

# IFOAM GUIDE TO BIODIVERSITY AND LANDSCAPE QUALITY IN ORGANIC AGRICULTURE

ANDREAS BOSSHARD, BEREND R. REINHARD, SHEILA TAYLOR (EDS.)





***IFOAM GUIDE TO BIODIVERSITY AND LANDSCAPE  
QUALITY IN ORGANIC AGRICULTURE***

Andreas Bosshard, Berend R. Reinhard, Sheila Taylor (Eds.)

***Please Note :***

The opinions expressed in this publication do not necessarily represent an IFOAM approved position

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Cover: An agri-cultural landscape with extraordinary aesthetic and biological values created by sustainable milk and meat production. Cevennes Mountains (France). Foto by A. Bosshard.

# **IFOAM GUIDE TO BIODIVERSITY AND LANDSCAPE QUALITY IN ORGANIC AGRICULTURE**

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## PREFACE

The enhancement of biodiversity and its use to promote better livelihoods are essential guiding principles in organic farming. When we develop Organic Agriculture standards, we want to ensure that they embody these principles. When we are engaged in advocacy or policy development we need to have in mind that human beings are the core of any production system and that their contribution towards biodiversity should be acknowledged and fairly rewarded. When we build businesses based on biodiversity we should strive to develop innovative strategies to involve traditional knowledge systems. When we are development workers we need to constantly build bridges with other sectors that have a say in the conservation of biodiversity and with planning at landscape level.

Bosshard, Reinhard and Taylor have edited an extensive selection of examples from around the world, particularly when it comes to improving species diversity on the farm. This book has rightfully been called a guide since it does not cover each subject in detail but provides an outline of key issues that need to be addressed, very often at the local level. Even though the editors have made consistent efforts to address issues related with temperate and tropical areas, readers may identify other topics that should be taken up. If this happens, the purpose of this guide, as well as other IFOAM publications, would be fulfilled: to serve as a stepping stone in the complex process of understanding how biodiversity and organic agriculture are interdependent and developing improved methods to put that understanding into practice for the benefit of our planet and the diverse peoples and cultures that inhabit the Earth.

Loss of diversity and its manifestations in culture, human relationships or production systems is one of the major threats to sustainability. The publication of this guide is an expression of IFOAM's role in promoting the Principles of Organic Agriculture and inspiring positive action by providing real-life examples of how agricultural practices rooted in the Principles can improve both ecosystem health and farm productivity. Developing these practices further is a process of continuous learning and sharing. IFOAM is committed to supporting and facilitating this process, to ensure that Organic Agriculture continues to take the lead in working towards a truly sustainable system of agricultural production.

Roberto Ugás

Vice President of IFOAM



## **Definition of Organic Agriculture**

Organic Agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

Principles of Organic Agriculture

Preamble

These Principles are the roots from which organic agriculture grows and develops. They express the contribution that organic agriculture can make to the world, and a vision to improve all agriculture in a global context.

Agriculture is one of humankind's most basic activities because all people need to nourish themselves daily. History, culture and community values are embedded in agriculture. The Principles apply to agriculture in the broadest sense, including the way people tend soils, water, plants and animals in order to produce, prepare and distribute food and other goods. They concern the way people interact with living landscapes, relate to one another and shape the legacy of future generations.

The Principles of Organic Agriculture serve to inspire the organic movement in its full diversity. They guide IFOAM's development of positions, programs and standards. Furthermore, they are presented with a vision of their world-wide adoption.

Organic agriculture is based on:

**The principle of health**

**The principle of ecology**

**The principle of fairness**

**The principle of care**

Each principle is articulated through a statement followed by an explanation. The principles are to be used as a whole. They are composed as ethical principles to inspire action.

### **Principle of health**

Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

This principle points out that the health of individuals and communities cannot be separated from the health of ecosystems - healthy soils produce healthy crops that foster the health of animals and people.

Health is the wholeness and integrity of living systems. It is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being. Immunity, resilience and regeneration are key characteristics of health.

