Knowledge transfer and the development of organic farming

>Helga Willer, FiBL

>Bologna, September 7, 2006

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Overview

- In Europe and worldwide the organic agricultural land continues to expand.
- Growth of land and of numbers of farms is accompanied by better policy support, a growing market and increasing research activities.
- The transfer of knowledge plays an important role for the future development of this sector.

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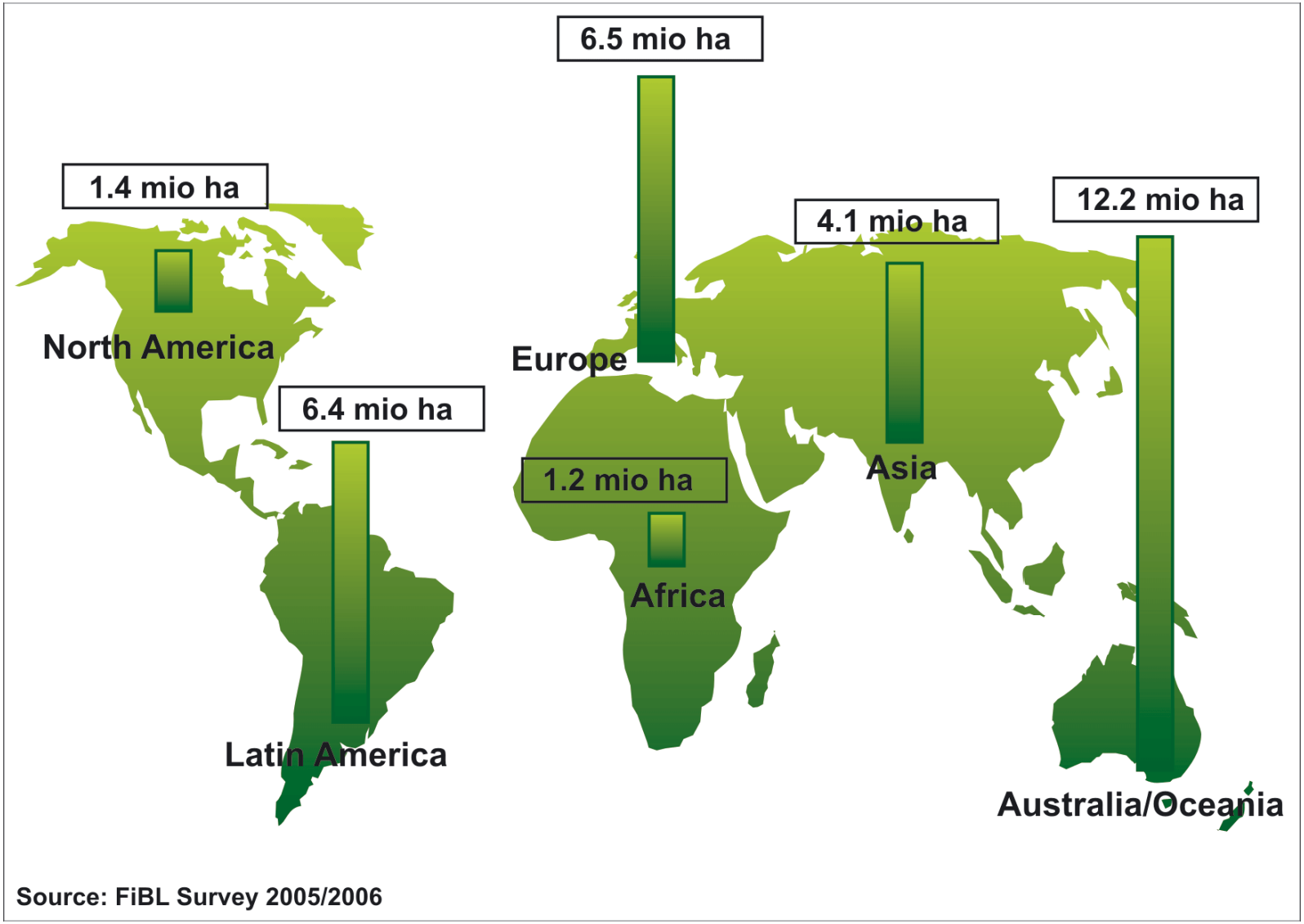
Organic Land as of 2005/2006



Source: FiBL Survey 2005/2006

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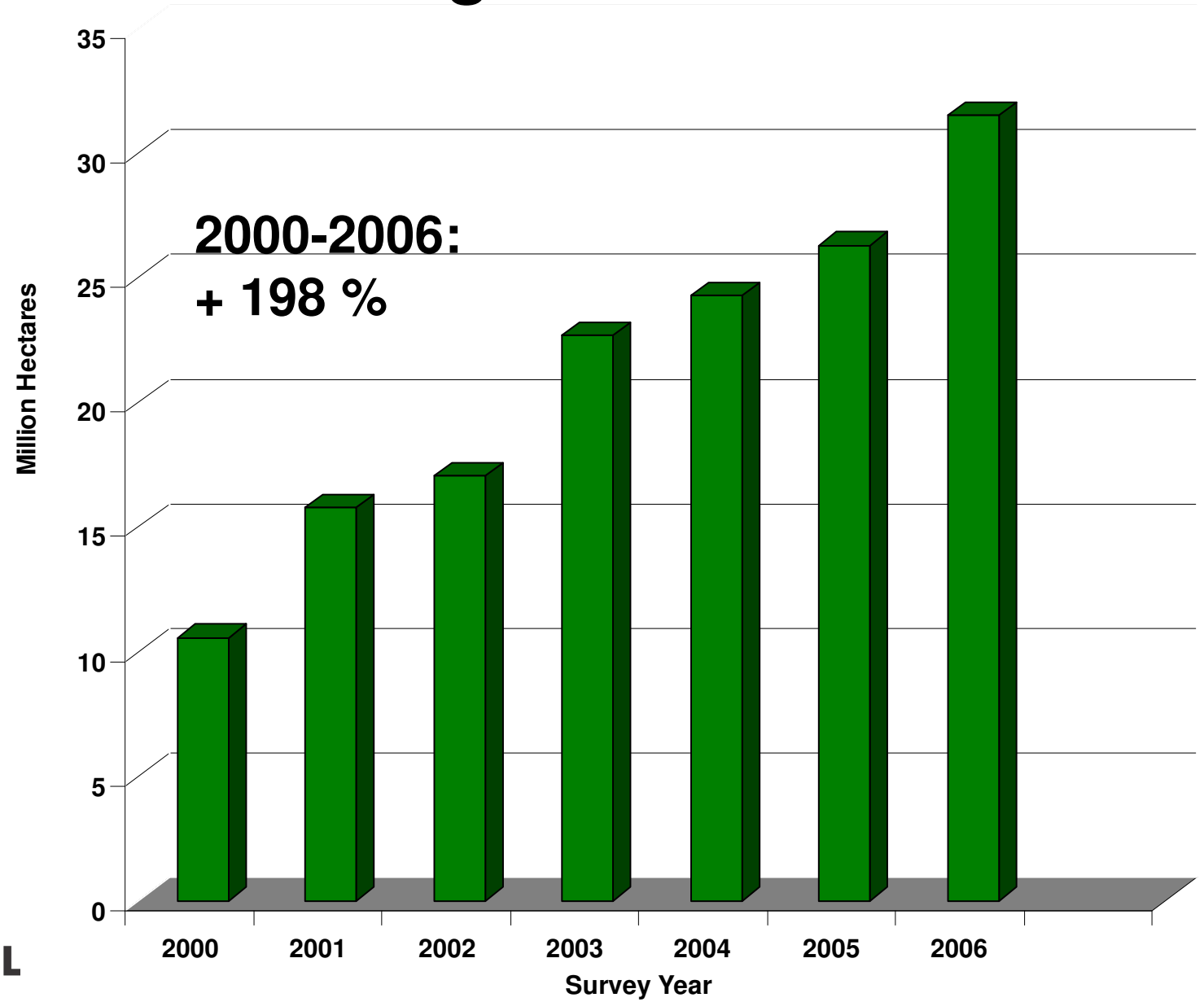
Growth of Organic Land World-Wide



