded this innovative project the 2009 climate protection prize; the competition is organized annually in various categories by ORF and the Austrian environment ministry.

Boar's meat is tasty

FiBL Austria is also active in the area of organic animal husbandry. It works with project partners to promote boar finishing as a practicable method of producing organic pork and to put marketing measures in place. Acceptance of organic boar meat products has been tested in numerous blind tastings. The market's fear that Austrians have a "boar-sensitive" palate has not been confirmed.

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Well informed

In the area of consumer information FiBL Austria excels at passing on knowledge and information on all aspects of organic agriculture in a sound and expert way but also with a certain lightness of touch. For example, with the support of the Austrian environment ministry FiBL helped organize the successful slow food fair "Terra Madre Austria" in Vienna. More than 10,000 visitors flocked to the arcaded courtyard of the Vienna Rathaus in late October 2009 to sample the range of foods produced on "good, clean and fair" lines that was available at the market there. "Terra Madre" was also the platform for an international conference at which some 400 participants discussed current issues of responsible food production.

Important events in 2009

January	Start of project: Dignity of animals during transport and slaughter.
February	Expansion of project: Organic platform for vegetables as an addition to the "Bionet" project.
March	The first issue of the journal "Bio-Fibel" appears.
May	Media conference: The potential of organic food for reducing greenhouse gas emissions.
July	Conclusion of project: Market research for meat from organic boar finishing.
September	16th FREILAND conference.
October	Conclusion of project: Presentation of organic foods at the first Slow Food Fair in Vienna.
November	FiBL Austria is awarded the 2009 climate protection prize for calculating the carbon footprint of all products in the organic range of the food discount chain Hofer KG; Conference: Organic platform for vegetables 2009; Co-organization of the 6th series of organic talks, Schlägler Biogespräche.

Important events in 2010

January	Start of the tasting series "FiBL Tasting_forum".
March	"Plant me! Biodiversity leaves its mark": Organic seed initiative for the UN Year of Biodiversity.
May	Start of project: Use of true-to-seed carrot varieties in organic agriculture.
June	Start of project: Sensory properties of fruit and vegetables in Vienna schools.
July	Expansion of project: in "Bionet": new aspect of pollination in agriculture.
September	17th FREILAND conference.
October	Media conference and start of project: Sustainability of organic food.
November	Conference: Organic platform for vegetables 2010; Co-organization of the 7th series of organic talks, Schlägler Biogespräche.
December	Conclusion of project: Clover silage and lucerne meal in organic pig feeding; Project approval: Schlägl organic competence centre with the Schlägl organic college.



FiBL Austria: a thumbnail sketch

FiBL Austria was founded in 2004 and currently employs 16 people, all funded exclusively through projects. The institute's current priorities include applied research on arable and vegetable farms, calculation of greenhouse gas emissions and sustainability parameters in food production, consumer

information projects, and practical research into organic animal husbandry. It organizes conferences and undertakes many teaching assignments. Important elements in all these areas are networking and the exchange of knowledge between practice, extension services and research, and efforts to make knowledge accessible to specific target groups.

In the United Nations Year of Biodiversity consumers themselves were also active. Under the slogan "Plant me! Biodiversity leaves its mark" FiBL Austria distributed 10,000 packets of organic seed in Vienna to make the city more colourful. The campaign was a great success; the seeds were very quickly sown and large numbers of photographs were sent to the FiBL office as evidence of the city's burgeoning biodiversity – living signs that the threat of biodiversity loss can be countered.

As a non-profit-making organization, FiBL Austria finances itself entirely through projects and services. In 2008 a surplus of around 4,000 euros was recorded: a total income of around 652,000 euros was offset by expenditure of 648,000 euros. In the 2009 financial year total income amounted to around 749,000 euros, while expenditure totalled 750,500 euros.

Since 2005, the Austrian Ministry for Agriculture, Forestry,

Environment and Water Management has funded a variety of projects in the areas of innovation, research and education. The government of the state of Lower Austria, together with the state's Chamber of Agriculture, provide support in the areas of education and on-farm research for the development of crop cultivation methods and studies of organic animal feeding. Calculation of the carbon footprint of foods was made possible by private-sector clients. Swiss foundations provided financial support for research into issues relating to biodiversity and organic farming.

We are grateful to our public-sector clients at federal and state level, to the food trade, the Chambers of Agriculture and organic associations. We also warmly thank our Swiss and German colleagues for the energetic support they have given FiBL Austria.

Andreas Kranzler, Director of FiBL Austria

Income and expenditure of FiBL Austria in 2009 and 2008

(in euros)	2009	2008
Income		
Research and development	382 520	372 472
Education	321 191	265 004
Other	45 242	14 871
Total income	748 953	652 347
Expenditure		
Personnel expenses	499 299	360 466
Miscellaneous expenses	11 617	9 384
Project costs	186 261	232 537
Office-related costs	53 450	45 786
Total expenditure	750 628	648 173
Surplus/deficit	-1675	4174

Climate debate: a voice for the organic movement

The Intergovernmental Panel on Climate Change (IPCC) believes that farming is not making full use of its opportunities for climate change mitigation. Yet many of the recommended measures are already taken for granted in organic agriculture.

“Our objective is to specify the contributions that organic farms make to climate protection and to quantify them as accurately as possible”, explains Andreas Gattinger, who coordinates research into climate issues at FiBL. This would provide the foundation for a future climate certification system and enable organic farms to join the international trade in carbon emissions certificates.

Before that can happen, however, methodological requirements and formal criteria must be met; there is the accreditation process of the United Nations Framework Convention on Climate Change to complete. “This is the subject of our project “Carbon Credits for Sustainable Landuse Systems”, or CaLas in brief”, says Gattinger.

Meta-analysis of carbon sequestration

A key question concerns the quantity of carbon that can be sequestered in organically farmed soils and how this compares with sequestration on conventionally managed land.

To obtain as broad a range of evidence as possible, Andreas Gattinger and his team conducted a meta-analysis of 463 individual readings from twelve published studies.

Carbon stocks on organically farmed land were found to average 37.4 tons per hectare – significantly more than the 26.7 tons stored in a hectare of conventionally managed soils. These values apply to soil depths of up to 25 cm; the studies that were reviewed were published between 1988 and 2010 and relate to soils in Europe, North America and Asia. The next task is to evaluate further studies, especially those from developing countries, and to calculate sequestration effects separately according to location and type of use (arable, grassland, fruit and vegetable growing).

Pooling strengths and resources internationally

The development work carried out by Urs Niggli and Andreas Fliessbach in recent years has enabled FiBL to ensure that the voice of the organic movement is heard in the international





A lively debate: what are the potential opportunities and risks if CO₂ certificates are issued for organic farming practices?

climate debate. The broad foundation thus laid is now proving useful “because many underlying political and scientific issues need to be clarified in a broadly based process aimed at arriving at a common view”, says Gattinger.

In April 2010 the CaLas team therefore organised a workshop with key climate specialists. The experts confirmed that reliable figures on carbon sequestration are urgently required, but stressed that the other services of organic farming must not be overlooked. Hence CaLas is exploring and developing already recognised measures such as avoidance of mineral fertilizers, the use of composting and biogas production. The experts called for accreditation to involve the use of new instruments better suited to agriculture rather than the usual Clean Development Mechanisms (CDM). It was also necessary to clarify for which farms and under what conditions participation in the carbon emissions market would make economic sense.

To make progress on these issues, the organic movement must pool its strengths and resources. At the climate change conference in Copenhagen in 2009 organic researchers and IFOAM therefore set up the Round Table on Organic Agriculture and Climate Change (RTOACC). It is supported by the Food and Agriculture Organization (FAO) and aims to facilitate and coordinate international research and development in the field of organic agriculture and climate change. “Through the CaLas project we can fill specific knowledge gaps”, is Gattinger's firm view. *ta*

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Funding: Mercator Foundation Switzerland



Experts discuss the potential role of organic farming in climate change mitigation. From left to right: Christoph Sutter, South Pole (top); Markus Arbenz, IFOAM; Alberte Bondeau, Potsdam Institute for Climate Impact Research, PIK; René Estermann, MyClimate (top); Nina Buchmann, ETH; Andrea Ries, Swiss Agency für Development and Cooperation SDC (top); Andreas Gattinger, FiBL; Helmy Abouleish, Sekem.

Organic is best for the climate

FiBL Austria has conducted a carbon footprinting exercise for more than 100 foods. The results show that organic foods cause fewer greenhouse gas emissions than comparable conventional products.

Agriculture is responsible for around 10% of all greenhouse gas emissions. Including the emissions of the input industries (fertilizers, pesticides) and emissions from deforestation for the purpose of land clearance raises the figure to 17–30%.

The climate team at FiBL Austria calculated the greenhouse gas emissions of more than 100 organic products sold under the label “Zurück zum Ursprung”, which translates loosely as “tracing the origin” or “close to home” – a range of regional food products which was launched in Austria at the start of 2009. As part of the project the FiBL team developed a climate assessment model covering the entire value chain from production to retail outlet. The model is based on the international organic life cycle assessment standards ISO 14040 and 14044.

“What is new is that we also take account of effects such as humus enrichment and CO₂ storage in organic soils, or the destruction of tropical forests to grow soya for concentrated animal feed”, explains project manager Thomas Lindenthal. The emissions figures for the organic foods are then compared with those for similar conventional products.

Two different organic variants were calculated: the first meets the EU standards for organic farming, while the second goes further and meets the additional criteria of the “Zurück zum Ursprung” range. An important feature of these additional requirements is a blanket ban on soya from abroad, which prevents greenhouse gas emissions from clearance of tropical forests. Farmers also agree not to use readily soluble organic nitrogen fertilizers such as vinasse, hair meal, bone meal and

blood meal; they fertilize only with compost and legumes and thus cause relatively few nitrous oxide emissions.

All down to the organic effect

All the organic products studied cause fewer greenhouse gas emissions both per hectare and per kilogram than comparable conventional products (see table). For organic eggs and chicken meat the savings were up to 50% of those of conventional poultry products, while for low-fat milk products the savings were up to 40%.

In all cases the lower greenhouse gas emissions are due in part to the “organic effect”, which represents the combined impact



Greenhouse gases reduced by a quarter: CO₂ label on bread from “Zurück zum Ursprung”.

Greenhouse gas savings of organic products* by comparison with conventional foods

(in % CO₂-eq emissions per kg of product; conventional variant = 100%).

Product	GHG saving	Causes
Milk products (milk, plain yoghurt, various fruit yoghurts, cream, butter etc.)	10–21 %	Avoidance of imported soya in imported organic feed concentrate, organic effect**
Wheat bread	22–25 %	Organic effect**
Bread rolls/baked goods	34–42 %	Organic effect**; no doughpiece production (involving freezing and baking of pre-formed raw dough)
Outdoor vegetables (onions, carrots, potatoes, kohlrabi, peppers, tomatoes, lettuce etc., sometimes in polytunnels)	10–35 %	Organic effect**, especially avoidance of mineral nitrogen fertilizers
Eggs and chicken meat	49–50 %	Central European protein feed in place of imported soya

* Combination of EU organic and organic “Zurück zum Ursprung” standards

** Combined effect of avoiding mineral fertilizers and carbon binding through humus accumulation



More organic equals less CO₂ – Thomas Lindenthal and Theresia Markut present their findings to the media in May 2009.

of the avoidance of mineral nitrogen fertilizers and carbon binding in the soil through the accumulation of humus. The manufacture of mineral fertilizers requires large quantities of gas and oil and causes higher emissions of nitrous oxide than the use of organic fertilizers.

Award-winning FiBL study

“With this study FiBL Austria has made an important contribution to the public climate debate in Austria and has conducted the first comprehensive climate protection audit of an entire food range”, declares Thomas Lindenthal. But that is not all: in 2009 viewers of the Austrian television station ORF

and a panel of experts awarded the food company Hofer the Austrian climate protection prize for this project. *mt*

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Funding: W. Lampert Beratungsges. m.b.H. “Zurück zum Ursprung”/ Hofer KG



Green in the winter brings white flowers in the summer

Growing winter legumes as a green manure crop results in more available nitrogen for the subsequent crop and protects the soil from erosion in the spring. Just the right touch is needed, however, for this practice to be successful.

The organic farm as a closed cycle: This ideal concept poses substantial challenges to field crop and vegetable farms that do not have livestock. (All too) frequently it is necessary to buy commercial organic fertilizer from outside sources. “After experiments with maize, in 2009 we began studying how cauliflower, leek, celery and beets responded to green manuring,” explains FiBL vegetable production specialist Martin Koller. The farms are located in Domdidier, Fehraltorf, Frick, Stammheim and Wildensbuch. They got interested after the first research findings were published.

Pleasing to the eye, good for the market

“The good results were clearly evident,” according to Martin Koller. The effect of green manuring was especially obvious in the lush foliage. “The cauliflower was well-protected by the leaves, resulting in white heads.” Because many consumers prefer “attractive” vegetables, this exterior aspect is of benefit to suppliers of wholesale distributors and to direct marketers alike. Martin Koller goes on to name yet more benefits: “In previous experiences with winter legumes followed by maize, yields increased 50 to 100 percent.”

Experiments with the winter field pea “EFB 33” (a forage pea) have been in progress since 2007: “As a nitrogen collector, it is very effective in rotation with a heavy consumer, and it forms a green soil cover in the winter,” Koller explains. “Sown in late autumn and turned under in May before planting maize or a vegetable crop with high nutrient requirements, the pea serves as a nitrogen fertilizer.” As a green manure crop, the winter pea is suitable in a rotation after crops with a long growing season and prior to silage maize or winter storage vegetables (e.g. cole crops, root, bulb and tuber crops), which must be sown or planted between mid- and late May.