The role of organic agriculture, whether in farming, processing, distribution, or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In particular, organic agriculture is intended to produce high quality, nutritious food that contributes to preventive health care and well-being. In view of this it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

### **Principle of ecology**

Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

This principle roots organic agriculture within living ecological systems. It states that production is to be based on ecological processes, and recycling. Nourishment and well-being are achieved through the ecology of the specific production environment. For example, in the case of crops this is the living soil; for animals it is the farm ecosystem; for fish and marine organisms, the aquatic environment.

Organic farming, pastoral and wild harvest systems should fit the cycles and ecological balances in nature. These cycles are universal but their operation is site-specific. Organic management must be adapted to local conditions, ecology, culture and scale. Inputs should be reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources.

Organic agriculture should attain ecological balance through the design of farming systems, establishment of habitats and maintenance of genetic and agricultural diversity. Those who produce, process, trade, or consume organic products should protect and benefit the common environment including landscapes, climate, habitats, biodiversity, air and water.

**Principle of fairness**

Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities

Fairness is characterized by equity, respect, justice and stewardship of the shared world, both among people and in their relations to other living beings.

This principle emphasizes that those involved in organic agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties – farmers, workers, processors, distributors, traders and consumers. Organic agriculture should provide everyone involved with a good quality of life, and contribute to food sovereignty and reduction of poverty. It aims to produce a sufficient supply of good quality food and other products.

This principle insists that animals should be provided with the conditions and opportunities of life that accord with their physiology, natural behavior and well-being. Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs.

**Principle of care**

Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

Organic agriculture is a living and dynamic system that responds to internal and external demands and conditions. Practitioners of organic agriculture can enhance efficiency and increase productivity, but this should not be at the risk of jeopardizing health and well-being. Consequently, new technologies need to be assessed and existing methods reviewed. Given the incomplete understanding of ecosystems and agriculture, care must be taken.

This principle states that precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture. Science is necessary to ensure that organic agriculture is healthy, safe and ecologically sound. However, scientific knowledge alone is not sufficient. Practical experience, accumulated wisdom and traditional and indigenous knowledge offer valid solutions, tested by time. Organic agriculture should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering. Decisions should reflect the values and needs of all who might be affected, through transparent and participatory processes.

IFOAM General Assembly 2005

## EDITORIAL FOREWORD

The survival of biodiversity and the preservation of the rapidly disappearing individual character of cultivated landscapes is one of the major human challenges of our time. Agriculture as the major human land use activity has a particular responsibility in this context. Agricultural intensification has caused a rapid decline in biodiversity across most taxa worldwide (e.g. Krebs et al. 1999).

Today there exists a broad consciousness that agriculture is far more than food production. The present and future form of agriculture will substantially influence conditions of all life on earth and the sensual qualities of our living environment and landscape.

Consumers show growing interest in the added values and side effects of agriculture. They tend to pay more attention to the context in which food is produced, and demonstrate – to a certain extent – the willingness to pay for food produced locally, fairly and environmentally friendly with a corresponding price. Simultaneously more and more governments, mainly in Europe, develop programs to support farmers financially and methodologically in endeavours to enhance the diversity of life in the agricultural landscape or to preserve ancient cultivated landscapes.

In this general and worldwide trend, in this fundamental change of paradigm concerning the role and task of agriculture, Organic Agriculture (OA) in particular takes a leading role and shows the way with inspiring examples and new ideas to link food production with fostering biodiversity and landscape quality.

The philosophy of Organic Agriculture is based on the principles of health, ecology, fairness and care: “Those who produce, process, trade, or consume organic products should protect and benefit the common environment including landscapes, climate, habitats, biodiversity, air and water” – this declaration in the Principles of Organic Agriculture summarises this philosophy (see box p. ix). Meanwhile dozens of studies show the beneficial effects of OA on biodiversity (see e.g. Bengtsson et al. 2005).