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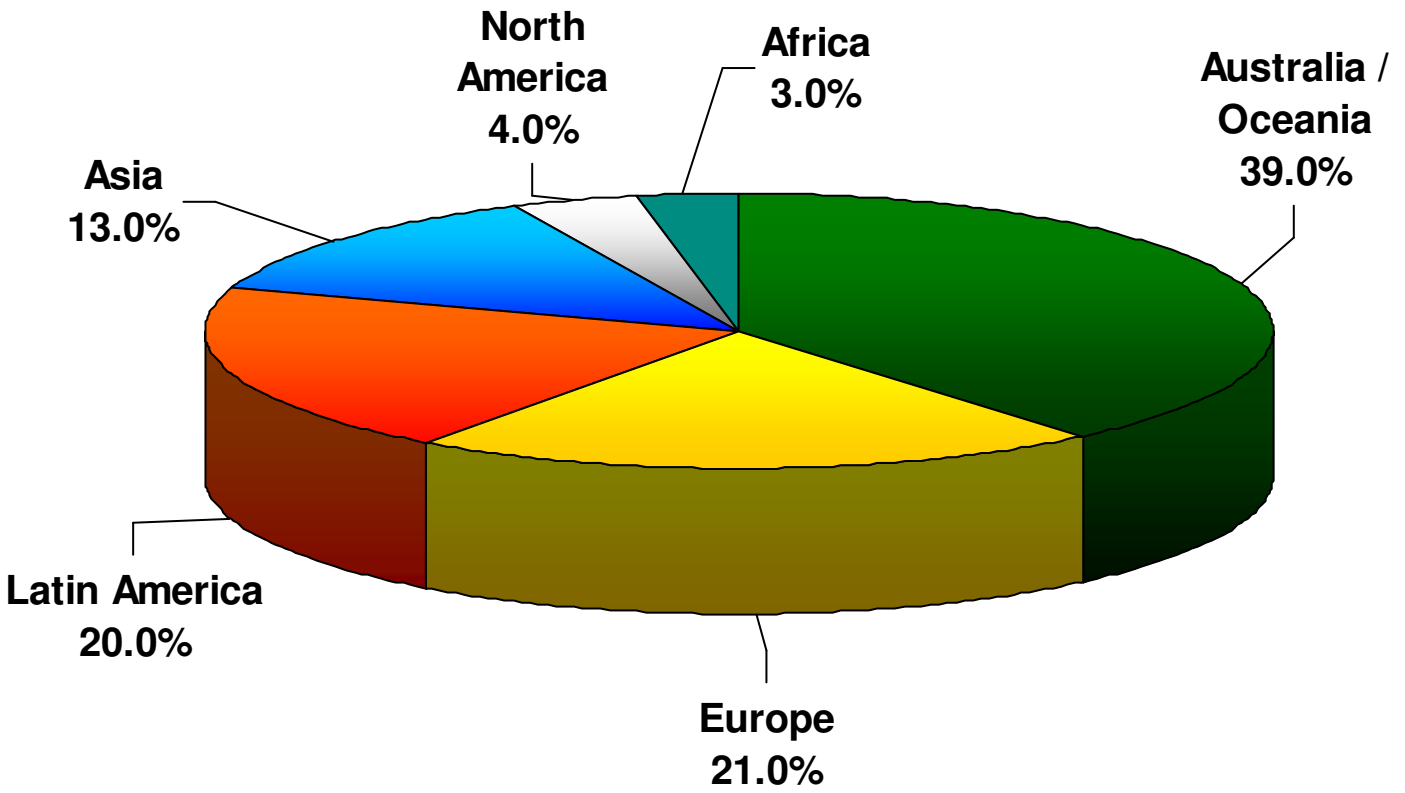
Area under Organic Management – Share per Continent



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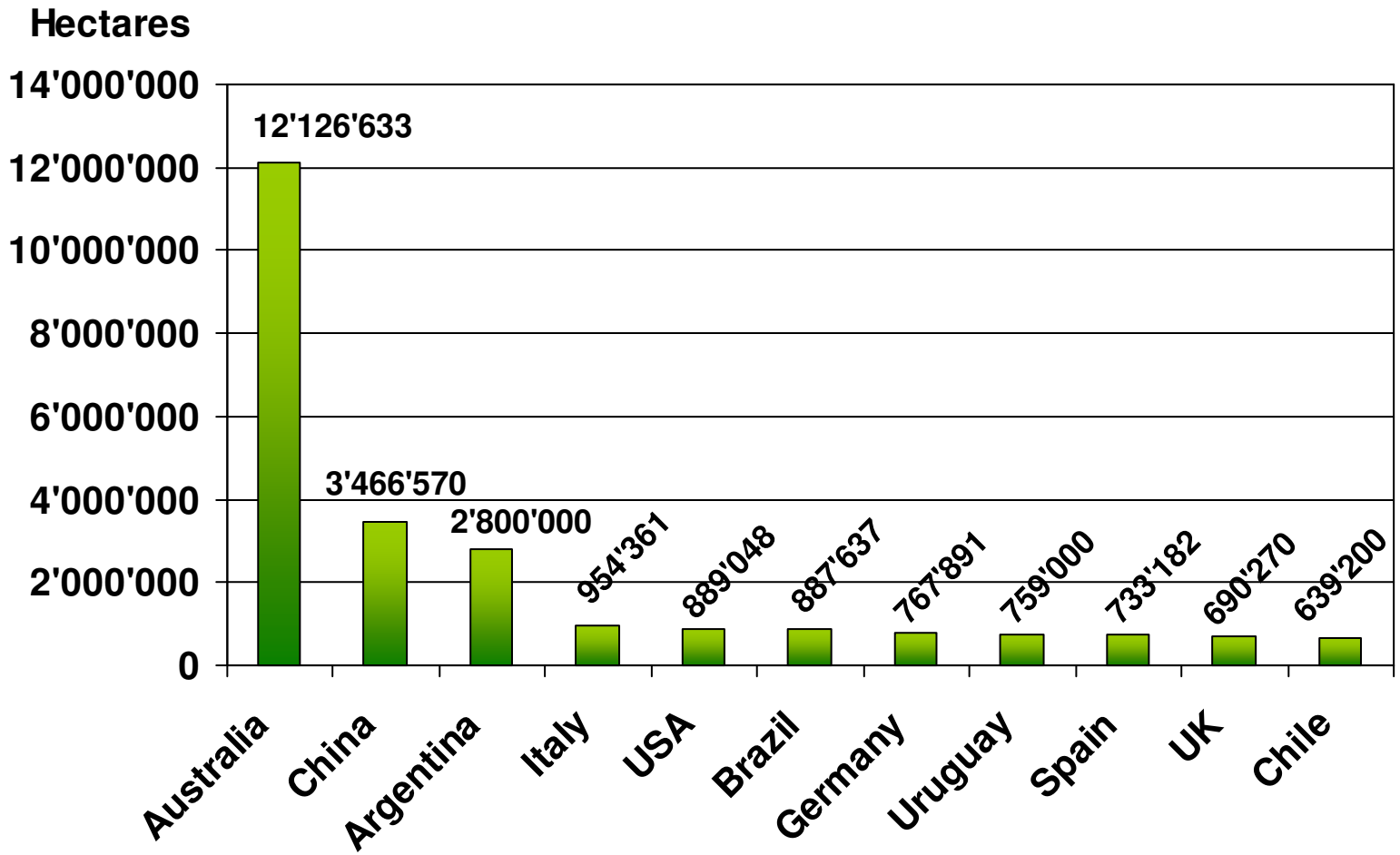
Organic farming world-wide: Current status

- More than 31 million hectares are currently managed organically world-wide
- Highest organic areas
  - Australia (12.1 million hectares)
  - China (3.5 million hectares)
  - Argentina (2.8 million hectares)
  - and Italy with more than one million hectares.
- Highest shares of organic land are in Europe