The winter pea is making a real comeback. In Germany and especially in France, considerable research has been conducted on the plant in the last 15 years. Thanks to its diverse uses, including as a source of biomass, it is enjoying a resurgence in popularity.

Left: Succeeded in cutting down on commercial organic fertilizer by sowing winter peas ahead of leeks: Alois Steffen, production manager at Gerber BioGreens, Fehraltorf, Zurich (right), and Martin Koller, FiBL.

Right: Winter peas are the only legume that can still be sown right up to late October.

Good for soil and climate

There is a catch to green manuring, however: “It limits the options on a vegetable farm for adapting the rotation to weather conditions on short notice. In other words, green manuring restricts flexibility.”

Depending on how the green manure crop is worked in – gentle soil cultivation with equipment such as tillers or disc harrows is practiced as much as possible – and on the weather conditions, the vegetable crop may not grow as well as it would have after winter fallowing and ploughing. “Hence green manuring is not possible in all cases for all crops on a given farm.”

Nevertheless the benefits are striking. Calculations have shown that green manuring costs just as much as the most economical organic fertilizer, but offers additional benefits such as a winter soil cover. Plus: The savings in nitrogen fertilizer coupled with gentle soil cultivation promotes the buildup of humus in the soil, which is an important nutrient pool and CO₂ reservoir. Hence green is good for both soil and climate.

jf

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Funding: Coop Sustainability Fund





Blossoming cabbage fields help beneficial insects

Cabbage crops are susceptible to pests. FiBL is investigating a new approach: putting flowering plants that attract and provide nectar for beneficial insects between the cabbage fields. The nectar of flowering companion plants such as the cornflower attracts parasitic ichneumon wasps, whose eggs and larvae destroy the pests. And the flowers look really pretty, too.

Organic farming denotes biodiversity, as numerous international scientific studies show. In comparison with their conventional colleagues, organic farmers do significantly more to benefit biodiversity. Depending on their altitude, organic farms have between 46 and 72 percent more near-natural land and are home to 30 percent more species than farms not managed organically. As a result of the lower intensity of cultivation and the greater proportion of near-natural land, many rare and endangered plant and animal species occur on organic farms. Encouraging biodiversity remains one of FiBL's key research topics.

Up close among the pests

Biodiversity is not just important for its own sake; it is also useful, for example in pest control. Various species of ichneumon wasp lay their eggs in or on the bodies of pests; the larvae then develop at the expense of the host insect and destroy it. "We have clear indications that deliberately planted wildflower belts not only bring about a significant increase in general biodiversity – they also increase the parasitization rate of pests. They can thus prevent crop failure and reduce the use of plant protection products," explains Oliver Balmer, coordinator of the FiBL biodiversity projects. However, the effect of the wildflower belts falls sharply with increasing distance.

For this reason the researchers are going a step further. "With suitable plants sown right in among the crop, beneficial insects will be attracted as close as possible to the pests." In this way pest numbers should continue to fall.

Laboratory tests are being carried out to find out which plant species best encourages the parasitoids. Among the favourites are cornflower (*Centaurea cyanus*), common buckwheat (*Fagopyrum esculentum*), common vetch (*Vicia sativa*) and bishop's flower (*Ammi majus*). Cornflowers are being sown in field trials on Swiss organic farms. The aim is to discover which parasitoids occur and how often, and how companion plants encourage their occurrence and their parasitization effect. In order to determine which species are involved and the parasitization rate, FiBL is carrying out DNA analysis (polymerase chain reaction, PCR) in its own molecular laboratory.

The initial results show that pests in areas with cornflowers were indeed more heavily parasitized than in areas without flowers. Thus the cornflower is contributing to enhanced natural pest control.

Further field trials have already shown that companion plants in cabbage fields do not harm cabbage growth or yield; this is a key issue for farmers. When harvested, cabbages from the areas with companion plants weighed on average the same as those from areas without companion plants. Suitability for practical use seems assured. *jf*

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Funding: Swiss Federal Office for the Environment, Bristol Foundation, Ernst Göhner Foundation, Parrotia Foundation, Stiftung zur internationalen Erhaltung der Pflanzenvielfalt, Werner Steiger Foundation, Bank Vontobel Charitable Foundation, Singenberg Foundation

① The ichneumon wasp (*Microplitis mediator*) lays its eggs in the caterpillar of the cabbage moth (*Mamestra brassicae*). Parasitized caterpillars cause less feeding damage to cabbage leaves. ② PhD students Céline Généau (left) and Élodie Belz breed cabbage moths and ichneumon wasps so that they can carry out specific tests. ③ They use laboratory tests to find out which flowers are preferred by ichneumon wasps but avoided by cabbage moths. ④ The cornflower (*Centaurea cyanus*) has proved particularly valuable. ⑤ There was significantly more frequent parasitization of cabbage moth larvae in the cabbage fields with cornflowers than in those without cornflowers.



1



2



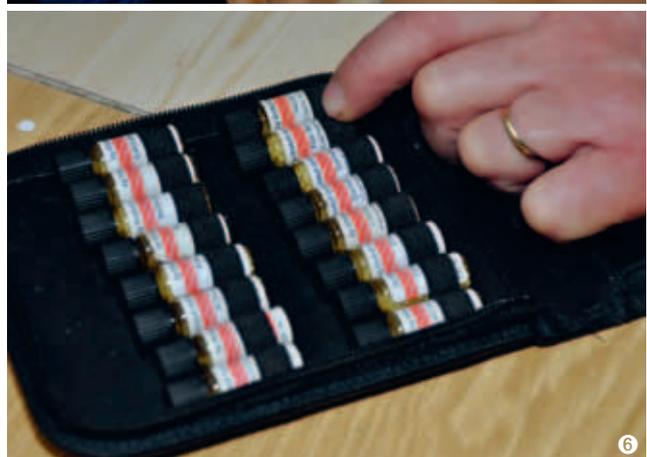
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4



5



6

① FiBL carries out an experimental study on the Wauwilermoos fen in Lucerne. One half of the herd is given concentrated feed while the other half is not. ② FiBL vet Pamela Staehli tests the structure and smell of the feed with farm manager Franz Gut. ③ She rinses dung samples and can assess the animals' ability to chew the cud from the residual feed fibres. ④ The vet records body condition by means of a standardized method, the Body Condition Score (BCS). ⑤ Tests during pregnancy and ovarian examinations provide information on the fertility of the herd. ⑥ When problems arise homeopathic remedies are used: all courses of treatment are recorded.

“Feed no Food”: grass and hay, not concentrate for cattle

To increase performance, nowadays most dairy cows are given feed concentrates consisting of grain and protein sources. However, the initial results of the “Feed no Food” project confirm: With a feed programme adapted to the animal and the production conditions, it is possible to slash or even eliminate concentrate consumption.

A third of the world’s grain harvest is fed to livestock. According to project leader Christophe Notz, “The goal of ‘Feed no Food’ is to develop solutions for sustainable organic dairy and beef production. It should fulfill the needs of ruminants, establish fair terms for producers in the developing and industrialized countries alike, and be climate friendly.”

80 farms from Graubünden to the Jura Arc in collaboration with a nine person research team are participating in the dairy and beef production trial, in which few or even no feed concentrates are being fed. Obviously maintenance of animal health is the key criterion determining the scope for doing away with feed concentrates. The project farms have more animals than average; the milk production level is 4500 to 6500 kg.

Healthy and productive

Since the summer of 2009, the FiBL researchers have been conducting an experimental study on the Wauwilermoos farm in the canton of Lucerne. In this study, half of the cow herd is being fed as before with the maximum ten percent concentrate allowed under Bio Suisse standards, whereas the other half is receiving no concentrate. Christophe Notz is very pleased with the initial results: “The cows consuming only roughage are just as healthy as the cows receiving a concentrate supplement. Nor are there any discernible differences in average body fat percentage and milk constituents.”

Only six cows, or 15 percent of the “subjects”, had to be taken out of the study. This was because their metabolism was unable to adapt sufficiently to the new ration and too many

body fat reserves were being consumed. They are now eating as usual and are still under observation. The Wauwilermoos experiment enables a direct comparison of both groups and forms the basis for the second part of the project, namely its implementation on the 80 participating farms, which will take until the end of 2011.

Goal: individual feeding

‘Feed no Food’ enables a thorough analysis of the participating herds. As Christophe Notz explains: “The goal is to feed each cow individually, as her productive capacity and her health require.” It is hence possible to reduce the overall use of concentrates.

The FiBL researchers already know what questions will arise after the analysis of the experiment, namely those regarding productive capacity and breeding. “We need metabolically stable cows that are able to perform well, remain healthy, and hence have a long productive life on the basis of the roughage produced on-farm,” Notz explains. And he knows: “There are cows like that in nearly every organic stall.” It is thus a matter of finding them and using them as breeding stock.

Christophe Notz and his team have a clear vision: “Sustainable dairy farming starts with feed production. The feed preferably comes from Switzerland, is ideally produced on-farm, and consumed on pasture by the animal as much as possible. And any concentrate that is fed should not need to be imported.” *jf*

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Funding: Coop Sustainability Fund, participating farms



Pigs in clover are lucky pigs

Surely clover and pigs have scarcely ever been brought together in greater style. The combination of the two good luck symbols could turn out to be a stroke of luck for organic pig production, as a FiBL Austria project shows.

“Why not make more use of those plants that are part of a well-balanced rotation on every organic farm for fattening pigs?” This was the fundamental idea behind the “Pig in Clover Project” (Kleeschweineprojekt), conducted by Reinhard Gessl and Gwendolyn Rudolph of FiBL Austria in collaboration with the Bio Schwein Organic Pig Producers Association.

Soya stifles alternatives

Astonishingly, thus far there has been hardly any scientific research on feeding clover to pigs. Gessl thinks this is probably a consequence of the omnipresent and economic soya bean. Furthermore, pig growers are afraid of poorer performances and additional workloads. Nevertheless farmers are reporting that pigs like to eat clover, both fresh and as silage, and are thriving on it.

On eight organic pig farms in Lower Austria, Gessl and his team investigated whether feeding clover silage and dried lucerne is economically promising, how the additional workload can be managed, and whether “clover pork” fulfills the quality standards.

Three feeding groups were compared with each other on each farm: The first group received clover silage, a second group received ground lucerne pellets mixed in with the roughage, and the fattening pigs in the third group had to content themselves with the “home cuisine,” i.e. the normal masting feed on their respective farms. Each experimental group comprised at least 15 piglets, in which a balanced sex ratio was maintained. The piglets were weighed for the first time shortly before being put in pens; the average weight was 35 kg. Second weighing took place shortly before the slaughter date.

The following effects of the different feed regimes were analysed and statistically evaluated: feed consumption, daily gain, fatty acid composition and lean meat component of the carcasses.

Plus points for clover and lucerne

The results surprised Reinhard Gessl: “Compared to the control groups, the groups that were fed clover silage and lucerne pellets achieved higher average daily gains while simultaneously consuming less feed in all cases.” Nothing like this would have been expected based on the few experiments conducted in the past, according to Gessl.

The fears that performance could decline from feeding clover silage and lucerne pellets never materialized. Additional plus points: It was possible to save on expensive feed concentrates, thereby lowering costs, particularly in the final fattening phase, and avoiding the risk of adiposis. Furthermore, any form of roughage feeding represents a gain in animal well-being: thanks to the additional opportunity to occupy themselves, problems such as tail biting decline sharply. In the experimental groups fed clover silage, the participating farms reported that such problems never occurred in the first place.

The fatty acid analysis revealed a better fatty acid composition in terms of nutritional physiology. The roughage groups consistently averaged better than the control groups in terms of lean meat components as well.

Along with all of these positive study results, Gwendolyn Rudolph was particularly pleased with some special news: the participating organic farmers wish to continue feeding clover and lucerne after the end of the project. *ek*

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Funding: the provincial government of Lower Austria

Cooperation partners: EZG Bio Schwein Austria, LFZ Raumberg-Gumpenstein, CRA-Unità di ricerca per la suinicoltura, Bio Austria Lower Austria and Vienna

Prejudices dispelled: Gwendolyn Rudolph (FiBL) and Hubert Stark of the Bio Schwein Organic Pig Producers Association.

Two-fold improvement of animal health through breeding

Cutting-edge technology plus practical consultancy – two routes to improvement of animal health via breeding. FiBL is investigating ways to improve functional traits by means of genome selection on the one hand while taking a close look at breeding strategies and site suitability on 99 dairy farms in the canton of Graubünden on the other.

Breeding values for genome selection are calculated directly from the genetic data on the animal and no longer need to be derived from bloodlines. It is thus possible to know whether an animal possesses desirable genetic material at birth. Organic farmers also hope to take advantage of this acceleration of the breeding process. In the scope of the “LowInputBreeds” breeding project, FiBL and various international research partners are collaborating on the phenotyping of Braunvieh cows for traits related to health.

Starting in the autumn of 2009, around 1200 Braunvieh cows on 40 farms will be studied over a two year period and genomically analysed by 2012. “Our objective is the improvement of animal health through breeding,” explains Anna Bieber, who is in charge of the on-farm sampling, “and to this end, we need to know the functional traits of as many animals as possible.” Such traits include, for example, incidence of hoof diseases, changes in body condition and back fat thickness during lactation as indicators of metabolic stability, milkability, udder depth, and teat conditions of the animals, as well as traits such as temperament.

Intensive breeding programmes focus on production traits such as milking performance. In this case, however, the question is whether traits that cows need in less intensive manage-

ment systems such as organic agriculture can be improved by genome selection.” The prospects of genome-based selection are great,” says Anna Bieber. “Now we need to test whether the theoretical assumptions are valid on the basis of actual data from the real world.” – There is still a long way to go.