However, repeatedly scientists and organisations postulate, that OA could and should more effectively foster biodiversity and better develop its inherent potential in this field (Stolton et al. 2003/Bosshard 2003). This criticism was the reason that ELPR Ecology and Landscape Ltd., in co-operation with the biodynamic movement in Switzerland (Section for Agriculture, Goetheanum, CH-Dornach) and the Research Institute for Organic Agriculture (FiBL, CH-Frick), launched a motion towards the IFOAM general assembly that called for concrete endeavours.

The motion was accepted 2002, and in 2003 IFOAM started a process that was accompanied and supported by IUCN (International Union for the Conservation of Nature) and BfN (Bundesamt für Naturschutz / German Agency for Nature Conservation). Part of this process was the aim to develop extension programs, know-how building and motivation toward farmers, advisers and certifiers in the field of biodiversity and landscape quality (Bosshard 2005). Thanks to the

financial support of the Software AG Stiftung it was possible to elaborate the present book. It is a valuable mosaic stone within the endeavours to strengthen the contribution of Organic Agriculture towards a holistic sustainability of agricultural land use.

For that purpose this guide:

- compiles, in an easily understandable form, the most important ecological principles and facts in respect to the agricultural role and potential to foster biodiversity and landscape quality
- describes successful examples how to implement these principles with a wide variety of different crops, climates and farm structures,
- shows that biodiversity and landscape measures are not only a burden, but on the contrary may actually increase income and open new market opportunities, hence can have a synergetic effect and strengthen the economic and productive base of a farm.

The guide will support and inspire:

- farmers, who are the key players in realizing biodiversity and landscape values in the cultural landscape. The more they understand the potential benefits of particular endeavours, the more likely they are motivated to develop their own solutions, visions and concepts in the particular context of their farm.
- Consultants ,who support farmers in realizing their biodiversity and landscape quality endeavours.
- certification bodies and member organisations of IFOAM and other organisations, which develop regionally adapted standards and measures to enhance biodiversity and landscape quality in farming systems.
- certifiers, who will need the knowledge to assess, control and monitor the issues addressed by the standards

However, this book is not only addressed to Organic Agriculture and organic farmers. The principles are valid for every form of agriculture, and the respective examples can be implemented on every farm.

A particular challenge for the book was to cover or at least touch upon an extremely wide variety of climatic conditions, conservation priorities, habitats, cultivation methods, traditions and farm structures in different regions of the world. Each landscape and ultimately, every farm needs its own specific measures to conserve its particular biodiversity. Accordingly the present book can only give suggestions that need to be elaborated further, leading to regionally and locally adapted solutions, or that catalyse the elaboration of brochures, courses or particular standards.

The guide was elaborated within a wide, international network of experienced institutions and authors, with expertise in biodiversity and landscape science, in nature conservation, in extension and education, and in (organic) agriculture. I thank all authors from around the world for their valuable, irreplaceable original contributions. I also thank Software AG Stiftung for its financial support for the preparation of this publication.

Andreas Bosshard, CEO of ELPR Ecology & Landscape Planning & Research Ltd.



## EXTENDED SUMMARY

The disastrous extinction of individual species and the rapid disappearance of unique landscapes on our planet are both closely related and linked to agriculture. However, agriculture has the task and potential to nourish the growing human population by not only using but also fostering the incredible richness of life forms and sensual expressions in landscapes on earth.

In Organic Agriculture biodiversity and aesthetic landscape quality is an essential element and guiding principle since the beginning of the organic movement. However, the process that leads from guiding principles to concrete measures and visible effects on the farm and on each field constitutes a permanent challenge – not only for farmers but also for advisers, researchers, politicians and officials.

This present Guide Book is designed to provide substantial support for this process, from the original concept to its realization. It is intended to help farmers overcome the numerous restrictions that exist today whether they be economic, agronomic, or otherwise.