The 10 countries with the largest area under organic management



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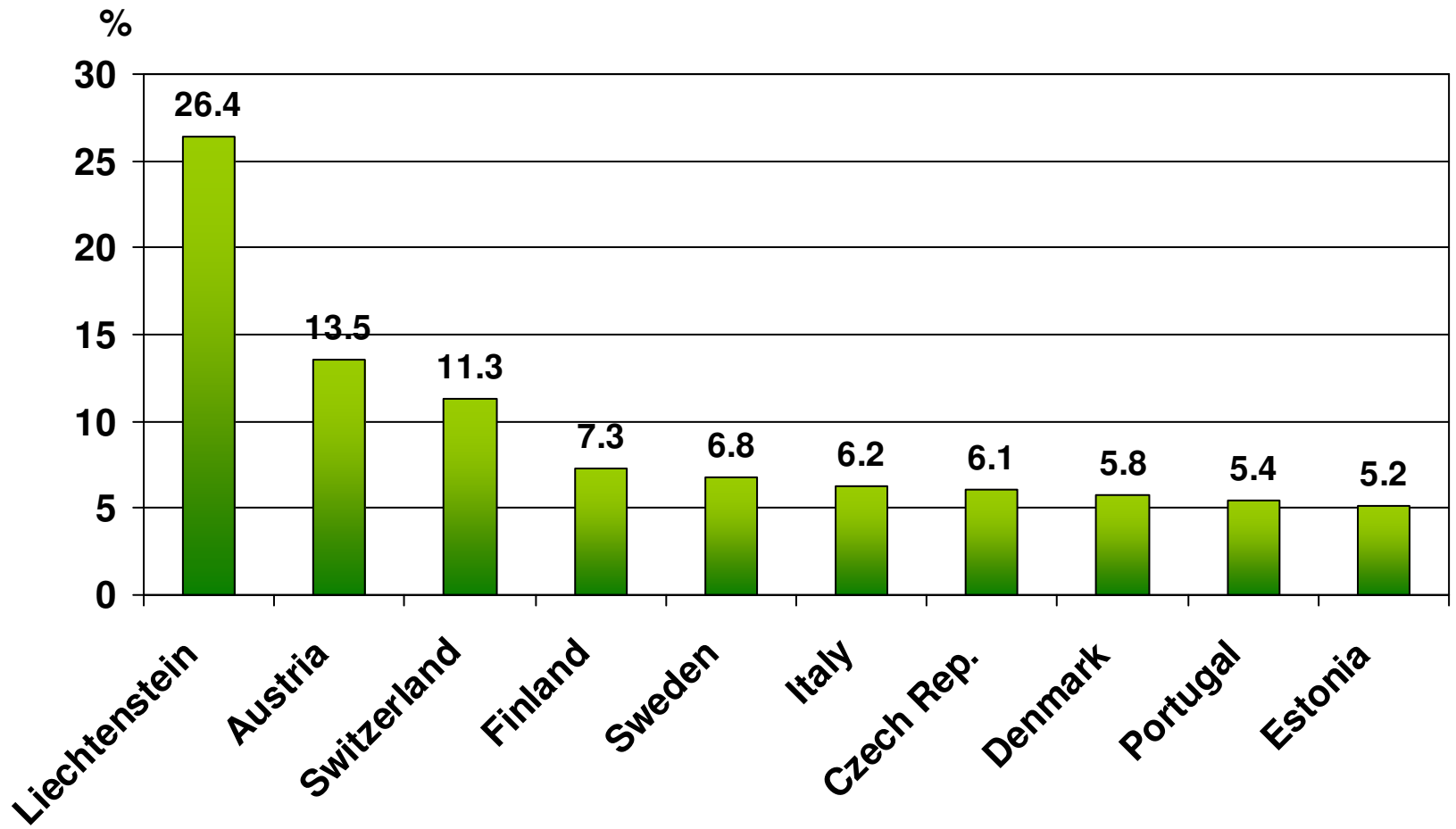
The 10 countries with the highest percentage of organic land



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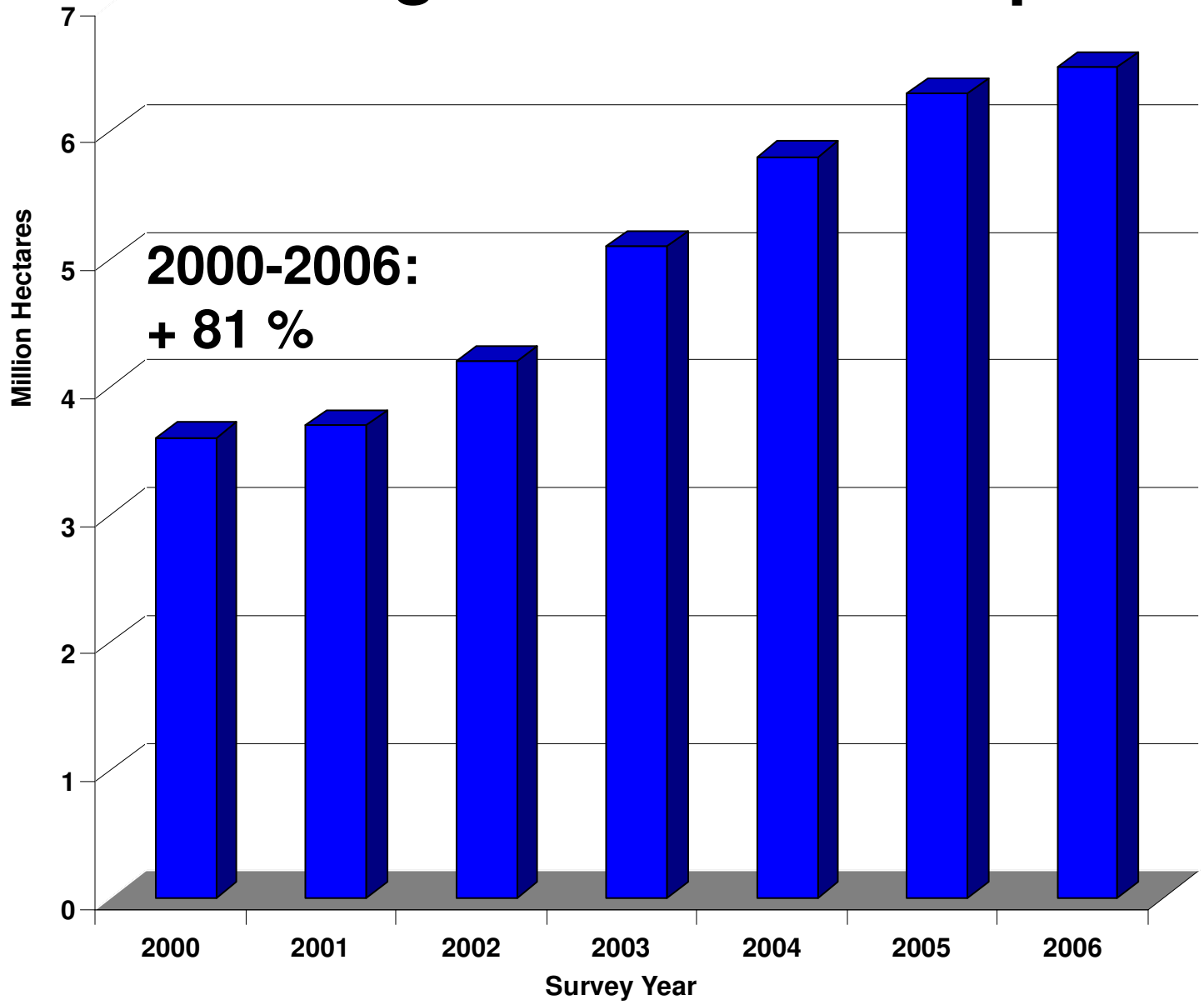
Europe 2005

- **EU**
  ca. 6.2 million hectares, ca. 151’00 farms,
  ca. 3.7 % of the agr. land,
  increase of 9 % from 2004 to 2005
- **Europe**
  6.8 million hectares, almost 180’000 farms,
  ca. 2.3 % of the agr. land ,
  increase from 2004 to 2005: 7 %
- **Austria 14% of agr. land is organic**
  Switzerland: 11%
  Estonia: 6.5 %

Growth of organic land in Europe



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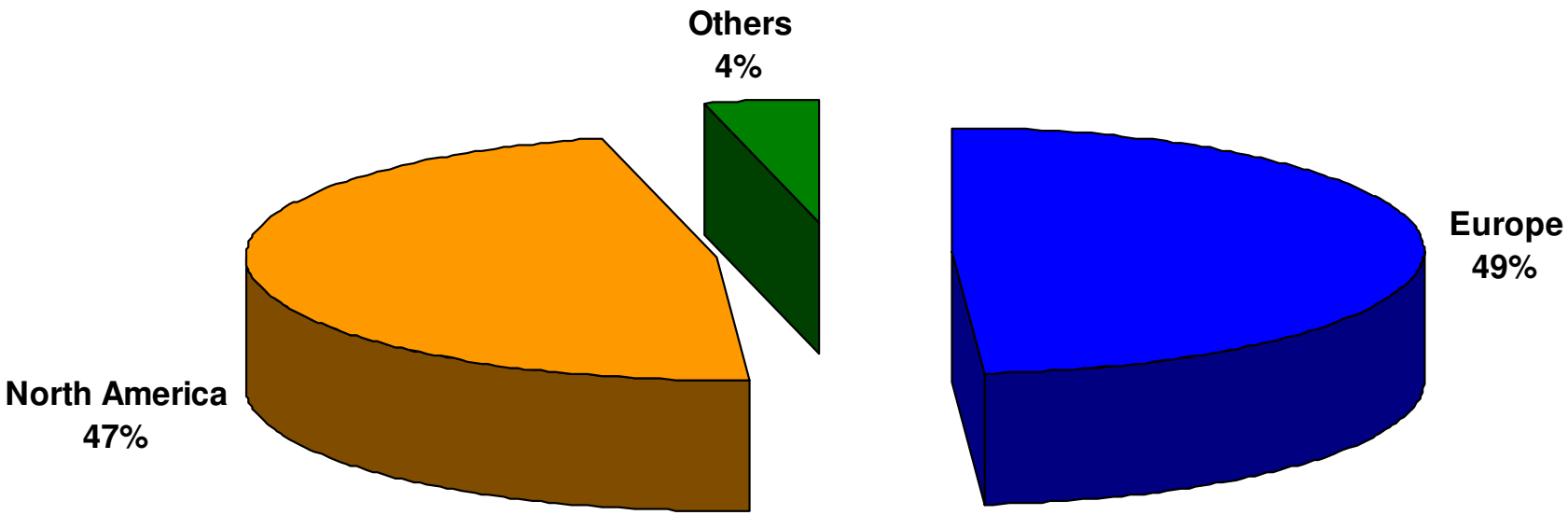
The Global Market for Organic Food