Two out of three site-appropriate

The Biozucht Graubünden organic breeding project, which was conducted together with the LBBZ Plantahof agricultural teaching and extension centre and its livestock management consultants, has since been concluded. Based on the hypothesis that livestock health is also strongly dependent on whether the livestock types are adapted to the operation types and the site, 99 Alpine organic dairy farms were analysed and advised accordingly. “There is more than just one suitable organic cow type, and our breeding must always be species- and site-appropriate,” emphasises project leader Anet Spengler-Neff. The analysis showed that 61 of the farms have cows that are well-adapted to the given site. These animals have fewer fertility problems and require less veterinary treatment. These farms have optimum feeding programmes under which the cows receive only the highest quality roughage. The rest is fed to young animals, sheep and goats. “This speaks in favour of biodiversity on a farm,” concludes Anet Spengler-Neff.

Going with the site instead of seeking maximum performance: Anet Spengler exhibited animals from organic farms in the Grisons region, where livestock are bred to match site conditions, at the 2010 Agrischa cattle show.





Top: Farmers know the animals' health status and temperament best.



Left: Anna Bieber measures the back fat thickness of the cows. From changes during lactation, she is able to deduce how an animal responds to a changing feed programme.

oriented manner and to purchase only those specific feed components that are lacking on the farm. If cows are expected to maintain high production and remain healthy, optimum fulfilment of the energy requirement is especially important in a feeding programme. For farms not wishing or not able to feed so intensively, Spengler-Neff recommends breeding for dual purpose (average milk production, average size with well-developed musculature). A pamphlet on organic dairy cattle breeding in Alpine regions based on the results of the Graubünden Project concluded in 2010 is in press. *jf*

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Funding: LowInputBreeds Project: EU. Other partners: Schweizer Braunviehzuchtverband, Swissgenetics, University of Göttingen, Applied Genetics Network

Dairy cattle breeding in the canton of Graubünden: Amt für Landwirtschaft und Geoinformation GR, Berghilfe Schweiz, Soliva-Stiftung, Schweizer Braunviehzuchtverband, Swissgenetics, Bruna Grischuna

Internet: www.biorindviehzucht.ch; www.lowinputbreeds.org

Two improvement strategies

Twelve farms are not maximising their potential for milk production. On 38 of the farms, however, the conditions did not fulfil the needs of the cows. Consulting takes one of two approaches: either the feeding programme must be optimized for the same milk production, or else milk production must be lowered through selective breeding. “The important thing is to follow one of the two strategies consistently,” Spengler-Neff emphasises.

For farms wishing to maintain production level, the recommendation is to use farm-grown roughage in a performance-



Sheep raising: reducing worm infestations with forage clover and the right breed

In the scope of the European “LowInputBreeds” project, FiBL researchers are investigating ways to reduce worm infestations in sheep. They hope to achieve this goal with suitable breeds, proper feed choice and pasture management.

Gastrointestinal worms are common in sheep, and an infestation is very hard on the animals: they suffer from anaemia and become listless. Along with these serious health problems for the animals, economic disadvantages arise for the shepherds, as the animals are slower to reach their slaughter weight. Although treatment with chemical/synthetic wormers is an option, the worms are developing resistance. “That is an enormous problem worldwide,” stress Felix Heckendorn and Steffen Werne, who are conducting research on alternatives.

The worms being studied are known as gastrointestinal strongyles. The adult worms live in the gastrointestinal tract of sheep. The female worms produce eggs, which are excreted with dung and develop into infectious larvae on the pasture. These larvae migrate from the dung and are picked up by the grazing animals.

Engadine sheep seems hardier

The study is based on the hypothesis that when sheep are bred solely for fattening performance, key functional traits such as disease resistance are sacrificed. The goal of the FiBL study and of another one in France is in each case to compare an old sheep breed that has not been intensively selected for fattening performance (e.g., Engadine, Blanche du Massif Central) with a modern breed that has been more intensively selected for meat production (e.g., white Alpine, Limousine). “Preliminary FiBL studies in 2007 and 2008 indicated that the Engadine sheep is less susceptible to worm infestation,” explains Felix Heckendorn.

Scientific proof sought

This trend is likewise confirmed in the current study. Both of the breeds are being managed identically, are grazing on the same land, and the animals are the same age. Because there are hardly any differences other than the breed, conclusions about worm infestation can be drawn on the basis of the differences in the parasite eggs excreted.

Seeking alternatives to chemical/synthetic wormers for sheep: Steffen Werne is researching the influence of raising sheep on Alpine pastures, and is helping to optimize the practical feeding of bioactive fodder plants. Furthermore, he is looking for sheep breeds that are inherently less susceptible to gastrointestinal worms.

In the second part of the study, the researchers hope to learn whether raising sheep on Alpine pastures leads to reduced worm infestation compared to raising sheep on lowland pastures. “It is possible that there are fewer parasites at higher altitudes,” theorizes Heckendorn, “because it is colder, the growing season is much shorter, and the pastures are much larger in area.” The aim of the FiBL study is to quantify the magnitude of this effect scientifically for the first time.

How to feed sainfoin?

The third part of the project relates to sainfoin, an heirloom forage legume. Various studies have already demonstrated the beneficial effect of this plant against worm infestation. Felix Heckendorn wrote his dissertation on this topic and therefore knows: “It is possible to reduce egg excretion by as much as 60 percent.” As yet there has been too little research on the practical aspects of feeding sainfoin. What percentage of sainfoin is needed in the forage? Is mixed feed practical, or would repeated feedings as a worm treatment be better? Due to the development of resistance to chemical/synthetic wormers, conventional shepherds are also eagerly awaiting the results.

jf

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Funding: EU

LowInputBreeds, an EU-funded project involving a consortium of institutes, aims to enhance animal health and product quality in European low-input and organic livestock husbandry by means of breeding schemes and improved management techniques. The teams of scientists involved in the project are based in 14 European countries. Together with its partners, FiBL is working on three issues: improving the functional traits of dairy cows by means of genome-based selection (see page 22), controlling parasites in sheep by selecting more robust breeds, feeding tannin-containing forage and improving pasture management (this page), and selecting and breeding laying hens suited particularly to free-range management.

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coop naturap
Bio Chäschüechli
Ramequins au fromage bio
Tortine al formaggio bio
230g

coop naturap

naturap
0
nflak

E-numbers: less has always been more

In organic food processing, only a few additives are allowed – as few as possible and as many as necessary is the fundamental principle. In Germany and in Switzerland, FiBL and processors are jointly re-evaluating the approved materials and proposing alternatives.

More than 400 additives are approved for use in conventional food processing, whereas only 47 are allowed under the EU Organic Regulation, only 31 under the Bio Suisse Bud label and 24 by Demeter.

E 412, E 440, E 410 – guar gum, pectin, carob gum: these and other additives are also found in organic foods. Among other things, the goal of the food additives project is to support the organic food industry in its efforts to produce organic products with as few additives as possible, to promote the use of organic quality additives of agricultural origin (such as soy lecithin or carob gum), and to evaluate practical alternatives to the use of additives.

The whole food industry benefits

The overall goal is thus to reduce the number of additives used for organic foods. Advantages and disadvantages are pointed out to the processing operations.

“If the advantages of an alternative outweigh the disadvantages, we recommend that the EU promote the alternative,” explains Ursula Kretzschmar of FiBL Switzerland. She stresses: “The conventional food industry also benefits from our work. Experience has shown that functional alternatives are being used more and more for conventional foods too.” Hence acerola cherry powder is now used as a substitute for ascorbic acid (vitamin C) in conventional zwieback as well.

The evaluation dossiers for each individual additive, including analysis of the expert survey of German and Swiss processors, will be compiled in the course of 2011. The survey covers the entire gamut of food products from cereals and cereal products, spices, herbs, meats and sausages and dairy products, to oils, vinegars and alcoholic beverages.

High quality requirements

“The product diversity in the organic sector makes the use of additives necessary,” emphasises food scientist Ursula Kretzschmar. “Nevertheless some materials are used in the organic sector that, while of natural origin, are not of organic quality. There is scope for improvement here.” This means using organic guar gum, organic pectin, or organic carob gum.

“Our mission is to show the processors alternatives and make recommendations.” The requirements for the alternatives, however, are high: they must not have any disadvantages for the final product. Taste, preservability and consistency, for example, must not be compromised in any way.

Ursula Kretzschmar has one wish for the future: “More independent products with their own sensory profiles need to be developed in the organic sector, products more in line with the principle of minimal additive use.” All too often conventional food products are simply being copied. *jf*

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Funding: German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)

Ursula Kretzschmar with organic products that are processed with as few additives as possible. These “Chäschüechli” (little cheese quiches), for example, are produced without emulsifiers.

Win-win-win packaging for organic produce

A new guideline on sustainable packaging of organic foods is helping businesses in the organic sector to identify suitable packaging solutions for their products. FiBL produced the guideline together with the German Federation of the Organic Food Sector (Bund Ökologische Lebensmittelwirtschaft, BÖLW), the BLQ food science and quality consultancy and the consultant Ralph Weishaupt. We spoke to the project manager, Alexander Gerber of BÖLW.

Herr Gerber, why does the organic sector need guidelines on packaging?

An organic product should be totally “green” – that includes the packaging. However, food packaging has to comply with a lot of requirements: from an ecological perspective it should above all be produced in an environmentally sound way and should be easily disposable or recyclable. On top of that it has to offer optimal protection to the product, there should be no contamination of the product from the packaging itself, it is used to carry information and advertising, it should be easy



FiBL maintains a proven partnership with BÖLW, the German Federation of the Organic Food Sector, represented by its managing director Alexander Gerber (photo). The packaging guideline is a further project exemplifying this excellent cooperation:

FiBL Switzerland contributed its expertise in food quality and processing to formulate packaging criteria and assess individual packaging materials, while FiBL Germany provided editing and design services. BÖLW, in its capacity as the national umbrella federation of producers, processors and retailers of organic foods, guarantees relevance to the players in the sector and thus to the users of the guideline.

to handle and its contribution to the overall costs should be reasonable.

Is it possible to combine all those things in a true win-win-win solution?

One can well imagine a conflict of aims! A lot of the information that allows comparisons between different types of packaging, such as data on the energy consumed in the manufacture of a packaging material and environmental audits, can only be accessed with difficulty or not at all. This is why there is considerable interest among many organic producers in an aid to choosing packaging. Small and medium-sized processing firms in particular are grateful for support, because packaging experts are mostly only to be found in large companies.

And so the guideline can now provide every company with the best packaging solution for every product?

Unfortunately it's not that easy! We can't provide a “decision tree” leading to the best packaging; the requirements are too complex for that. There is always a different solution for packaging every organic food. The individual criteria must be weighed up and an appropriate balance struck.

So how can the guideline help companies to choose their packaging?

The main thing is that the guideline provides a wide range of information in a compact format. It sets out the statutory framework conditions, lists the relevant criteria and offers suggestions for evaluating them. Furthermore, it presents the most commonly used packaging materials and provides a rough evaluation of each one. A checklist helps to take all the relevant issues into account during the decision-making process. In addition the guideline references numerous sources of information for further research. Lastly, it showcases examples of how companies have arrived at their decision to use a particular packaging, what limitations they encountered in the process, how they resolved conflicting aims and how they developed brand new packaging solutions.

So the guideline can answer many, but not all, questions about packaging. In which areas do you think that more research or more action is needed?

The information situation regarding individual types of packaging is often unsatisfactory. We need more transparency about this. Likewise, there is often a lack of adequate information about environmental assessments of the complete lifecycle of a packaging. The best idea, after all, would be to have a dynamic databank on all packaging materials, which could be constantly updated and which could be used to narrow down packaging alternatives on the basis of weighted criteria.

Interview: *cb*

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Funding: Federal Organic Farming Scheme

The Lobetal Organic Dairy's yoghurt pot is made from 50 percent chalk (calcium carbonate); thus oil, which is a finite resource, is replaced by something that occurs in abundance in the European countryside. As the plastic used for the pots and lids is also thinner than for comparable pots made of polypropylene (PP) or polystyrene (PS), a 20 percent weight reduction is achieved for the 150 gram pot. Moreover, energy costs are around 15 percent lower.

The Lobetal Organic Dairy, with its innovative packaging concept, is one of the case studies presented in the packaging guideline.

An issue in Switzerland as well

FiBL Switzerland and Bio Suisse are also focusing their attention on the requirements for sustainable packaging for organic products, and are tackling this complex subject in the most practical way possible: the licensees mainly need practical assistance and motivational examples instead of new guidelines and regulations.

Packaging for milk, yoghurt, salads and drinks that is available on the market was compared using defined criteria. The results – and therefore the best packaging solutions – will be published in spring 2011.



Kathrin Seidel, FiBL

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Sustainability: Even organic agriculture can do more

Anyone who thinks that organic agriculture is perfect needs to think again. FiBL, too, has recognized the signs of the times. An interdisciplinary group of around a dozen experts is working on ways of improving the ecological, economic and social sustainability of organic farming. Of course such work soon strays into the political arena.

No farming system is one hundred percent organically sustainable. Organic farming performs well on account of its largely closed farming system and avoidance of mineral fertilizers, chemical and synthetic pesticides and genetic engineering, as well as by adapting livestock numbers to local conditions. But even in organic farming there is still room for improvement. In addition, conventional and integrated production systems are increasingly attempting to present themselves as meeting some sustainability requirements. This puts organic agriculture under pressure, some of it political.