This Guide consists of two components, that enhance each other: The first one is the examples of existing and well working prototypes of innovations worldwide, that are able to substantially enhance biodiversity and sensual landscape quality within the economic and agronomic context. Their intention is to inspire, to motivate and to provide concrete information on how to realize effective measures on a single farm.

If the implementation and adaptation of the innovative examples are to be successful, it is necessary to understand how and why they work. Therefore the outline of prototypes is accompanied by chapters that explain the most important ecological and agricultural principles, facts and ideas in a comprehensive way. This is the second component of the guide.

The book is seen as a first, inevitably unfinished collection of such “prototypes” to be completed in the future. The described examples cover a representative variety of farm types, climatic conditions, cultivation methods, conservation priorities, habitats and farming traditions. Chapters concentrate on pastoral systems, agroforestry and annual cropping systems. There are case studies from different agro-ecological zones from around the world, suggestions and examples of practical demonstrations that are appropriate, and also specialist advice for the conservation of rare species, unique cultural landscapes and some well developed special cropping systems. Particular emphasis is put on whole farm planning approaches and on the aspect of the aesthetic and historical quality of landscape.

The more that farmers and advisers understand the potential benefits and effectiveness of the various possible actions, the more they will be able to develop their own solutions, visions and concepts in the particular context of their own farm or region. Accordingly, this guide is not merely addressed to Organic Agriculture, but can be translated to every form of farm and agriculture.

## *Levels of diversity*

Biodiversity in agriculture incorporates a range of different ‘diversities’. There are differences to be seen even between individuals of plant or animal species. These genetic differences form the basis of all diversity. A second level is the diversity between species, and a third level between habitats and ecosystems. Each level is important and has to be respected for its approach that intends to improve the situation of a farm in a holistic way (Chapters 1 and 2, see also box below).

The set of ecotypes, races, breeds, species or ecosystems found on a farm or landscape is dependent on the type of agriculture that is practiced, whether extensive animal rearing or annual or perennial cropping, as well as the natural environment (soil, climate etc.). In all cases the biodiversity on the farm can be optimized by understanding the wild flora and fauna typical of the region, and investigating traditional agricultural systems (discussed in Chapters 1, 2 and 4). Measures to increase biodiversity on the farm vary from one agro-ecological zone and farming system to another, but all share principles of provision of wild habitat by activities such as developing wild margins, leaving natural plants incorporated within the crop areas and reducing mechanical disturbance across the farmed area. (Case studies from around the world are in chapter 3).

Recently published studies show that organic farming increases biodiversity at every level of the food chain (Fuller et al., 2005), and that there are also greater total areas of semi-natural habitat on organic farms (Gibson et al., 2007). However, many, organic farms would have a distinctly higher potential to develop their natural values. Intentional planning for wild species not only increases the range of organisms, but also the range of ecosystems within the farm. Incorporating structural elements that can act as habitat, such as live fences, increases the number of species on the farm, but also contributes to a diversity of different ecosystem types and a distinct landscape character (Chapters 3 and 4).

Combining and managing a diversity of ecosystems on one farm is a strategy that has been practiced worldwide for many hundreds, if not thousands of years. Farmers have learned to optimize use of their land, both in space and time, by choosing different crop combinations and farming practices that are mutually beneficial. The multi cropping seen on many smallholder farms has arisen over years of development, as have very specific ‘mutualisms’ such as those using duck, fish, or a combination of both in paddy rice (Chapter 4). Ongoing research on optimal conditions and species maximize these types of benefits. Documentation and sharing of traditional practices from around the world can encourage, and provide information for farmers.