- Market Size (2004) EUR 21.6 billion
- Market Growth 2003 – 2004 ≈ 9%
- Leading Regions
  - Europe (49%)
  - North America (47%)
- Country Markets
  - USA: EUR 9.5 billion
  - Germany: EUR 3.3 billion
  - Italy: EUR 1.7 billion

Global Market for Organic Food: Revenue Breakdown 2004



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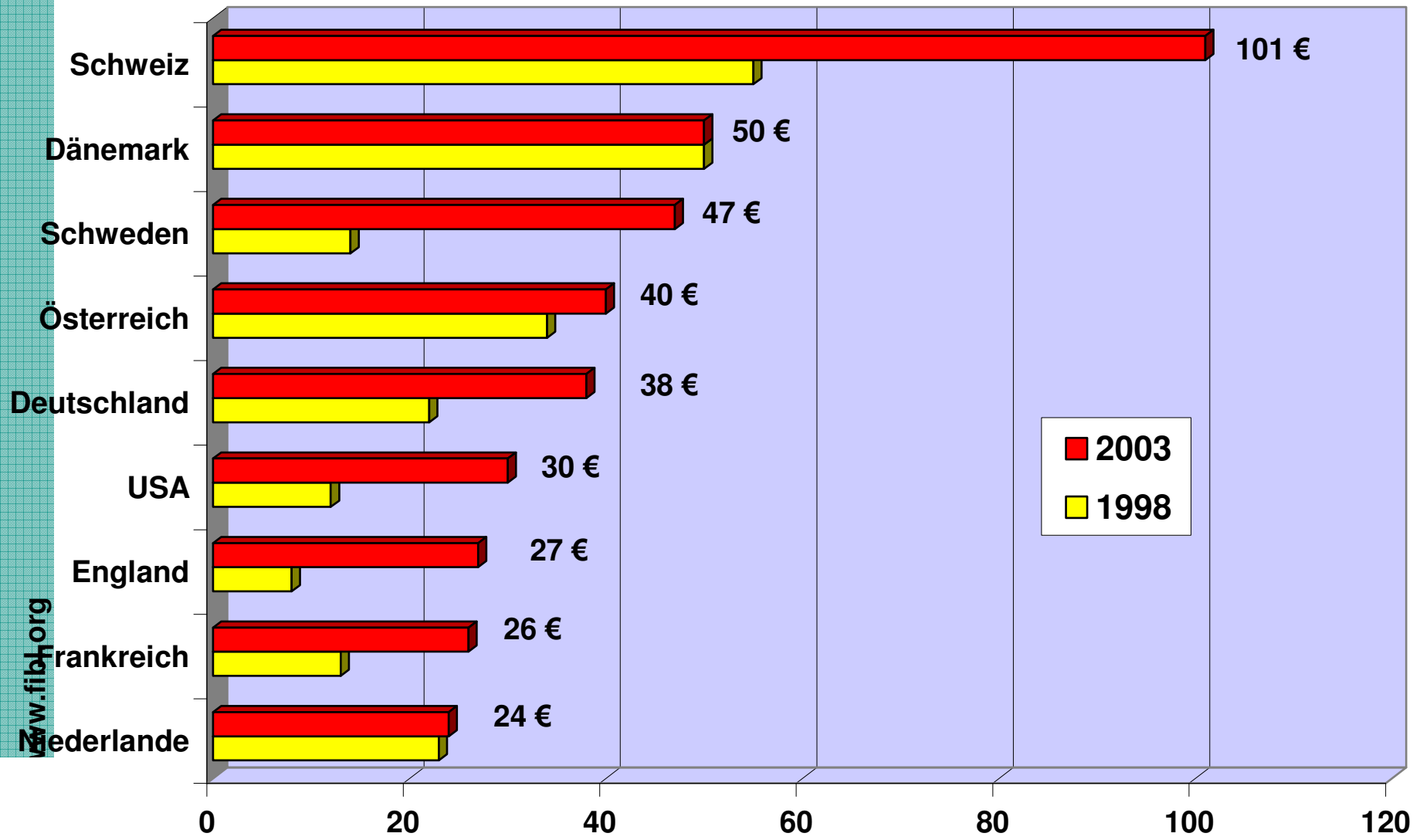
Sahota,2006

Per Capita Consumption in €



Market Outlook

- North America to comprise majority global revenue
- Supply-demand imbalances to continue
- Decreasing sales concentration due to high growth in other regions
- Demand for certified organic products linked to economic development and education

The regulated organic world

US-NOP

EU-Reg. ISO 65

JAS

IFOAM Accr.

National Requirements

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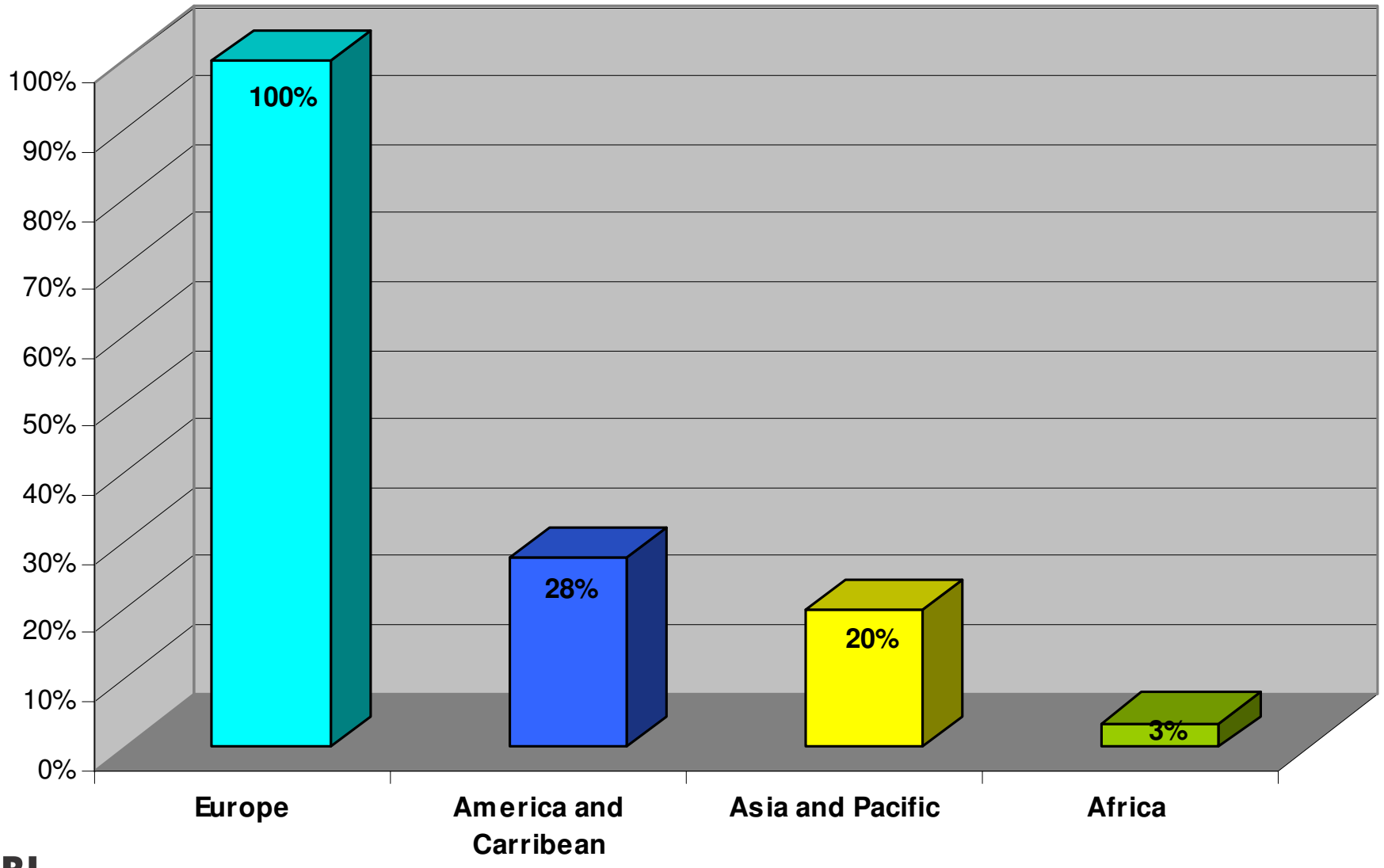
Organic Regulations in the World