Competence centre for sustainability analysis

FiBL has recognized these signs of the times and is developing into a competence centre for sustainability analysis. An interdisciplinary team of specialists from the fields of climate research, soil fertility, biodiversity, social agriculture, animal welfare, genetic engineering, socio-economics and policy impact assessment represents a formidable array of knowledge which is to be brought together for the purpose of improving the ecological, economic and social aspects of organic agriculture.

“At the end of the day the aim is to ensure that the social benefits of organic agriculture for the environment and the general public are provided to the taxpayer at a fair price”, says socio-economist Christian Schader, who has written a dissertation on this very subject – the cost-effectiveness of environmental services.

New incentive systems for organic farms

If organic agriculture is to become even more sustainable, what does that mean for organic farmers? “As an alternative to new standards we are developing positive incentive systems”, explains Christian Schader. These include, for example, new opportunities for certification in connection with climate protection and biodiversity. Farms and processing businesses that perform particularly well in these areas will in future be able to generate added value from this.

Does this mean that consumers must brace themselves for a flood of new labels? “No. We are considering new marketing options for the trade.” A wholesaler or retailer who wants to become known as a seller of climate-neutral products will

be able to rely on corresponding certification systems. At a time when direct payments for organic agriculture are coming under political pressure, this remuneration for additional services via the market is an attractive proposition for many farms and businesses.

Organic subsidies? – It's the combination that matters

Since the early 1990s organic farms have received state subsidies for their environmentally friendly farming methods. In a number of European countries, including Switzerland, organic agriculture is now having to fight against cuts in these payments.

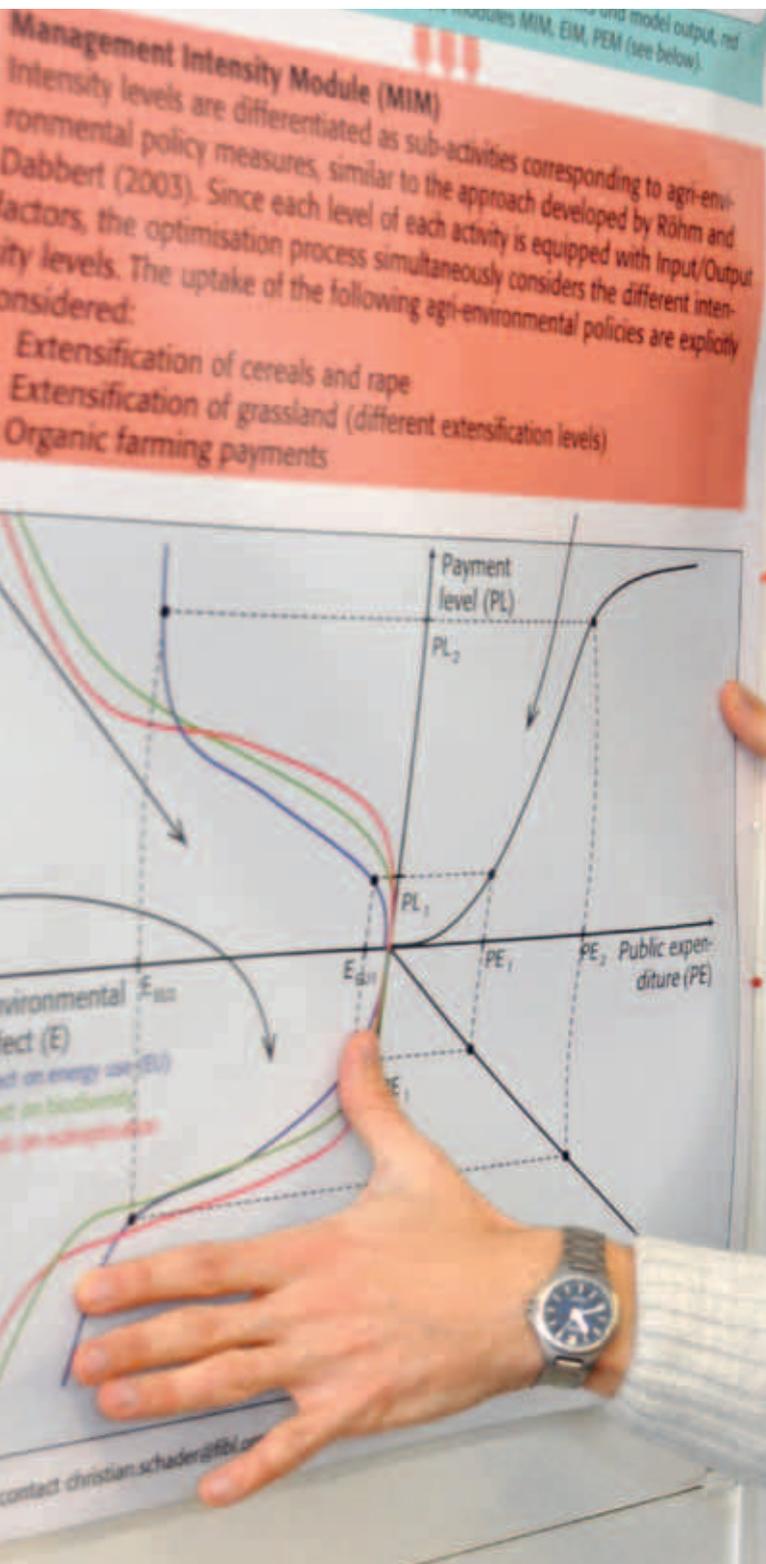
Christian Schader has demonstrated in his dissertation that the planned cuts are based on incorrect interpretation of an important economic principle. A cornerstone of agricultural policy is application of the principle known as the Tinbergen Rule, which states that for economic policy to be efficient there must be at least one policy tool for each policy target; if there are fewer tools than targets, then some policy goals will not be achieved.

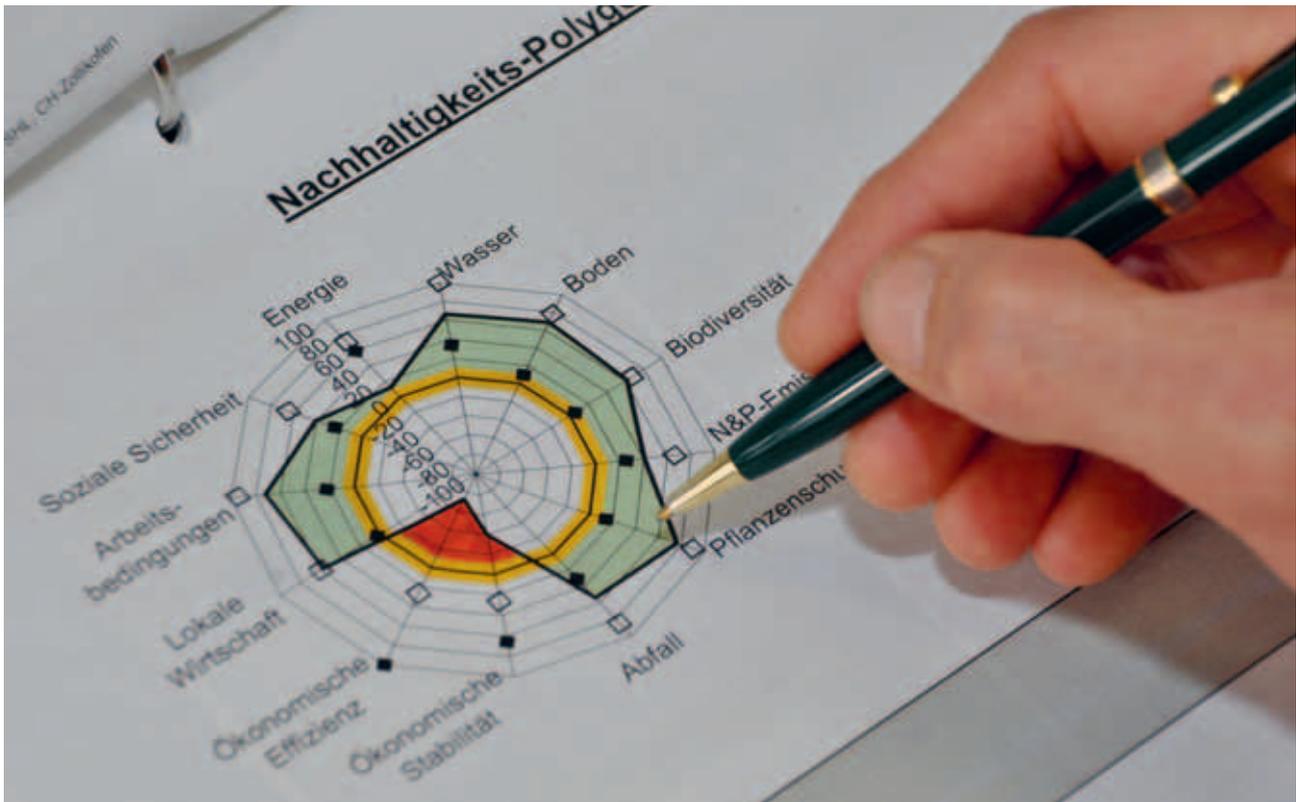
“This approach appears at first glance to be incompatible with a systemic support scheme that pursues a number of environmental goals simultaneously, but it can be shown that the Tinbergen Rule is not a sufficient argument against political promotion of organic agriculture”, maintains Christian Schader. It is the combination that matters. “Promotion of organic farms, supplemented by individual measures specifically targeted at policy goals, is very efficient. We should utilise these synergies.” *jf*

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Funding: Gerling Foundation, Swiss National Science Foundation, Coop Sustainability Fund

Christian Schader is head of sustainability analysis at FiBL.





The results of the RISE analysis are presented as a spider diagram. It describes sustainability using twelve indicators. There is good sustainability if all are in the green zone. The diagram shows the average farm in the project region and the main problem areas: high labour costs lead to greater mechanization, which in turn leads to high energy consumption. Because of low milk prices economic stability and efficiency are often in the red zone.

RISE: a spider chart explains sustainability

Am I managing my business sustainably? How can I improve productivity and increase energy efficiency on my farm? Any farmer in northwest Switzerland asking himself or herself these questions is very probably taking part in the “RISE” sustainability evaluation. As a result of the evaluation a farming business may be turned on its head.

There are 520 farming concerns in forty-seven villages in the “Dreiklang” district, a region of northwest Switzerland bounded by the Jura Mountains and the rivers Aare and Rhine. By the end of 2011 FiBL is going to examine 150 of these businesses for their sustainability and offer advice to the farming families. RISE takes its name from the evaluation tool developed by the Swiss College of Agriculture; the initials stand for Response-Inducing Sustainability Evaluation.

Poor profitability

Andreas Thommen from FiBL makes an initial visit to each farming family to ask some questions. The farm managers give detailed information about the business, from fertilizer balance through energy and water consumption, plot rotations and waste management to workload, insurance matters and succession planning. The analysis of the questionnaire produces a spider diagram (see illustration) which shows where the strengths and weaknesses of a business lie.

After visiting around forty farms Andreas Thommen makes a sobering interim assessment: “The average diagram reflects Swiss agricultural policy, which is heavily geared towards ra-

tionalization.” This results in the high, sometimes excessive, degree of mechanization of businesses, which contributes to a poor energy balance, relatively high debts and thus to poor profitability. Of course Thommen also encounters businesses which are successful economically, ecologically and socially.

The need for action for areas in red

However, the majority of businesses are experiencing problems, a fact that cannot be brushed under the carpet. The separate sustainability areas are assessed and colour-coded in green, amber and red according to the principle of traffic lights. The areas in red represent the largest and most urgent deficits – and mostly have the greatest potential for improvement – so Andreas Thommen concentrates on these areas. For example, a farmer will be advised to convert from milk production to more extensive suckler cow husbandry and to cover the financial shortfall by starting to grow soft fruit and vegetables. Another option would be to move over to keeping chickens for eggs and meat. Alternatively, possibilities for a second source of income are discussed.

It is not only intact biodiversity on the farm that makes a business sustainable: healthy finances and the opportunity to go away on holiday are also factors. Compared with the average wage in all economic sectors the income of farming families is in the dark red area.

Poor economic sustainability, one can assume, also reduces ecological and social sustainability. *jf*

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Funding: Aargauer Biobauern, Aargau canton NRP (New Regional Policy), Bio Suisse

Andreas Thommen (right) discusses the results of the business analysis with the Gämperle family at Wegenstetten plc. Possibilities for improvement are explored together.





Romandy: extension is the pivot of knowledge transfer

The value of FiBL work is greatest when the research findings can be put into practice right away. Rapid knowledge transfer is one of FiBL's strengths. Work under way in western Switzerland exemplifies how information on organic agriculture reaches the farmers.

Research – extension – training. FiBL's mission throughout Switzerland is attracting particular interest in Romandy (the western, French-speaking region): Organic products are gaining popularity among local consumers, yet although some farms are converting to organic production, the number is still too low. The potential for organic arable farming in western Switzerland is great – and the Swiss organic market would be reliant on it.

Coordinated cooperation

Maurice Clerc, FiBL coordinator in Romandy, places great value on cooperation. In Romandy, organic consultants work closely with cantonal extension agents. “They are already strongly committed to organic farming; together we will make great strides,” Clerc is convinced. FiBL, cantonal extension agents, the Swiss research institutes Agroscope and the advisory organization Agridea are sharing their experiences and coordinating activities in two workgroups: one for general organic farming questions, and the other for specific arable issues. Part of these activities are on-farm studies, which only a few years ago were almost exclusively conducted in the German-speaking region of Switzerland.

Success with intercropping

Some studies are devoted to mixed cultures of peas and cereals. This is a hot topic, as far too few protein crops are grown in Switzerland to cover the national need for feed protein. More than 80 percent of the conventional protein feed is imported, and the percentage for organic feed is even higher.