## *Landscape Level Planning*

Once diversity is considered at an ecosystem level it is apparent that this can also go beyond the single farm. It may be that a watershed has to be taken as a ‘whole’, or a group of farms together can increase the benefits to rural communities – perhaps in landscape and cultural terms, and at this level participatory involvement of various stakeholders is desirable (Chapters 4.2.1, 5

and 7). Natural habitat and the linking of fragments left within a predominantly agricultural landscape setting are most effective at maintaining or enhancing biodiversity. This will often involve different landowners and other users of the relevant ecosystem services. Other landscape issues such as large scale water conservation schemes, flood prevention or pollution control also require extensive collaboration. Both detrimental effects and positive benefits may be felt by a large number of species (chapter 5). A whole ecosystem protection approach to these situations can also benefit rare and keystone species – especially as it is clear that our knowledge of the biological inhabitants of this planet is limited to such an extent that unknown species are becoming extinct or are threatened daily. An alternative protection strategy is to focus on the particular needs of priority species and establish how these can be addressed – often in simple ways that might cause little work or economic change for farmers (Chapter 6).

### *Aesthetics, culture, history and the spirit of place*

Nature as basis for agriculture has, beside its a-biotic and biotic aspects, also a sensual (aesthetic) and cultural component. This component is called here landscape (see box below). The more people live in towns far from nature and primary production, the more the need for intact natural spaces as well as (agri)cultural landscapes becomes essential. The landscape in its cultural and aesthetic aspects is of importance to people as physical and spiritual beings. Indeed the distinctive atmospheres of a particular place, the manifold inspirations of different landscapes not only cause us to judge them as beautiful or ugly, but also contributes, as meanwhile shown by extensive studies, to the well being of those who live and work there or visit them (Chapters 1.3 and 7, and box below). Thus, landscape and its quality and effects has to be incorporated into a holistic concept of agricultural sustainability (Chapter 8). As sensual and cultural values of an (agri)cultural landscape often are closely related with biodiversity values, this Guide covers both aspects.

There remains more to be discovered, e.g. how farming systems, especially in the biological hot-spots of the tropics, can work in harmony with nature before being tempted to follow the route of the so called ‘developed’ world; or how landscape quality as a clear concept like the conservation of species can be integrated in holistic farm management. Sharing experiences through expanding communication mechanisms as intended with this book can lead to learning and to an ongoing process of further innovation.

The publication of this Guide is an expression of IFOAM’s endeavor to promote and further develop the Principles of Organic Agriculture and thus inspire positive actions how agricultural practices can improve both healthy ecosystems and farm productivity.

## INTRODUCTION

Biodiversity and landscape quality is essential, particularly for agriculture. For Organic Agriculture, the enhancement of biodiversity and landscape quality is a guiding principle since the beginnings of the organic movement. The principle became of growing importance with worldwide recognition of a disastrous extinction of species – to a wide extent driven by unsustainable agricultural practices (Millennium Ecosystem Assessment, 2005) – as well as of the general disappearance of characteristic, highly structured, cultural landscapes with an intrinsic productivity. The decline has meanwhile taken existential proportions for the survival of mankind and the future of earth.

### *From principle to action*

The way from guiding principles to concrete measures and visible effects on the farm and field is a difficult task and a permanent challenge. The implementation has to deal with many restrictions within the daily farm reality: There are economic constraints, constraints of knowledge, or restrictions of available manpower, and many more. Each single measure taken into account should be sustainable in the sense of bearable and acceptable for the farm in the long run.

A substantial help in this challenging process from principle to action may be provided by existing, well working prototypes of innovations. The promotion of successful examples inspires and motivates and gives concrete hints for actions on the given farm.

The present guide is a first collection of such “prototypes” from all over the world. We have tried to cover a representative variety of farm types, climatic conditions, cultivation methods, conservation priorities, habitats, and farming traditions. Thus for most farm situations there should be found relevant examples.

In addition we tried to select examples that are not only “bearable” for a farmer or a farm, but that might even have clear positive effects in different respects, be it economically, in respect to productivity or to life quality. Win-win situations are much more motivating and have a more general implementation potential than solutions that need particular resources or that decrease income or productivity. This guide intends to show that there exists a wide range of measures enhancing biodiversity and landscape quality that are not a burden, but on the contrary may have manifold positive effects on the farm – e.g. reduce work load or open new market opportunities. Of course, many actions demand a long breath, while success is uncertain, some examples also do not provide win-win results at all, but might be just for the pleasure or “intrinsic” life quality of the farmers livelihood – such as keeping beautiful old breeds or cultivating flower strips.