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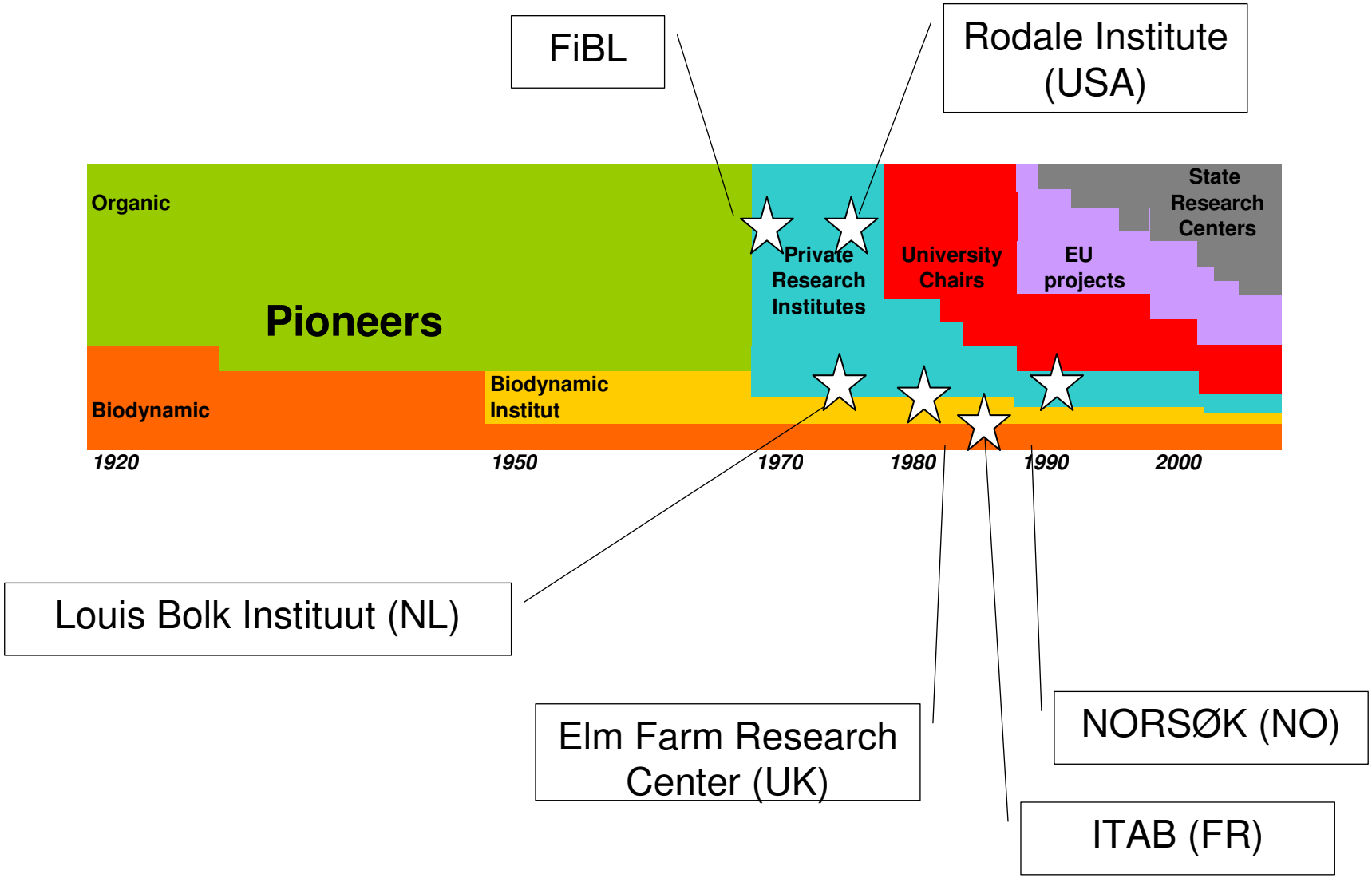
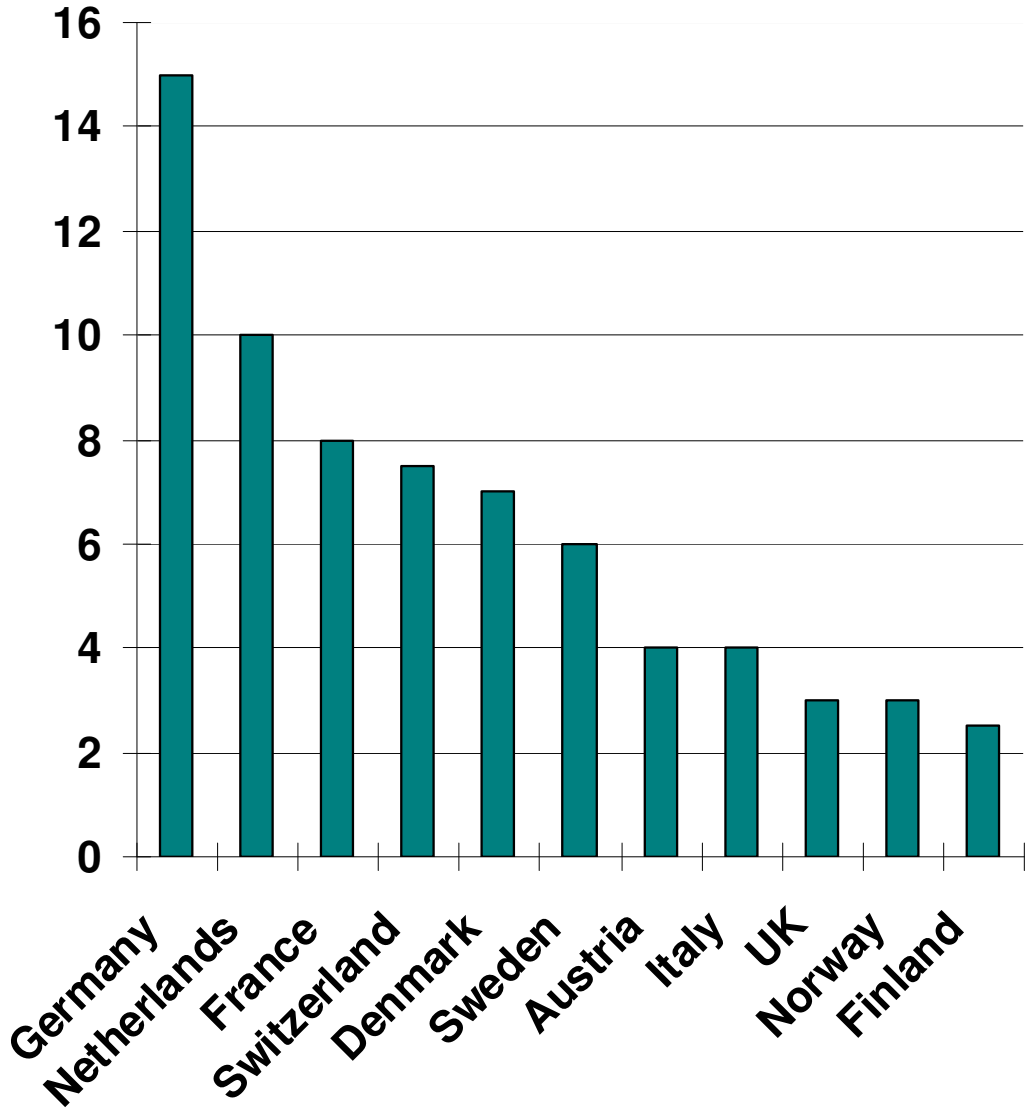
Other Government Support

- Direct payments for farmers, other rural support schemes, including training and advice (Europe)
- Action plans (Europe)
- Export / marketing support (Europe, Asia, Latin America, Africa)
- Development aid for countries in the South (Europe, North America, Australia)

Development of organic farming research



Annual Expenditure for Organic Farming Research



Total in these countries 80 Million Euros annually

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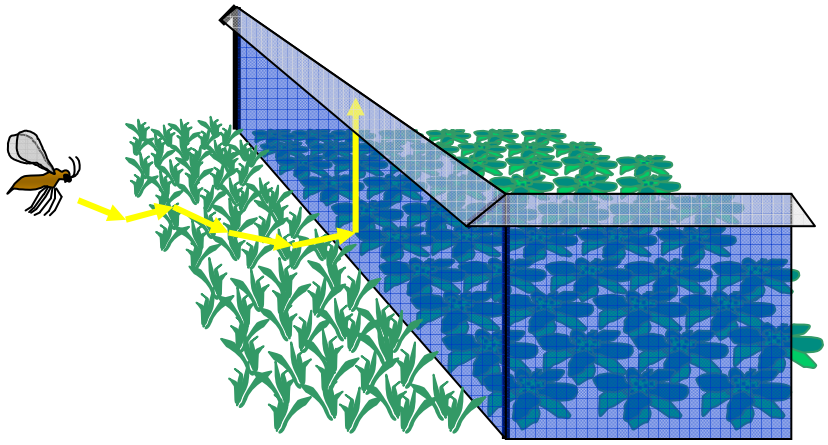
Research needs

- Crop protection in fruit, grapes and vegetables
- Animal health
- Seed production
- Health
- Food Quality