Mixed cultures have stimulated much interest among the organic farmers in Romandy. “Research, extension, and training interconnect in this project,” explains Maurice Clerc, who is counting on numerous organic farms starting to grow mixed crops over the next few years. Here too the priority is cooperation: Agroscope Changins Wädenswil (ACW) has provided key knowledge and impetus, and is conducting its own studies that complement the on-farm studies very effectively.

There have also been positive experiences with field visits in western Switzerland. Although they are organized for conventional farmers, special attention is nevertheless given to organic techniques. According to Maurice Clerc, “This type of knowledge transfer breaks down prejudices and establishes worthwhile contacts with conventional extension agents.”

Public policy for organic upswing

Organic agriculture is being promoted by policy-makers in the canton of Vaud. As a result of the revised Agriculture Act, during the first five years farms in conversion to organic production receive financial aid in the event of large crop shortfalls, among other benefits. The experts agree that the German-speaking cantons are likely to follow this example. The inclusion of this article in the Agriculture Act is a testament to the tenacity and persuasiveness of FiBL, the cantonal organic association Bio Vaud and the organic consultants. *jf*

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Intercropping study funded by: Bio Suisse, Canton Aargau, Canton Zurich, Otto Hauenstein

① *Practical organic research in western Switzerland: FiBL consultant Maurice Clerc (left) is co-ordinating trials in Romandy, and Josy Tamarcaz (Agridea [the Swiss Association for the Development of Agriculture and Rural Areas] Lausanne) is in charge of the extended trial at Mapraz Farm in Thônex, Geneva.*

② *Olivier Eberhard (La Sarraz, Vaud), ③ André Horisberger (Chavannes-le-Veyron, Vaud) and ④ Thomas Hauser (Chésereux, Vaud) are investigating alternatives to deep ploughing on their farms. The aim is to compare trials of reduced cultivation on different soil types. ⑤ Jean-Marc Bovay (Démoret, Vaud) is testing devices for weed control in fodder-beet. ⑥ René Stalder (centre) is working with FiBL to carry out trials of mixed planting on his farm at Vandoeuvres in Geneva.*

First make sure of the market, then go organic

To improve groundwater quality the government of Lower Franconia (Bavaria) has launched the initiative “Protecting groundwater by farming organically”, with the aim of expanding organic farming in the region. The initiative is based on partnership and cooperation between farmers, processors, traders and advisors.

The FiBL initiative “Protecting groundwater by farming organically” has been running in the Bavarian district of Lower Franconia since 2007. The provision of advice and information is intended to help farmers take the initial decision to convert to organic management. However, the initiative goes further: it also provides help with marketing, placing particular emphasis on regional cooperation between producers, processors and traders, with specific services tailored to each sector.

“We try to stimulate initial interest among farmers and to overcome any reservations they may have about organic farming by providing information,” explains project manager

Robert Hermanowski of FiBL Germany. Farmers can obtain first-hand information about the opportunities and challenges of organic farming at events held on organic farms. Interested farmers receive further details about ways to get advice or about marketing opportunities. Those who are considering converting to organic methods are invited to visit successful farms and are offered advice on planning and undertaking the conversion.

Integrating processing and marketing

“First the market, then production” runs one of the campaign guidelines. “Farmers interested in converting to organic methods have to know how and where they will subsequently be able to market their organic produce,” stresses Hermanowski. In accordance with this, the main aim of the campaign is to connect the stakeholders on the ground and bring market partners together. The campaign organizers are working with processing and retail businesses in the region to devise strategies for regional distribution channels. “We want to develop the market cooperatively and involve stakeholders in the region in implementing all the measures we are planning,” says Hermanowski.

The initiative is having measurable success: the information events at organic farms are always very well attended. The demand for advice on converting to organic methods has risen by around 80 percent since the beginning of the campaign. The rate at which farmers are making the change is also considerably higher than in neighbouring regions: between 2006 and 2010 the number of organic farms in Middle Franconia rose by six percent and in Upper Franconia by nine percent, while growth in Lower Franconia stood at 36 percent. “In the next two years we want above all to support farms in the process of converting to organic methods and to expand regional marketing,” explains Hermanowski. “In addition we want to develop groundwater conservation plans that are also applicable to conventional farms and to examine how the initiative can be extended to other regions. We are confident that the campaign could be a prototype for the whole of Germany.” *cb*

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Funding: Government of Lower Franconia

Further information: www.aktiongrundwasserschutz.de

Scepticism is soon overcome – what participants say



Bernhard Schwab, Ministry of Food, Agriculture and Forestry, Bamberg: “It was right to try to persuade farmers not just with pamphlets and presentations but with visits to successful organic farms.”

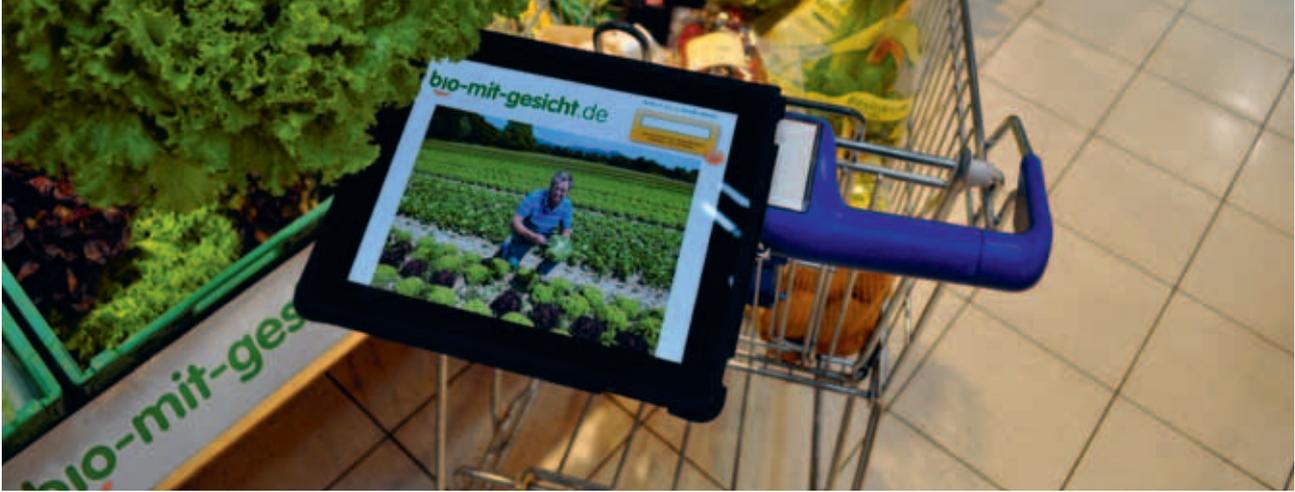
Werner Vogt-Kaute, Naturland advisory service: “The initiative has drawn attention to the possibilities for converting to organic methods.”



Manfred Weller, Bioland advisory service: “We have been able to mesh closely with the other activities of our association, for example by arranging Bioland group meetings on practical training days.”

Axel Bauer, Government of Lower Franconia: “We were initially sceptical about whether we could get through to the farmers. It is now so successful that we are contemplating using the practical training days and specialist events for measures to be taken on conventional farms as well.”





Seeing where goods come from as you shop: this trolley of the future will make that possible.

The faces and stories behind the products

By visiting www.bio-mit-gesicht.de and entering a number, consumers can find out where organic products come from and how they are produced and processed. The idea for this “organic face-to-face” scheme was born out of a research project.

Two research projects within the German Federal Organic Farming Scheme (Bundesprogramm Ökologischer Landbau, BÖL) formed the starting point for Bio mit Gesicht GmbH, the operator of the Internet platform. The projects laid the foundations for traceability at the various stages with regard to content and technology. From this was developed idea of using traceability data to communicate with consumers via the Internet.

More than 800 businesses are already on board

With the “Bio mit Gesicht” number printed on organic food labels it is possible to visit the producer on the Internet. Users enter the number on the www.bio-mit-gesicht.de homepage and are taken to a photo of the relevant business. Straight away they see a picture of the family involved, sometimes ranging from grandfather to grandson. The photos show the human side of farming and food processing.

For example, one can meet Martin Hahn from Überlingen-Bonndorf near Lake Constance: “Show me your fridge and I’ll tell you what sort of person you are,” the “green charmer of Helchenhof Farm” is quoted as saying. He is convinced that “everyone can do something about climate change by making conscious food choices”. The stylish presentation of the website and the facts about individual farms are accompanied by information on organic farming, product details and recipes. At present more than 800 organic businesses are participating in Bio mit Gesicht. FiBL’s accompanying research shows that Bio mit Gesicht is viewed positively and enjoys a high degree of recognition. “The system is mainly aimed at high-volume buyers of organic foods in the retail sector who already possess a basic knowledge of organic farming and want to know more,” is how Hanna Stolz from FiBL Switzerland sums up the results. Around fifty percent of those questioned who are familiar with Bio mit Gesicht say that the Internet platform has helped to boost their confidence in organic products.

A look at the future

What does the future hold? “Consumers will be able to get direct information about the origin of a product via a display on the supermarket trolley or their mobile phone,” says Frank Wörner of FiBL Germany, who is also managing director of Bio mit Gesicht GmbH.

As well as the key product data, it will also be possible to access specific information about, for example, the producer’s climate and water-resource “footprints”, his social activities and his commitment to biodiversity in this way. Alternatively, if it takes your fancy, you can have a virtual tour of the farm in real time and follow this up by getting menu suggestions for dinner, including wine recommendations. *fw*

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“I know personally almost all the people who deliver the goods for our VonHier (‘from here’) brand. By using the Bio mit Gesicht number on our VonHier products our customers can meet the farmers too – with just a click of the mouse.”

Hannes Feneberg, Feneberg Lebensmittel GmbH



“As Director of FiBL I am particularly pleased when research is structured so practically that it also bears direct fruit in practice.”

Wolfgang Gutberlet, Vorstand FiBL Deutschland e.V., Altvorstand tegut... Gutberlet Stiftung & Co.



Demonstrations of the latest agricultural technology are always well-received at field days, as was the presentation of a new mulch seeding drill on the Obbach Farm.

“I’m a fan of target group-appropriate information”

“Practical” is writ large in the Bodenfruchtbarkeit soil fertility project and in the Netzwerk Pflanzzüchtung plant breeding network. But how can we ensure that information flows smoothly in both directions between research and field and reaches the target audience? Project leader Klaus-Peter Wilbois tells of his experiences and strategies.

Why is public relations work of such great importance in the soil fertility research project?

A project like this depends upon information flowing back and forth between research and the real world. Research results must not just “disappear” in some report.

Your public relations work is intended to address scientists, consultants and farmers. How do you manage such a balancing act?

I am a big fan of target group-appropriate information and events. The soil fertility project field days offer something very tangible: profiles are dug and one can see, smell and touch the soil, and equipment is demonstrated. Supplying consultants with written information is also very effective; they are used to that. Our website is an important tool; each month we focus on a different topic. We use fact sheets to convey more in-depth information.



Klaus-Peter Wilbois

What kind of feedback are you getting from the farmers?

We do get outspokenly positive feedback from the field days now and then – keeping in mind that many farmers believe: “Not scolding is sufficient praise.” Farmers often ask us if we would be willing to hold an event on their farms. That is definitely a good sign.

Can you describe your experiences with the organic plant breeding network?

Networking makes knowledge transfer come true. Farmers, scientists, consultants, government agents: everyone is welcome. The network is intended to act as a catalyst, the main goal is to help people help themselves. For example, a breeding initiative for fruit production came about as a result of the network. The German Federal Institute of Agriculture and Food (BLE) also uses the network to discuss research needs with stakeholders.

What do you think the future holds for successful knowledge transfer?

I can well imagine that technology will offer more opportunities for farmers to obtain information on demand. In pest identification, for example. Take a picture with your iPhone, and find out right away what the pest is. That would really be something! However, we also feel that it is important to achieve a truly participatory research, in which scientists view themselves as service providers for agriculture.

Interview: mm

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“Increasing the added value of organically grown market fruits by optimizing soil fertility management” (Steigerung der Wertschöpfung ökologisch angebaute Marktfrüchte durch Optimierung des Managements der Bodenfruchtbarkeit)

www.bodenfruchtbarkeit.org

sponsored by the German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) in the scope of the Federal Organic Farming Scheme (BÖL)

“Organic Plant Breeding Network: Opportunities and methods, drawing the line between conventional and 'genetic' breeding methods, participatory plant breeding” (Netzwerk ökologische Pflanzenzüchtung: Möglichkeiten und Methoden, Grenzen zwischen klassischen und «gentechnischen» Züchtungsmethoden, partizipative Pflanzenzüchtung)

sponsored by the German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) in the scope of the Federal Organic Farming Scheme (BÖL)



Those who attended the Trenthorst Field Day had a chance to see various machines in action ploughing under mixed grass-clover swards, and to compare and discuss their performance.



The field day at the Frankenhausen state farm in Hesse was well-attended in spite of the rain.



Job coaches make a difference

More and more farmers are willing to employ people with disabilities on their farms. Problems and misunderstandings commonly arise on both sides, however. Under the German agriculture ministry's "Networking of Green Workshops" pilot project, FiBL therefore developed a qualification scheme for specialist "agrarian job coaches".

Time and time again, people with disabilities drop out of work placements on farms, often as a result of frustrations on both sides. The expectations of employees with disabilities on the one hand and farmers on the other are often too divergent to be reconciled. "To have somebody on call who can listen to and mediate between both sides makes a significant difference to success" explains project leader Robert Hermanowski (FiBL). "In order to build up a better picture of the situation, we conducted a survey of farmers, people with disabilities, and heads of Green Workshops* about their expectations and experiences."