When designing the guide we were aware that the description of examples alone is not sufficient. In order to transform the “prototypes” into the particular situations of single farms and regions an understanding of why and how the examples work is essential. Therefore the given examples are accompanied by chapters that explain the most important ecological and agricultural principles, facts and thoughts in an easily understandable form. The more farmers

and advisers understand the potential benefits of particular endeavours, the more they will be able to develop their own solutions, visions and concepts in the particular context of their own farm. Accordingly, this guide is not only addressed to Organic Agriculture, but can be translated to every kind of farm and agriculture.

### *Agriculture is biodiversity and landscape management*

A close relation between biodiversity and landscape quality on one side and agricultural practices on the other is particularly given for Organic Agriculture. Two different aspects within this interrelation should be distinguished.

First, biodiversity touches the functionality of the farming system in its fundamentals: All agricultural activities and all farming outputs are widely dependent on organisms, of which the composition and diversity of wild and domesticated species forms the key component. More than other production systems Organic Agriculture is focused on a cooperation rather than a “control” approach and therefore has an intrinsic interest in a healthy, diverse and stable environment with an “enhanced” biodiversity. The presence or absence of particular – wild and domesticated – species decides to a large extent what can be produced on a farm. Species can be helpful as well as harmful. And species and their characteristics (within and between species) are responsible for and origin of for the most important ecosystem services. As the unforeseen repercussions of ecosystem destruction have become evident and also economically relevant, research is now demonstrating the benefits to be gained of this approach (Harpinder et al, 2008; Ash and Jenkins, 2007).

Second, to a wide extent also the opposite is true: biodiversity and landscape quality is essentially dependent on farming activities wherever a place is used for primary production. Agriculture may harm, but also foster biodiversity and landscape quality to a wide extent (Millennium Ecosystem Assessment, 2005). It is important to state that in temperate zones particularly the agricultural use of the ecosystems and landscapes raised structural and species diversity as well as the sensual landscape qualities during centuries. In some regions far more than half of the “wild” species depend directly or indirectly on agricultural practices (BDM 2008). Thus the so called “traditional cultural landscapes” i.e. in Mid-Europe or in many parts of Asia can be much richer and more differentiated than the “natural” or original one.

Organic Agriculture has, from its roots, a particular ethical concern about biodiversity and landscape and the effects of agricultural practices towards it. The organic movement regards man as a part of nature with a clear responsibility for the well-being of the planet with all its species and beauty. Interestingly – unexpectedly for many economists – this ethical aspect has become market-relevant. Particularly in industrial countries agriculture is increasingly regarded as far more than merely a branch that provides food in the most “efficient” and profitable way. Consumers show growing interest in the added values and the positive (and negative) side effects of agriculture. And they are even willing to pay a corresponding price for it. Simultaneously more

and more governments, mainly in Europe, developed programs to support farmers financially and methodologically in endeavours to enhance the diversity of life in the agricultural landscape or to preserve ancient cultivated landscapes.

Thus, endeavours to foster biodiversity and landscape quality by adapted agricultural measures and a holistic planning as proposed in this Guide, are not only an ethical commitment, but promise to bring agriculture forward in a functional and economic respect.

### *The origin of the innovations*

Many farmers around the world, often with the help of scientists and advisers, and many scientists and advisers, normally with the help of farmers, are developing and testing techniques that enhance and protect biodiversity and at the same time improve livelihoods and even increase farm production levels and profit. These – sometimes simple – measures are exactly the type of innovations needed for implementing the principles of organic farming and developing the multifunctional agricultural systems which provide healthy food and fiber and income for farming communities, recreational and aesthetic values as well as the maintenance of biodiversity. However, since many of these innovations are often not communicated beyond the regional scope or reduced to generalized global management guidelines, potential integration, modification and further development by other farmers in other regions of the world as well as support for very promising innovative solutions is limited. Collecting, communicating and elucidating concrete and practical innovations as this Guide proposes is therefore, an obvious first step into the right direction.