Self regulation

Technical solutions: Physical barriers

- Carrot fly
- Cabbage fly

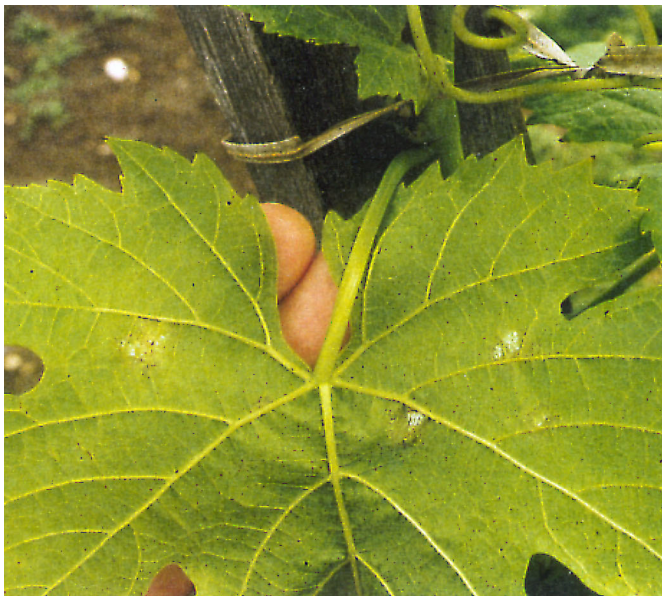


Varieties

Induced Resistance

Control

PEN



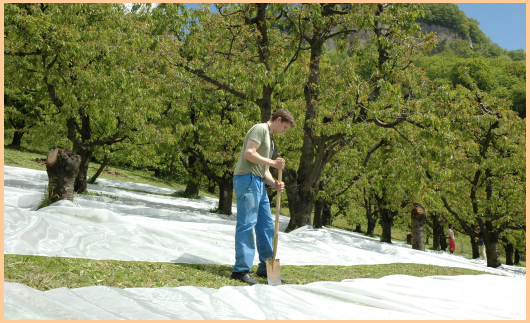
Regulation of cherry fly


Traps

Natural Insecticides

Repellents

Nets



Biocontrol - Fungi


Biocontrol


Nematodes

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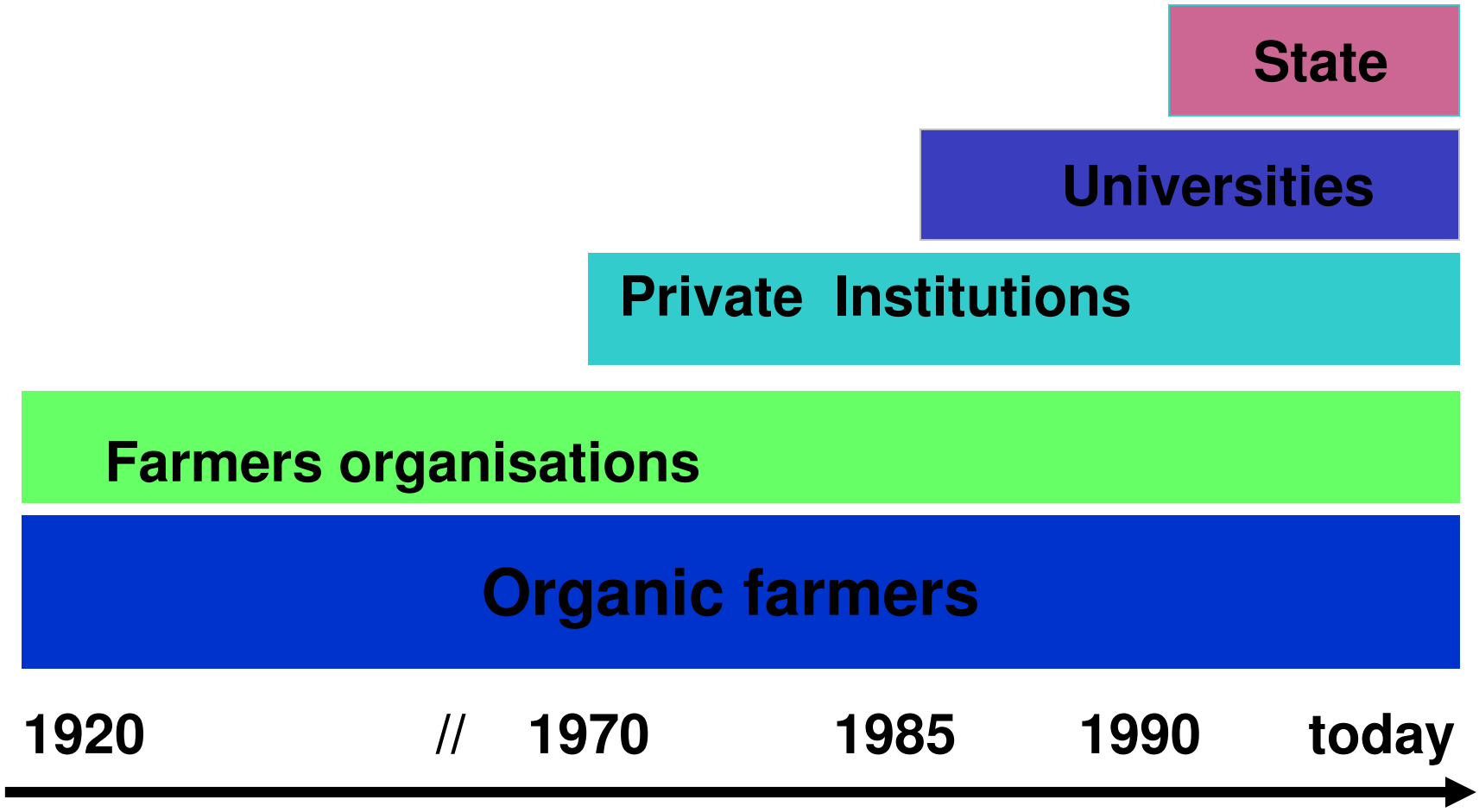
Knowledge Transfer in Organic Farming

- Knowledge is an important prerequisite for economical success and quality assurance in organic farming, and thus plays a pivotal role in its further development.

Knowledge Transfer – a challenge

- Often basic knowledge on organic farming is not available to farmers or not adapted to specific situations
- Advisors: major effort to keep themselves informed about current research results (scientific jargon, accessibilty)
- Research institutions very often do not consider the transfer of knowledge to agricultural practice as their task
- Stakeholders are not always involved in priority setting of research and dissemination
- The importance of knowledge transfer and the efforts it takes for its implementation is often not realized

More and more „knowledge providers“



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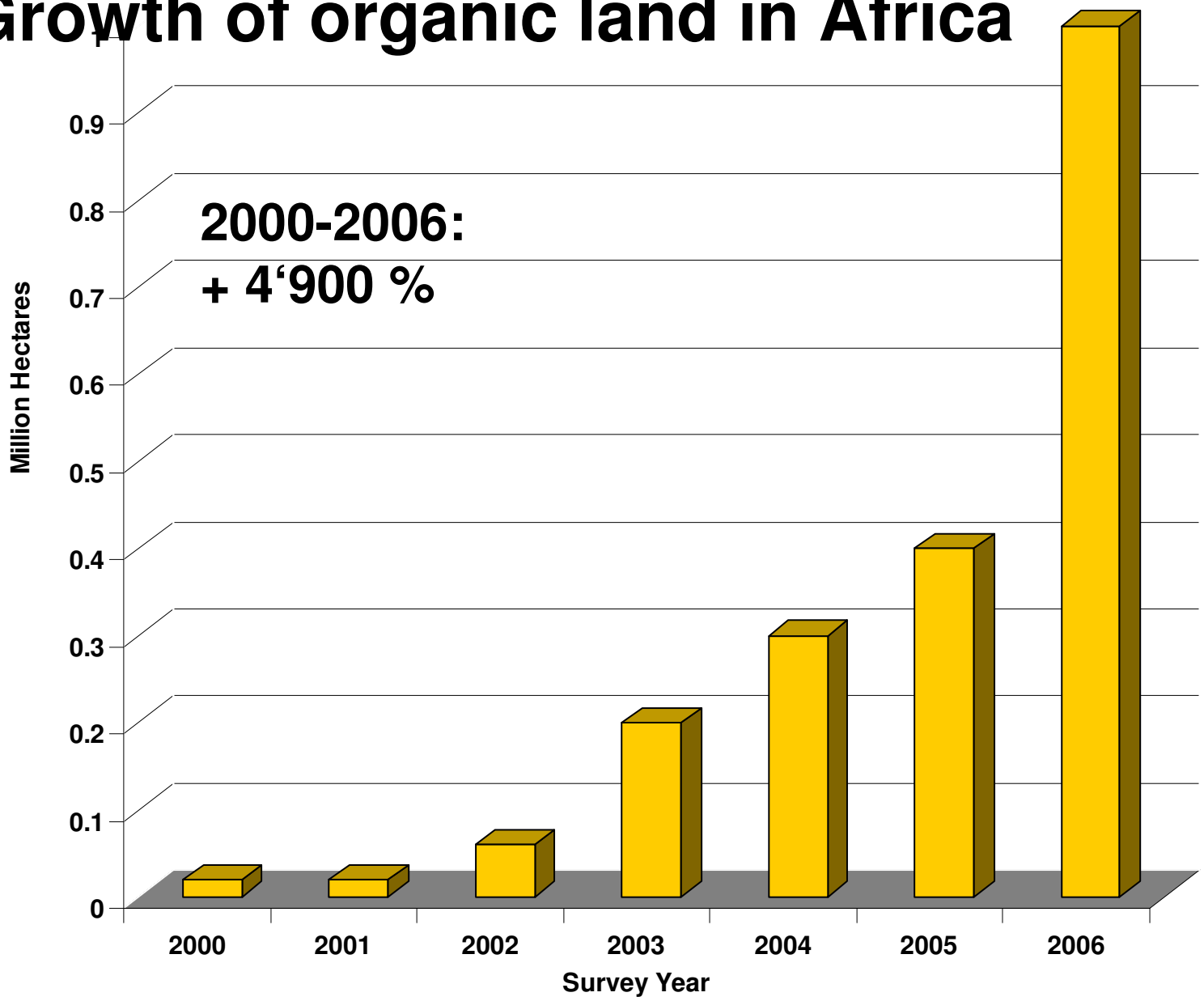
Growth of organic land in Africa