Targeted preparation and support

According to this survey, around 60 percent of farms would appreciate regular support, particularly on educational matters, and more than 80 percent would like the Green Workshop to provide a permanent contact partner. While 80 percent of employees stated that they were either satisfied or very satisfied with the work content of their placements, at the same time almost half admitted to finding their tasks too demanding or the pace of work too hectic.

* Green Workshops: Based on positive learning experiences over the past few years, numerous workshops for people with disabilities have developed agricultural or horticultural branches.

"The job coach must therefore check well in advance of the placement whether both sides are well matched and what prior training needs they have," concludes Lukas Baumgart (FiBL). For this, it is a huge advantage to have job coaches with specialist expertise in agriculture. Unlike dedicated workshops for people with disabilities, in the general labour market work is not adapted to the individual. "It is therefore vital, first and foremost, that good preparation takes place to assess and reinforce candidates' actual aptitude and mo-

Networking pilot project

Under the pilot project, a method is being developed and trialled for building up a regional network of farms and rural service providers operating workshops for people with disabilities. The project is being implemented in several regions with varied conditions and priorities.

The full project title: "Developing a method for building up a regional network of rural service providers and farms operating workshops for people with disabilities as a contribution to promoting the development of rural areas".

www.modellvorhaben-vernetzung.de

Supported by the German Ministry of Food, Agriculture and Consumer Protection (BMELV)

Photo left: Organic consultant Thomas Ingensand (right) explains the main elements of chicken farming to staff members Martin Vossaert and Christian Branquinho and their job coach Klaus Michaelis (from left to right). Looking after the chickens and collecting, sorting and packing the eggs are part and parcel of the small team's tasks.

Photo right: Hartmut Hanl (left) alongside job coach Frank Scherer at his workplace in Ebeleben. "A really important point is that the employees see me as a link to the workshop and do not feel left on their own." This is based on Scherer's experience so far with the five employees with disabilities whom he currently supports.



tivation and their willingness to make a serious effort to try something new," says Albrecht Flake of Eben Ezer Foundation, Lemgo, Germany, who is attached to the project as an external researcher. The preparation and subsequent support should be targeted and tailored to both parties.

Wanted: Basic work competencies

Job coach Klaus Michaelis and his team are still in the process of setting up their farm named "Hof Blasweiler", another of the project's pilot establishments, in the Eifel region of Rhineland-Palatinate, Germany. Hof Blasweiler is intended to be both a meeting place for village residents and visitors and a centre that arranges work placements for people with disabilities, on neighbouring farms and, for example, with the regional forestry service. Lukas Baumgart's survey of the surrounding farms revealed that basic work competencies, the key employability skills like punctuality, reliability and attention to detail, are just as essential as the specialist competencies.

Wanted: Empathy and enthusiasm

Another "agrarian job coach" on the pilot project, Frank Scherer, is based in the Mühlhusen workshops in the German state of Thuringia. He is now gaining experience in the various facets of his role, for which the job description was developed by Rebecca Kleinheitz (FiBL) and Albrecht Flake. Scherer is already in full swing. He assesses the requirement profiles from the farms, uses competence profiling to select the right candidates, and prepares them for their duties on a particular work placement. "The employees see me as a link to the workshop and do not feel left alone," he reports, based on his experience so far.

And what competencies should a good job coach bring to the role? "You need a large portion of empathy combined with enthusiasm for sharing your knowledge," according to coach Klaus Michaelis.

mm

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Cows are very much "his thing". Ehrhardt Marteaux has spent many years working in the cowshed on Meierhof farm in Lemgo, Germany, and is responsible for livestock husbandry and management.



Everyone is working together on the vegetable platform

Although there have been previous efforts in Austria to make advances in organic vegetable growing, there was little coordination of the various activities. A newly created platform acts as a central meeting place, linking players involved in practice, consultancy and science.

There has already been successful cooperation between practice, consultancy and research in organic agriculture for years through the “Bionet” education project. In organic vegetable growing, on the other hand, there were few common structures and little coordination between participants. “That is why it was natural to extend the project to include organic vegetable growing,” says Roswitha Six from FiBL Austria, who has been responsible for coordinating the “organic vegetable platform” since it was set up in February 2009.

It was clear to all participants in the organic platform that this venture could only succeed through the active involvement and collaboration of every stakeholder. Fortunately, the desire for closer cooperation and more efficient knowledge exchange in organic vegetable growing was so great that at the very first meeting, in early 2009, key topics could be identified.

Focus on downy mildew

After intensive discussions in small groups and the evaluation of numerous questionnaires, the control of downy mildew on onions and salad crops quickly emerged as an important topic for the first year of the project. And it has rapidly become clear that the organic platform concept works. Universities, research institutes, provincial chambers of agriculture, growers’ associations and organic businesses – all are actively participating in the project, thus showing that organic vegetable growing in Austria is very much alive.

One dissertation examined plant strengtheners and their effect on downy mildew on onions, another dealt with preventive measures for the control of downy mildew on salad crops. Both studies were carried out in cooperation with the Institute of Plant Protection at the University of Natural Resources and Life Sciences. As well as these, business managers, consultants and researchers have collaborated in devising new research projects and planning their implementation. For example, an experiment in the control of mildew

was planned at these focus group meetings – and has already been carried out, with trials of four different mildew-resistant salad and onion varieties and of the effect of various plant strengtheners on downy mildew at four different locations. As well as an agricultural college, which is overseeing an organic trial for the first time on the organic platform, interested organic farmers have also made land available for the growing trials.

Markus Bittner, vegetable growing advisor for the Lower Austrian Provincial Chamber of Agriculture, is pleased: “Not only have the trials conducted so far provided specialist knowledge, they have also shown how successfully a project can develop if everyone pulls together!”

Besides working together on the trials, the participants all meet annually for a professional conference. In addition there is the publication within the Bionet of practical information booklets such as the organic vegetable primer, which appears once a year.

“The stakeholders get to know each other better through the combined trials and so contribute to the successful further development of organic vegetable growing in Austria,” is the conclusion reached by Roswitha Six after the first year of the project. *ek*

Collaborators on the organic platform: LFI Österreich (Ländliches Fortbildungsinstitut Österreich [Austrian Institute of Rural Education]), Austrian Chambers of Agriculture, HBLFA Schönbrunn (Höhere Bundeslehr- und Forschungsanstalt [Higher institute for federal training and research], Schönbrunn), Bio Austria, biohelp, Langenlois horticultural college, LVZ Wies (Landwirtschaftliches Versuchszentrum [Agricultural research centre], Wies), University of Natural Resources and Life Sciences

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Trial results and further information at www.bio-net.at

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

Roswitha Six: linking the stakeholders in Austrian organic vegetable growing.



FiBL project manager Thomas Bernet introduces the two “Albanian Guarantee” labels on Albanian state television’s morning programme.

Guaranteed food quality for Albania

FiBL is carrying out pioneering work in regional development in the southern Balkan state of Albania. The first milestone is the introduction of two labels that certify the origin of food and guarantee that it is GM-free and quality-controlled. Albanian Guarantee is the first standard of this kind in a country that is at the same time in the process of establishing its own certified organic products.

In 2001 the SDC (Swiss Agency for Development and Cooperation) and SECO (State Secretariat for Economic Affairs) together launched the SASA project. SASA stands for Sustainable Agricultural Support for Albania. FiBL was appointed by the SDC and SECO to implement the project.

In 2010 the SASA project reached a milestone: with the launch of two Albanian origin labels – one for the south and the other for the north of the country – there now exists for the first time in the Balkan state a food standard that certifies the origin of the food and guarantees that it is GM-free and quality-controlled.

People want guaranteed quality

“The labels were created as a result of market research which showed that guaranteed quality is becoming increasingly important in Albania – especially in the case of goods produced within the country,” maintains FiBL project manager Thomas Bernet. This is because things that are taken for granted in

western Europe – guaranteed product quality, declarations of origin and lists of ingredients on the packaging – are virtually unheard of in Albania.

The supermarkets in the capital Tirana mostly stock surplus goods from the EU, particularly from Italy, while in the streets small traders sell goods of questionable origin and often dubious quality. “In Albania shopping for food is a matter of trust,” says Thomas Bernet. “But this trust is based on subjective perception. As yet there are almost no guarantees for the quality of a product.”

Focus on the market instead of production

At first glance this FiBL project seems to bear no relation to either organic farming or agricultural production in general. “In conjunction with our two clients we have decided to shift the focus of the SASA project more onto the market,” explains Thomas Bernet. As a result, organic products are to be promoted together with regional specialities in the new project.

“The marketing, including the launch of the two labels, is only part of the project. We are working along the whole value chain to strengthen the sector and generate important income in rural areas.” So SASA is also continuing to support the producers’ organisation Bio Adria, the newly established Institute for Organic Agriculture (www.ibb-albania.org) and the Albanian certification company Albinspekt, in order to advance organic farming.

Here too, however, the emphasis is on the market. For that reason SASA is pursuing a dual strategy: establishing the organic market in Albania will go hand-in-hand with expand-

ing exports of the country’s organic products. Information gathered at the Nuremberg BioFach, the world’s leading organic trade fair, indicates that, in particular, there are market opportunities in the EU for medicinal plants, olive oil, and raw materials for the food industry such as chestnuts, other nuts and dried fruit. Organic winter vegetables from Albania could also find an outlet on the European market. *jf*

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Funding: Swiss Agency for Development and Cooperation (SDC) and State Secretariat for Economic Affairs (SECO)

Thomas Bernet talking to potential purchasers of the products carrying the new organic labels.





1

Organic farming stands up well to comparison

Since 2007 extended system comparisons, designed to run for fifteen to twenty years, have been running in Kenya, India and Bolivia. These field trials are comparing organic and conventional cultivation systems. The aim is to investigate the long-term contribution of organic agriculture to food security, natural resource conservation and the fight against poverty.

Experts regard organic farming as having a key part to play in the transition from resource-intensive conventional agriculture to sustainable land management. They base this on numerous experiences of organic farming projects in developing countries. In contrast to the industrialized countries there has been virtually no systematic study and documentation of the economic and ecological outcomes and services of organic farming in the developing world, let alone in long-term trials, even though scientifically validated data is vital in order to set up robust development projects.

For Dionys Forster, Monika Schneider, Juan Guillermo Cobo and Christine Zundel of FiBL, who are running the trials in India, Bolivia and Kenya, the system comparisons have various purposes: “They are important for moving the debate about organic farming away from polemics and onto a rational basis, but as well as this they are meeting places where farmers, traders, consumers, scientists, consultants and politicians engage in constructive dialogue.”

Cotton, maize and vegetables, and cocoa

The studies in the three countries include amongst other things the development of yields, soil fertility, biodiversity and the efficient use of nutrients and energy. However, for the farming family the decisive element remains economic profitability.

In India FiBL is researching different cotton growing systems, in Kenya a maize/vegetables/fruit rotation is being tested and in Bolivia a trial of cocoa in monoculture and in various agro-forestry systems is taking place.

In the Narmada River valley in the central Indian state of Madhya Pradesh cotton is the cash crop, i.e. the crop which puts money into farming families’ pockets. FiBL is carrying out the trial with a two-year fruit rotation typical of the region, in which soya and wheat are grown as well as cotton. As the producers are unsure whether they should embrace organic farming or genetic engineering, a trial of genetically modified Bt cotton is also underway. Those responsible are pleased with the results from the first years of the trial. Although the yield from organic cotton was somewhat lower than from cotton in conventional trials, that is entirely to be expected in the conversion phase. “The premium paid for organic cotton compensates for the drop in yield,” says Dionys Forster and draws attention to the long duration of the comparison trial.

Christine Zundel points out too that, at the Kenyan site with high yield potential (near the small town of Chuka), yields from organic and conventional plantations reach similar levels. It is only at the site with low yield potential (outside Thika, the district capital) that the organic trials produce a lower yield. As yet there is no data available from the comparison trials in Bolivia. *jf*

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Funding: BioVision, Coop Sustainability Fund, Swiss Agency for Development and Cooperation (SDC), Liechtenstein Development Service (Liechtensteinischer Entwicklungsdienst, LED)



2



3



4



5

To complement the comparison trials, FiBL is working with its partner organization bioRe and smallholder families to carry out practical trials near Kasrawad in the central Indian state of Madhya Pradesh. The aims are to improve soil fertility and to make more efficient use of raw phosphate.

- ① A group of farmers discuss various techniques of using raw phosphate.
- ② bioRe consultant Ramesh Verma (left) and farmer Madan Kadwa with his wife Kalindi assessing the quality of compost.
- ③ Optimising the use of raw phosphate: Rajeev Verma talking to a group of farmers.
- ④ Rajeev Verma and Sitaram Ramsingh of bioRe evaluate the quality of the wheat grain.
- ⑤ Wheat grain from trials using raw phosphate (left) and without it (right).
- ⑥ Nadika Anandram harvesting wheat at one of the field trials.



6



Knowledge from experience: participants in a workshop in Kenya show plants that they use to produce biological crop protectants.

Africa: increasing and securing yields through organic farming

The majority of families in rural Africa live from less than a hectare of land and have less than two dollars a day at their disposal. They cannot buy synthetic fertilizers and pesticides. If yields are to rise the available resources must be used as efficiently as possible. Organic farming offers great potential for this. That is why FiBL is working to make organic agriculture accessible to smallholder families in Africa.

Raymond Auerbach, Professor at the Nelson Mandela Metropolitan University in Port Elizabeth, South Africa, and Director of the Rainman Landcare Foundation organic institute, concludes: “The so-called green revolution, which aimed to bring about a drastic increase in yields in developing countries from the 1950s onwards by using high productivity seed and synthetic fertilizers, did not work in Africa. It failed not least because of the high water consumption”.