### *How to use the Guide*

The Guide contains an astounding number and range of innovations from around the globe which should inspire us all to take local action! However, after preparing yourself with the General Principles (Chapter 1) you might choose to go directly to the examples detailed in Chapter 2, 3 and 4 that are most relevant to you. They are divided by agricultural system: pastoral, annual cropping, perennial farming, and then within each one examples are given from different climatic zones. There you can read of innovations described by authors who live and work in, and are familiar with the particular systems described. Examples of trials, the impact upon biodiversity and the farm economy, lessons learned in practice on the ground, suggestions for practical activities to consider and references and websites, should launch you into some creative thinking for your own situation. A good look at ideas from other places and situations can also be stimulating, so then go back and read the rest!

The manual is primarily addressed to fervent (organic) farmers and enthusiastic environmental advisers (in the wider context it is also aimed at scientists, policymakers and students) who are looking for inspiration to adopt, modify and develop innovations which will contribute towards the organic and multifunctional agriculture of the future.



The guide is thought to be a starting point for a book that has to be continued – with all the successful experiences not documented here, and all the experiences, solutions and further developments that were inspired by this starting point.

Developing these practices further is a process of continuous learning and sharing. IFOAM is committed to supporting and facilitating this process, to ensure that Organic Agriculture continues to take the lead in working towards a truly sustainable system of agricultural production.

### **BOX / Definitions**

#### **What is Biodiversity?**

Biodiversity reflects the number, variety and variability of living organisms. It includes diversity within species, between species, and among ecosystems. The concept also covers how this diversity changes from one location to another and over time. Indicators such as the number of species in a given area can help in monitoring certain aspects of biodiversity. (Millennium Ecosystem Assessment, 2005).

#### **What is Landscape Quality?**

##### *Aesthetics, culture, history and the spirit of place*

We distinguish three aspects of nature: an a-biotic, a biotic and a spiritual or immaterial one. If the spiritual aspect does matter for nature, is not at stake at this point, but undoubtedly it is highly relevant for man as it is both – a natural and a spiritual being. The spiritual aspect of nature has many facets. In the context of agriculture a most important element can be called landscape in the sense of the meaning that man creates a particular surrounding. The landscape as “meaning”, also called “atmosphere” or spirit or genius of a place, consists of the interaction between the sensual perception of “things” by man (aesthetics) and the notion that is given to those perceptions. The notion depends at the same time on the perceivable “things” and the cultural and individual mental background of the perceiver (according to Petrarca Foundation, Bosshard 2000, and European Landscape Convention 2000). As a consequence, landscapes can have healthy or also hurtful effects on the people (Abraham et al. 2007).

Biodiversity and aesthetic landscape quality have been essential guiding principles in Organic Agriculture since the beginning of the movement. However the realisation of concrete measures and visible effects on farms and fields constitutes a permanent challenge.

This present Guide Book is designed to provide substantial support for farmers and advisers. It presents a variety of working prototypes of different innovations from around the world that are able to substantially enhance biodiversity and sensual landscape quality within the economic and agronomic restrictions of a farm. The intention of each example is to inspire, to motivate and to provide information on how to undertake effective measures which work in favor of biodiversity and landscape quality.

To understand how and why the examples work, the chapters explain the most important underlying ecological and agricultural principles, facts and ideas in a comprehensive, easily understandable way.

The book covers a representative variety of farm types, climatic conditions, cultivation methods, conservation priorities, habitats and farming traditions. The more that farmers and advisers understand the potential benefits and effectiveness of the various possible actions, the more they will be able to develop their own solutions, visions and concepts in the particular context of their own farm or region. Accordingly, this guide is not merely addressed to those practising Organic Agriculture, but is appropriate for every form of farm and agriculture.