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Uganda: The importance of knowledge transfer

- Uganda: Currently 185‘000 hectares under organic management; ca. 1.5 % of agricultural land
- Most of the products are for export
- With NOGAMU, the National Organic Agriculture Movement of Organic Agriculture there is a good representation of the organic sector

Uganda: Current Challenges

- Credibility of organic certification is at stake because of the lack of compliance to organic standards
- Non-use of chemical inputs as the only organic practice due to lack of practical knowledge
- Often no crop rotations, use of treated seeds, poor post harvest handling
- Farmers have little knowledge / access to knowledge

Uganda: Suggested measures (examples)

- Train farmers in the basic principles of organic farming
- Train farmers in appropriate agronomic practices
- Train company staff and inspectors in standards and certification

European Action Plan for Organic Food and Farming

- Organic farmers: Participate in advisory or extension services (open farms, share experience)
- Set-up of advisory structures particularly in the new Member States
- Develop research and technical support
- Extension services should ideally be the link between practice and research.
- Include information on organic farming/products in vocational training, offer specific training courses.

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European Organic Action Plan
Action No. 6

- **The Commission strongly recommends Member States to make full use within their rural development programmes of the instruments available to:**
- **….**
- **support to extension services;**
- **training and education for all operators in organic farming, covering production, processing and marketing.**

Switzerland as an Example

- High share of land under organic management (10 %)
- Highest per capita consumption of organic products: 100 Euro per year
- Factors for the success of Swiss organic farming are
  - a positive agripolicy environment,
  - a major involvement of the Swiss supermarket chains Coop and Migros,
  - a united organic sector
  - activities of the Research Institute of Organic Agriculture which unites organic farming research with a range of knowledge transfer activities.

Switzerland – History

- Until the 1970s: Pioneers organised themselves and exchanged their knowledge in regional groups
- 1973: Research Institute of Organic Agriculture FiBL founded, in order to provide research and advice
- Since the 1990s: Federal research stations, general advisory service became active.
- FiBL is still the key institution, due to the fact that research, knowledge transfer with various tools are all under one roof.

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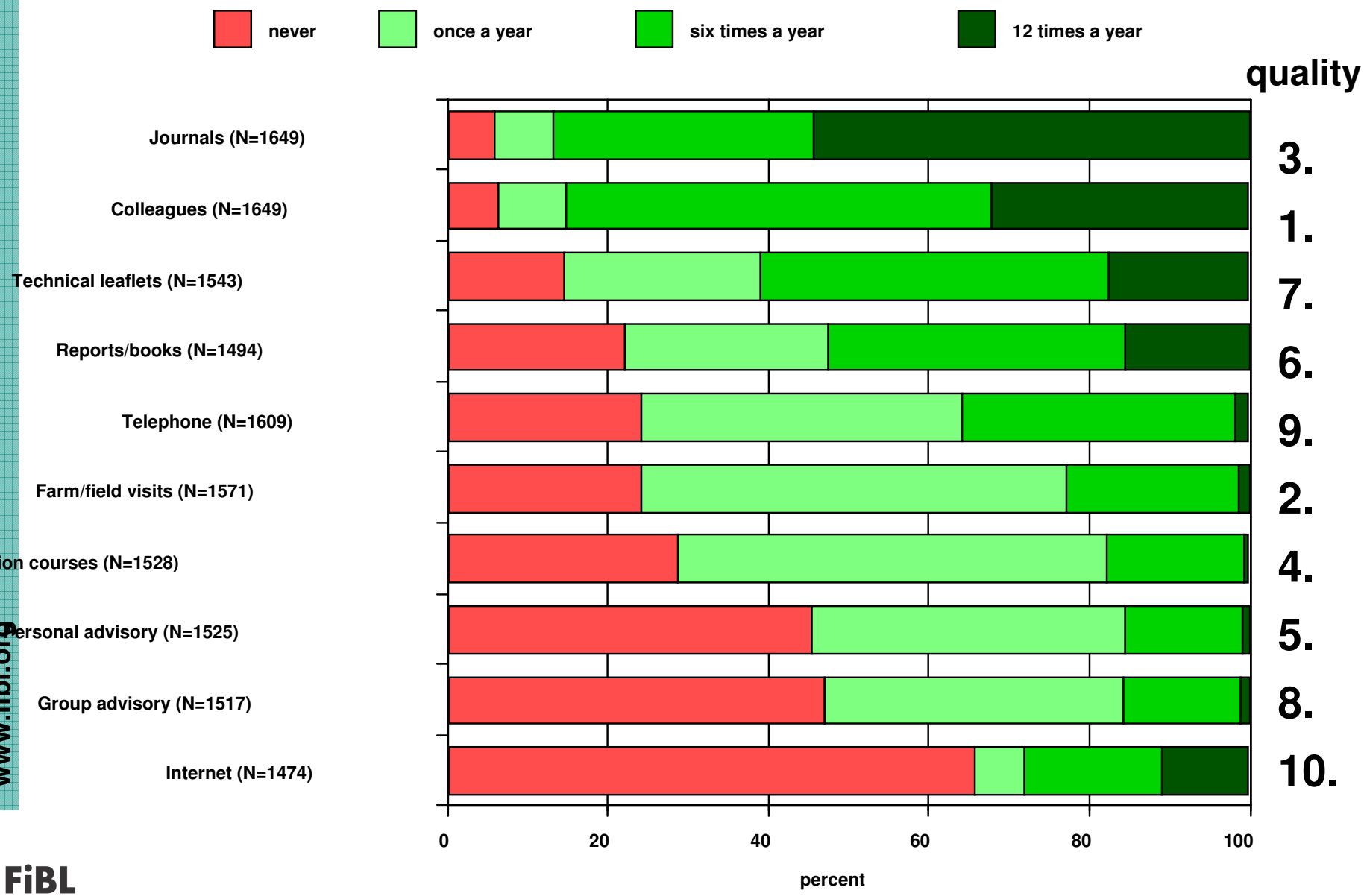
Frequency and quality of different sources used by Swiss organic farmers (Interface 2002)



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Information providers in Switzerland 2003

	FiBL	Bio Suisse	Inspection bodies	Conventional Advice	„Conventional“ knowlege transfer	State research stations
				LBBZ		
Individual Advice	xxx	x	x	xxx		
Group Advice	xxx			xxx		
Telephone Helpline	xxx	xxx	xx	xx	x	x
Coursea	xxx	x	x	xxx	x	x
Leaflets	xxx	X			xx	
Magazines	xxx	xx	x	x	x	x
Internet	xx	xxx	xx			

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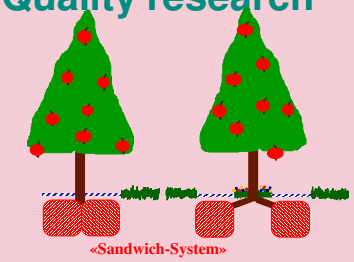
Example: Apple research at FiBL

Research

Variety trial

Quality research



Production technique

Knowledge transfer

FiBL and regional advisory services

Technical leaflets, courses

Marketing

Consumer information

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Knowledge exchange: FiBL‘s activities

> Individual and group advisory
> Further education courses
> Phone and e-mail

> Technical leaflets
> Handbooks and dossiers
> Teaching material for advisors
> The journal „Bio aktuell“ (feedback from farmers)
> Weekly articles by FiBL- advisors in farmers‘ journals
> Internet sites

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Production of information material at FiBL