For this reason most families in rural Africa still rely today on traditional farming methods to feed themselves. These traditional methods do not draw on up-to-date knowledge about the efficient use of natural resources. Yields and yield security remain low.

“In this respect organic farming offers enormous potential for Africa,” says FiBL Director Urs Niggli. “It creates value sus-

tainably, especially in developing countries. By using simple, cost-effective methods smallholders can achieve high yields, yield security and high-quality produce. Organic farming can be practised in all climate zones and can contribute to sustainable development and poverty reduction.”

Producing appropriate teaching and learning materials

A FiBL survey of training organizations in Africa found that there are hardly any suitable teaching materials on organic agriculture available for carrying out good training. That is why, since 2009, FiBL experts have been working with African agricultural consultants to produce such material for trainers and farmers. The aim is to combine the best and most important methods used in organic agriculture and the methods of sustainable land use tried and tested in Af-

rica and to present them clearly in a training manual and in booklets for the farmers.

The materials address topics such as compost-making, water use, erosion prevention and marketing. “Videos and radio programmes on the same subjects are also being produced,” explains Gilles Weidmann, the project manager. As innumerable languages and dialects are spoken in Africa the teaching materials are being published in English for the time being. “As many farmers in Africa can scarcely read, we set great store by graphics and illustrations,” emphasises Weidmann.

The Gates Foundation now also aims to make organic farming knowledge accessible to farmers in Africa. By funding this programme the Foundation, set up by Microsoft founder Bill Gates and his wife Melinda, is supporting its first organic project. *if*

Contact: gilles.weidmann@fiBL.org

Funding: Bill & Melinda Gates Foundation



Gilles Weidmann, FiBL, and Brian Ssebunya from Uganda discuss drafts of the training materials.

AFRICAN ORGANIC AGRICULTURE TRAINING MANUAL BOOKLET Nr. 1



How organic farmers keep crops healthy

A healthy plant will grow to its full size within its natural time and will produce well-formed food materials. So organic farmers look at providing good growing conditions to the plants. They perform all field activities in time, plant early in the season, remove weeds before they damage the crop, and remove excess branches in tree crops before flowering to ensure good fruit size.

Organic farmers use strong plant varieties, which have been tested under local conditions to be fast growing, resistant to pests and diseases and good yielding.

Organic farmers carefully check seeds, seedlings and cuttings for pests and diseases before using them.

They grow crops in a planned sequence to starve and kill pests and diseases that live in the soil.

The better the farmers prevent pests and diseases from developing, the less efforts they have to control them.

Pests and diseases also have their natural enemies. Have you ever thought of creating favourable conditions to enhance development of these useful creatures?



Use healthy seeds, seedlings and cuttings only



Feed the soil with sufficient manure and keep it moist



Remove competing plants and infected plant material



Protect natural grass boundaries and bushes around the fields to encourage development of natural enemies of pests



Trap, repel or kill pests and diseases with natural substances

6
7

Illustrated clearly: how African farming families can keep their plants healthy without recourse to plant protection products.

Employees and their fields of activity FiBL Switzerland

Secretariat, accounting and administration

The secretariat is the hub of our operations. Here contacts with representatives of research, advisory services, industry, trade, associations, foundations and official bodies are coordinated and maintained. The accounting department ensures that the financial aspects of the numerous and often complex

projects are handled smoothly. The administration department is the first point of contact with the institute. Telephone or e-mail enquiries receive skilled and friendly replies. The secretariat is also responsible for organizing courses and looking after the many visitor groups that arrive from all over the world.



Niggli Urs
Prof. Dr. sc. ETH
Director of FiBL
Switzerland



Bayer Erika
Secretariat,
trainee supervision



Lucia Elisa
Secretariat,
training courses,
quality management



Rickenbacher Beat
EDP



Wyss Eric
Dr. phil.
Deputy Director,
Fundraising



Buess René
Administrative trainee



König Monika
Secretariat, visitors



Schindler Maja
Finance and accounting



Droll Beat
Head of finance
and accounting



Götschi Sabine
Finance and accounting



Merz Anne
Manager's assistant,
head of secretariat



Williner Stefan
Human resources,
finance and accounting



Winter Carmen
Administrative trainee

Restaurant and conference centre

The team caters for the wellbeing of the staff – more than 200 in number – who work for FiBL, the inspection body bio.inspecta and the organic consultancy Agrofuture as well as the many guests from Switzerland and abroad. The remit includes running the restaurant, the conference centre with

its six training rooms and the guesthouse, cleaning and maintaining the entire infrastructure, caring for the surroundings, managing the vehicle fleet and organizing passenger transport.



Belloli André
Frick conference centre,
manager of internal
services



Ackermann Anita
Restaurant



Cafaro Immacolata
Domestic services



Krebs Trudi
Restaurant,
domestic services



Belloli Erika
Restaurant manager,
Frick conference centre



Bircher Erika
Restaurant,
domestic services



Hajdarpasic Ahmo
Transports,
domestic services and
maintenance



Schär Lisbeth
Restaurant,
domestic services

FiBL farm

Since 2010 the 37-hectare FiBL farm has been run biodynamically. Both arable and livestock farming are practised on the farm, and specialty crops are also grown. Twenty percent of the land is given over to nature conservation and biodiversity. The farm has a dairy herd of 22 cows and a breeding bull. It



Dehlinger Bronya
Farm manager



Schädeli Alfred
Farm manager

is also home to a small group of pigs and some laying hens. FiBL researchers conduct studies and trials in every branch of farming.

Soil sciences

The soil is of key importance in organic farming. In long-term field trials and on farms the soil sciences division investigates the efficiency of organic and conventional farming systems in terms of fertilizer and energy use. Of particular interest in this context are the microorganism communities in the soil and their role in the mineralization of organic matter and the formation of humus. To help maximize yields in agriculture and horticulture while also saving natural resources, the group explores reduced tillage systems, the use of beneficial soil bacteria and mycorrhizae and ways of improving nutrient cycles through crop rotation. Plant breeding for organic agriculture is another important area of research and goes hand in hand with improvements to plant varieties and cultivation systems. Work on soil and climate includes

quantifying greenhouse gas emissions from soil use in order to identify ways of mitigating climate change. Research is also conducted into ways of managing agricultural land that promote adaptation to climate change.

Research priorities

- › Efficiency of cultivation systems
- › Strategies for optimizing yields
- › Seed and the environment
- › Climate and soil



Mäder Paul, Dr. phil,
Dipl. Ing. Agr. ETH,
Head of group, DOK-trial



Berset Estelle
MSc ETH
Soil biology, mycorrhiza



Gättinger Andreas
Dr. dipl. Ing. Agr.
Leader climate protection
& organic farming



Messmer Monika
Dr. sc. Agr.
Plant breeding for
organic agriculture



Arncken-Karutz Christine
MSc ETH,
Cereal quality, breeding



Fliessbach Andreas
Dr. sc. agr.
Soil biology, soil ecology



Häni Matthias
MSc ETH
Climate protection and
organic farming



Nietispach Bruno
Lab technician
Laboratory, Analytics



Berner Alfred
MSc ETH,
Soil tillage, fertilizers



Frei Robert
Dipl.-Ing. Agr. HTL
Field crop production
experiments



Hildermann Isabell
Dr. phil. I
Bread wheat cultivars,
mycorrhiza

Crop production

Growing special crops such as fruit, berries, grapes, vegetables, herbs and ornamental plants poses major challenges for organic farms. The division explores practical solutions to the key problems associated with these crops. In fruit-growing we test new plants and old varieties under organic conditions, improve yield stability and cost-effectiveness with preventive, system-stabilizing techniques and optimize fruit quality. In viticulture the focus is on suitability for cultivation and vinification of mould-resistant grape varieties. With new prepa-

rations and better forecasting models we are also improving stability of yield for traditional European varieties. Important aspects of vegetable-growing are cultivar trials and the use of green manure as a source of nutrients.

Research priorities

- › Fruit and berries
- › Viticulture and vinification
- › Vegetables and ornamental plants



Weibel Franco
Dr. sc. ETH
Head of group,
varieties and production
techniques



Gallati Philip
Dipl.-Ing. Oenologie
Vineyard FiBL



Koller Martin
Dipl.-Ing. FH
Vegetable production

Rey Peter
Farmer
Field experiments



Billmann Bettina
Dipl.-Ing. agr.
Ornamental plants



Hammelehe Andreas
MSc agr.
Fruit & soft-fruit
production



Léville Dominique
Dipl.-Ing. IUUV
Viticulture, oenology



Tschabold Jean-Luc
MSc ETH
Fruit production,
viticulture,
Western Switzerland



Löliger Thomas
Trainee vintner



Tuchs Schmid Andreas
Ing. HTL
Manager FiBL vineyard

Plant protection and biodiversity

The division investigates and develops practical methods of controlling pests and diseases in fruit-growing, viticulture, vegetable-growing and crop-farming. In tackling disease the focus is on the use of copper compounds on stone fruit, vines and potatoes and on controlling disease indirectly by promoting soil health. Improvements in pest control are brought about by two means: firstly, by growing carefully selected, ecologically useful plants in and around the planting area to promote the development of beneficial organisms, and sec-

ondly by experimenting with the deliberate release of organisms that are beneficial against problem pests. The division is also working on a range of methods for increasing the contribution to nature conservation made by organic farms.

Research priorities

- › Controlling plant pests and diseases
- › Evaluating new auxiliary substances and technologies
- › Promoting nature conservation in farming



Tamm Lucius
Dr. phil., MSc ETH
Head of group,
phytopathology



Belz Elodie
MSc
Functional biodiversity



Géneau Céline
Dipl.-Ing. Agr. ENSAT
Functional biodiversity



Schärer Hans-Jakob
MSc ETH
Phytopathology,
seed pathology



Amsler Thomas
Horticulture
Field trials, laboratory



Daniel Claudia,
Dr. agr.
Biological pest control



Luka Henryk
Dr. phil., Ing. agr.
Biodiversity, taxonomy



Speiser Bernhard
Dr. phil.
Potatoes, auxiliary
inputs, slugs and snails



Balmer Oliver
Dr. phil.
Functional biodiversity,
conservation in
agriculture



Fuchs Jacques
Dr. sc. ETH
Phytopathology, compost



Pfiffner Lukas
Dr. phil-nat, Dipl.-Ing.
Agr. ETH, Biodiversity,
nature conservation,
habitat management



Thürig Barbara
Dr. phil.
Phytopathology,
induced resistance

Animal health

The division researches the causes of disease, prevention methods and the use of complementary and alternative medicine in farm animals. Homeopathic, phytotherapeutic and other complementary therapies are investigated from the point of view of both efficacy and cost-effectiveness. In the interests of preventing disease we analyse the factors that influence the health of farm animals, including feeding, husbandry and the human/animal relationship. The knowledge gained is incorporated into holistic health strategies at herd/flock level for the promotion of sustainable animal hus-



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Dr. med. vet.
Head of group,
animal health



Abb Katharina
med. vet.
Animal Health



Biegel Ulrike
med. vet.
Mistletoe therapy
for dogs and cats



Christen Ophélie
Dr. med. vet.
Mistletoe therapy
for horses



Ivemeyer Silvia, Dipl.-Ing.
(Animal husbandry,
animal health)



Jäger Tim
Dipl. env. sc..
Basic research
homeopathy



Lutz Bianca
Dipl. Agr. Biol.
Basic research
homeopathy
(maternity leave)



Maeschli Ariane
Dr. med. vet.
Health of dairy cows



Notz Christophe
med. vet.
Complementary
medicine



Staehli Pamela
med. vet.
Health of dairy cows



Stamer Andreas
Dr. agr.
Aquaculture



Steiner Manuel
Lab technician
Grundlagenforschung
Homöopathie



Walkenhorst Michael
Dr. med. vet.
Health of dairy cows

bandry. Another focus of our research and advisory services is aquaculture. Feeding, livestock welfare and health in fish breeding are the main issues here.

Research priorities

- › Complementary medicine for animals
- › Epidemiology and preventive animal health strategies
- › Animal health and sustainability
- › Aquaculture

Livestock husbandry

The livestock husbandry division develops holistic strategies for improving animal husbandry on organic farms. The factors of site-appropriate breeding, species-appropriate husbandry, efficient hygiene and appropriate feeding are essential for all types of animal. In addition, parasites must be controlled and breeding strategies must meet organic standards. Different priorities are set for different breeds. For dairy cattle the main aim is to develop sustainable breeding strategies for organic farming. In poultry-keeping we are working

to optimise husbandry systems and flock management from the point of view of livestock welfare and parasite control. Parasite problems in sheep and rabbits are being addressed through the use of bioactive feedstuffs

Research priorities

- › Sustainable livestock breeding
- › Animal welfare and the environment
- › Parasite control



Maurer Veronika
Dr. sc. ETH
Head of group,
ectoparasites



Amsler-Kepalaite Zivile
Dipl. Agroecology
Field trials, laboratory,
poultry



Bieber Anna
MSci. agr.,
Breeding cattle



Bolognese Daniele



Heckendorn Felix
Dr. Sc. ETH
Endoparasites
in ruminants



Isensee Anne
Dipl. Agrobiologie
Husbandry, health cattle



Krenmayr Ilse
Dipl.-Ing. agr.
Veterinary parasitology
lab



Perler Erika
Lab technician
Field and laboratory
trials



Probst Johanna
MSci. agr.
Animal husbandry



Spengler Neff Anet
Dipl.-Ing. Agr. ETH
Breeding
and health cattle



Werne Steffen
MSci. agr.
Endoparasites in
ruminants



Zeltner Esther
Dr. phil.
Livestock husbandry
and breeding: poultry
and minor livestock

Food quality and processing

The division works on projects throughout the food chain, focusing on the quality, safety and processing of organic foods. Sensory qualities, food safety and health are key aspects of our studies. In connection with food safety we advise on how organic products can be protected from contamination (e.g. from chemical residues in the soil or cross-contamination) throughout the supply chain. We also draw up strategies for careful and environmentally friendly processing and investi-

gate the best ways of conserving valuable nutrients in the end product. The development of residue-free and sustainable packaging is another important area of research.

Research priorities

- › Food quality
- › Food safety
- › Food processing



Kretzschmar-Rüger Ursula, MSc ETH, Head of group, processing of organic foods



Landau Bettina Dr. sc. agr. Food safety, pesticide residues



Seidel Kathrin Dipl. oec. troph. Organic food quality, processing, packaging

Socio-economics

One of the issues being addressed by the socio-economics division is the question of how different parameters of agricultural policy impact on organic farming. The group is also exploring what core competencies – in areas such as business skills and sustainable management – will be required by farmers in the future. We use qualitative methods of consumer research to analyse the behaviour and confidence of consumers who buy organic products only occasionally. We also study what society requires of sustainable agriculture and what form efficient certification systems should take. Sustainability analysis is an important area of work throughout

the institute. In it we explore the impacts of farming methods and food production on ecological, economic and social indicators.

Research priorities

- › Policy impact assessment
- › The future of farming
- › Consumer behaviour
- › Agriculture and society
- › Efficient certification systems
- › Sustainability analysis



Stolze Matthias Dr. sc. agr. Head of group



Jahrl Ingrid Dipl.-Ing. Rural sociology



Müller Adrian Dr. sc. nat. ETH Climate protection, carbon offset mechanisms



Schader Christian Dr. sc. Leader of sustainability analysis



Baumgart Lukas MSc Consumer research, social farming



Jawtusich Julia MSc Ecolabels, certification systems



Oehen Bernadette Dipl. Bot., MAS ETH, Technology assessment, environmental risk analysis



Schmid Otto, MSc ETH, Rural development, standards



Hartmann Michael Dr. sc. ETH Certification systems



Moschitz Heidrun Dr. sc. ETH Rural sociology



Rudmann Christine Dr. sc. ETH Farm management, farm network



Stolz Hanna MSc Consumer & market research



Hecht Judith Dr. agr. Model-based policy analysis



Meier Matthias Samuel Dr. sc. nat. ETH Sustainability analysis, LCA



Sanders Jörn Dr. Sc. Model-based policy analysis

Extension

While the cantonal offices deal mainly with the conversion to organic methods on farms, FiBL advisors focus on special areas and bring their knowledge to bear country-wide. In addition to answering questions on technical production issues they help farming families with whole-farm optimization and new business ventures. To this end they provide information by telephone, visit individual farms and hold group advice sessions. FiBL advisors also support demonstration trials on farms. In collaboration with FiBL's research arm, the advisory service offers an attractive programme of courses every year for farmers, processors and trading companies. FiBL also

works with Bio Suisse and Demeter to provide training for young professionals.

Priority areas

- › Arable farming and specialty crops
- › Animal husbandry and feeding
- › Farm management
- › Marketing
- › Standards
- › Training



Obrist Robert
MSc ETH
Head of group,
projects in the regions



Clerc Maurice
MSc ETH
Tillage production
farm network
(Western Switzerland)



Häseli Andreas
Dipl.-Ing. Agr. HTL
Fruit production,
viticulture,
plant protection



Schneider Claudia
Dipl.-Ing. agr.
Ethology cows, feedstuffs



Böhler Daniel
Dipl.-Ing. Agr. (FH)
Arable farming, extensive
meat production



Dierauer Hansueli
MSc ETH
Arable farming, weed
control, feed production



Lichtenhahn Martin
MSc ETH
Vegetable & herb
production



Studer Tobias
Dipl.-Ing. Agr.
Consultant in feeding,
feeding charge Bio Suisse



Chevillat Véronique
Dipl. Biol., Feedstuffs,
plant production trials,
coordination training
courses



Früh Barbara
Dipl.-Ing. FH
Feedstuffs,
non-ruminants



Meili Eric
MSc ETH
Milk & meat production



Thommen Andreas
MSc ETH
Sustainable farm
development

Communication

Together with Bio Suisse, FiBL publishes the monthly magazine "bioaktuell", which keeps the Swiss organic sector abreast of developments in organic farming. We produce the journal "Beiträge" for Demeter farmers. There is a long-standing partnership with the journal "Ökologie & Landbau". Through data sheets, manuals and videos and via the website www.bioaktuell.ch we facilitate the transfer of knowledge from research to advisory work and practice in ways that are tailored to the needs of specific target groups. As well as operating its own website, the group works with FiBL Germany to develop and maintain around thirty websites on various FiBL activities. In the area of research communication we make our experience available in various national and international re-

search networks. Our awareness-raising work reaches people in both agricultural and non-agricultural circles. We regularly provide policy-makers, associations and market players with up-to-date statistical information on organic farming that can provide a basis for decision-making.

Priority areas

- › Periodicals, publications
- › Internet
- › Research communication
- › Public awareness
- › Statistics on organic agriculture



Kilcher Lukas
MSc ETH
Head of group



Forster-Zigerli Jacqueline
Journalist
Public Relations,
spokesperson



Kirchgraber Claudia
Diplom-Grafikerin
Graphic design



Weidmann Gilles
MSc ETH
Editor, technical leaflets,
manuals,
www.bioaktuell.ch



Alföldi Thomas
Dr. sc. ETH
Research networks,
photo, video



Frieden Claudia
MSc
Communication,
Web Editor



Kleine-Herzbruch Natalie
Dipl.-Ing.
Internet



Willer Helga
Dr. rer. nat.
Statistics organic
agriculture, internet



Bär Markus
lic. phil. I
Editor for bioaktuell



Gorba Daniel
Graphics, layout designer



Schmutz Res
Dipl.-Ing. Agr. HTL
Editor www.bioaktuell.ch, technical leaflets,
manuals

Development and cooperation

This division, with its advisory and research mandates, operates mainly in developing and transition countries. Our vision is the development of sustainable systems of farming and nutrition that will ensure that all people have access to sufficient food of good quality and at fair prices. Through technical research and advice we demonstrate how ecological practices can conserve resources and improve profitability, thereby helping to reduce poverty. Our work includes, for example, a long-term comparison of different cultivation systems in Kenya, India and Bolivia, support to research and advice organisations in eastern Europe, and contracts for advisory services in Latin America. Plans are in hand to develop cotton production in Africa to promote adaptation to climate change. As part of our market development activities we are

working with local partners in eastern Europe to promote the development of regional organic markets and access to international markets; we develop value chains and assist Swiss and European dealers with product procurement and quality assurance. In the area of policy advice we support governments in the development of laws and action plans for the promotion of organic agriculture.

Priority areas

- › Sustainable production systems/
sustainable food production (research and extension)
- › Market development
- › Policy advice



Huber Beate
Dipl.-Ing. agr. (FH)
Head of group; Organic
legislation, certification



Eisenring Tobias
MBA, MSc
Asia; Organic market
initiatives



Lichtenhahn Martin
MSc ETH, Region: Eastern
Europe; initial and
further training, advisory
development



Nicolay Gian L.
Dipl.-Ing. Agr. ETH
Coordination Africa



Bernet Thomas
PhD, Dipl.-Ing. Agr. ETH
Market chain research,
development and
management



Forster Dyonis
PhD, Dipl.-Ing. Agr. ETH
Participatory research,
India



Meili Eric, MSc ETH,
Western and Eastern
Europe, processing and
marketing, advisory
development



Schneider Monika
MSc ETH, Eastern
Europe, Latin
America, organization
development



Cobo Borrero Juan
Guillermo
PhD
Field trials Kenya



Garibay Salvador
Dr. sc. ETH
Latin America; Plant
production,
tropical fruits, markets



Napo-Bitatem Gbati
Jean
Dipl.-Ing. agr.
Scientific assistant



van den Berge Paul
Dipl.-Ing. HTL, Standards,
label accreditation,
traceability systems,
vegetable production

Foundation Council of FiBL Switzerland



Martin Ott
Bio-dynamic farmer, Fintan Foundation,
Bio Suisse Steering Committee



Erol Bilecen
Head of Client Services, Sarasin Sustainable Investment, Bank Sarasin und Cie AG, Basel



Hildegard Fässler
National Councillor, Vice-President of the FiBL Foundation Council



Nikolai Fuchs
Nexus Foundation



Dr. Urs Gantner
Head of Research at the Swiss Federal Office for Agriculture (FOAG) in Berne



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



Dr. Rolf Gerling
President of the Gerling Foundation



Susanna Küffer
Manager Association for biodynamic agriculture



Hans Rudolf Locher
Journalist, food advisor



Prof. Dr. Urs Niggli
Director of FiBL Frick



Oskar Sager
Head of Marketing, Migros Cooperatives federation



Dr. Ulrich Siegrist
Former Canton of Aargau State Councillor, Former National Councillor



Prof. Dr. Hartmut Vogtmann
President of The Organic Research Centre at Elm Farm; President of Euronatur



Dr. Felix Wehrle
Head of Communication, Member of Coop Executive

Comings and goings 2008–2010

Staff arrivals

Abb Katharina
Baumgart Lukas
Belz Elodie
Bernet Thomas
Berset Estelle
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 For further information, see also page 71.

Employees and their fields of activity FiBL Germany

Agriculture

The projects of FiBL Germany address the entire range of farming issues. One project focuses on informing farmers how they can protect groundwater. A project in which there is very close contact between research and extension services deals with soil fertility. Issues covered in connection with crop-growing also include farm inputs, plant protection, and seed for organic agriculture – including the subject of freedom from genetic engineering. For many years FiBL Germany has also promoted the involvement of people with disabilities in agriculture; the aim is to create conditions that enable more disabled people to work on the land.

Priorities

- › Farm inputs
- › Soil fertility
- › Genetic engineering
- › Organic seed
- › Jobs for people with disabilities
- › Plant protection
- › Water conservation

Food

The issue of quality assurance is extremely important for organic food. Steps must be taken to ensure both that production and processing comply with statutory and private-sector standards and that organic foods meet consumers' expectations of product quality. FiBL develops strategies for assuring the quality of organic foods. Quality assurance is concerned primarily with traceability and with the distinction between organic and conventional products. In the “Organic Face-to-Face” project FiBL has developed a system of food traceability that is undergoing scientific tests of its effectiveness.

Priorities

- › “Organic Face-to-Face”
- › Consumer research
- › Quality assurance
- › Processing
- › Additives

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Scientific service

Nowadays it is virtually impossible for anyone involved in agriculture, food processing, trade or extension services to absorb all the latest information on organic agriculture. There is a growing demand for the complex information in print media and on the Internet to be made accessible. FiBL Germany tailors information on organic agriculture to the needs

of specific target groups, which include scientists and organic food experts as well as the general public.

Priorities

- › Knowledge transfer
- › Internet
- › Communication

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Employees and their fields of activity

FiBL Austria

Climate protection and ecological sustainability assessment

The group calculates the climate impact of organic and conventional products. A comprehensive climate assessment model has been developed for this purpose; the model covers the entire value chain from production to sale, including often-overlooked effects such as humus enrichment and CO2 storage in organic soils, or felling of tropical forests to grow soya for concentrated animal feed. Working with FiBL Switzerland, we calculate not only greenhouse gas emissions but also the impacts of different farming systems on water use and biodiversity.

Plant and vegetable production

In connection with plant and vegetable production we are working on two areas of practical relevance. The “Bionet” training project covers arable farming and – more recently – vegetable production; under its auspices representatives of farming, extension services and research are brought together, field trials are initiated, practical questions are answered and wide-ranging training opportunities are offered (www.bio-net.at). In another research project we are comparing true-to-seed carrot varieties in a search for varieties capable of yielding high-quality marketable produce in the dry climatic conditions of eastern Austria.

Information for consumers

FiBL Austria aims to use up-to-date information and sound knowledge presented in an interesting and modern way to bring home to consumers the advantages of organic farming. Thus the journal “Bio-Fibel” reports on current research projects, interviews prominent people and highlights the many ways in which organic practices can respond to present-day social challenges. We are working on a series of consumer-oriented posters that show clearly how organic food is produced. The posters published so far cover meat, milk, eggs, cereals, vegetables, fruit and wine. We also organize regular “tasting forums” at which consumers, journalists and other multipliers can experience the special taste of organic products.

Animal husbandry and animal health

Our projects in the area of animal husbandry have clear practical relevance and are conducted in close cooperation with key market stakeholders. For example, we are studying the use of clover silage and lucerne meal in pig feeding and testing humane and practical methods of castrating piglets on organic farms. In partnership with the FREILAND association we organize the annual FREILAND conference, which is now one of the most important events in applied animal husbandry in German-speaking countries.

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Food quality and safety

Biodiversity and nature conservation

Many studies show that organic agriculture promotes species diversity in the countryside and that species-rich agro-ecosystems can benefit the organic farms themselves. The “Bio-net” training project uses the example of pollinating insects to demonstrate these interactions to organic farmers.

Food quality and safety

FiBL Austria is a member of the International Research Association for Organic Food Quality and Health (FQH). This international network of research institutions deals with organic production and the effects of the organic food system on health. Through FQH FiBL Austria plays an active part in international workshops, in drawing up quality strategies, in developing priorities for future work, and in publications. And through numerous presentations FiBL Austria provides information on the special quality of organic food.

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