FiBL advisors

FiBL researchers

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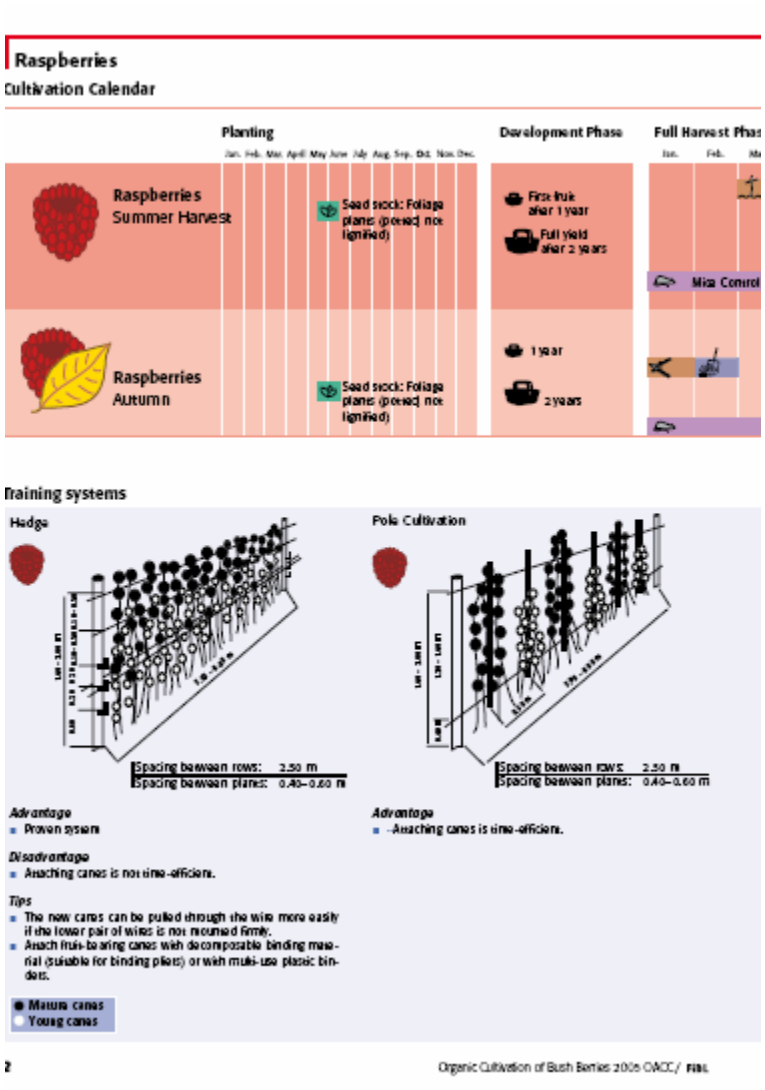
Technical Leaflet Bushberries



Raspberries

Cultivation Calendar

Planting

Development Phase

Full Harvest Phas

Raspberries Summer Harvest

Seed stock: Foliage plants (pinned) not lignified)

First fruit after 1 year

Full yield after 2 years

Mice Control

Raspberries Autumn

Seed stock: Foliage plants (pinned) not lignified)

1 year

2 years

Training systems

Hedge

Spacing between rows: 2.50 m

Spacing between plants: 0.40–0.60 m

Advantage

- Proven system

Disadvantage

- Attaching canes is not time-efficient.

Tips

- The new canes can be pulled through the wire more easily if the lower pair of wires is not mounted firmly.
- Attach fruit-bearing canes with decomposable binding material (suitable for binding plants) or with multi-use plastic binders.

Mature canes

Young canes

Pole Cultivation

Spacing between rows: 2.50 m

Spacing between plants: 0.40–0.60 m

Advantage

- Attaching canes is time-efficient.

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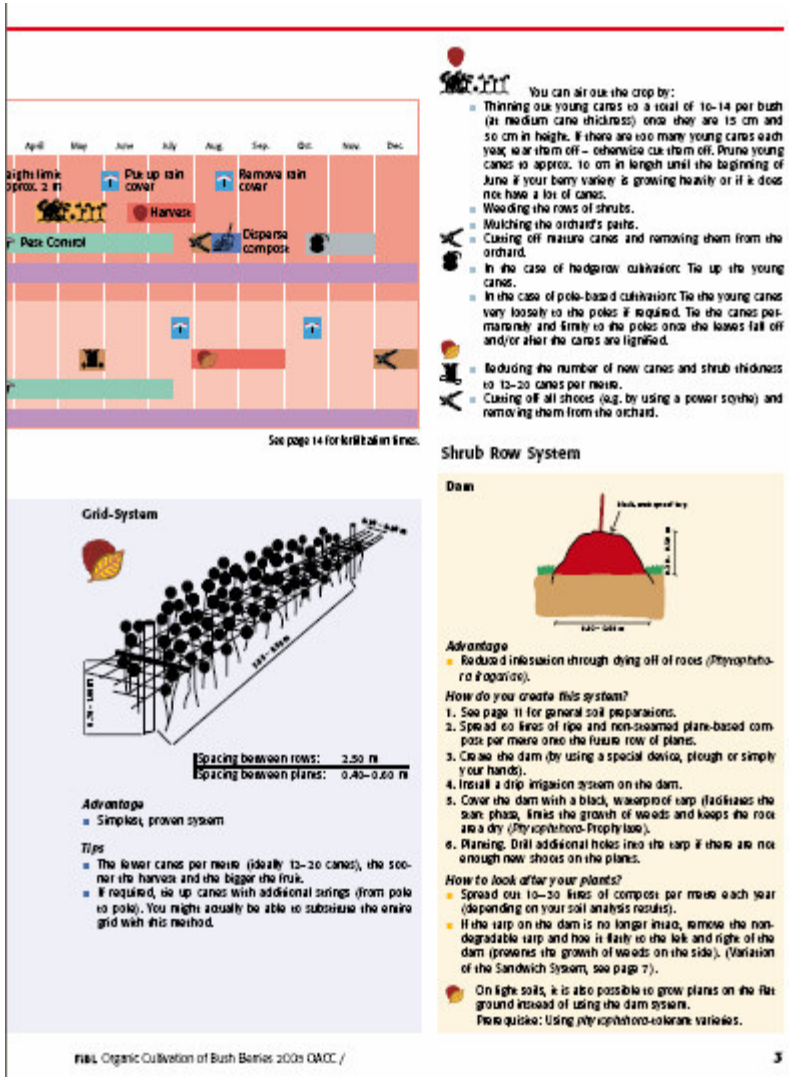
Organic Cultivation of Bush Berries 2005 OACC / FiBL



April May June July Aug. Sep. Oct. Nov. Dec.

Pick up rain cover

Remove rain cover

Harvest

Pest Control

Dispose compost

See page 14 for fertilization times.

You can thin out the crop by:

- Thinning out young canes to a total of 10–14 per bush (at medium cane thickness) once they are 15 cm and 50 cm in height. If there are too many young canes each year, tear them off – otherwise cut them off. Prune young canes to approx. 10 cm in length until the beginning of June if your berry variety is growing heavily or if it does not have a lot of canes.
- Weeding the rows of shrubs.
- Mulching the orchard's paths.
- Cutting off mature canes and removing them from the orchard.
- In the case of hedgerow cultivation: Tie up the young canes.
- In the case of pole-based cultivation: Tie the young canes very loosely to the poles if required. Tie the canes permanently and firmly to the poles once the leaves fall off and/or after the canes are lignified.

- Reducing the number of new canes and shrub thickness to 12–20 canes per metre.
- Cutting off all shoots (e.g. by using a power scythe) and removing them from the orchard.

Shrub Row System

Grid-System

Spacing between rows: 2.50 m

Spacing between plants: 0.40–0.60 m

Advantage

- Simplest, proven system

Tips

- The fewer canes per metre (ideally 12–20 canes), the sooner the harvest and the bigger the fruit.
- If required, tie up canes with additional strings (from pole to pole). You might actually be able to substitute the entire grid with this method.

Dam

Advantage

- Reduced infestation through drying off of roots (*Phytophthora fragariae*).

How do you create this system?

1. See page 11 for general soil preparations.
2. Spread 60 litres of ripe and non-steamed plant-based compost per metre onto the future row of plants.
3. Create the dam (by using a special device, plough or simply your hands).
4. Install a drip irrigation system on the dam.
5. Cover the dam with a black, waterproof tarp (facilitates the start phase, limits the growth of weeds and keeps the root area dry (*Phytophthora*-Prophylaxe).
6. Planting. Drill additional holes into the tarp if there are not enough new shoots on the plants.

How to look after your plants?

- Spread out 10–30 litres of compost per metre each year (depending on your soil analysis results).
- If the tarp on the dam is no longer intact, remove the non-degradable tarp and hoe it finely to the left and right of the dam (prevents the growth of weeds on the side). (Variation of the Sandwich System, see page 7).

On light soils, it is also possible to grow plants on the flat ground instead of using the dam system.
Prerequisite: Using *phytophthora*-tolerant varieties.

FiBL Organic Cultivation of Bush Berries 2005 OACC /

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Publishing technical leaflets: Challenges

- Inputs from experts
- Appropriate content
- Specifically organic
- Attractive presentation
- Feedback from users
- Costs
- Updates

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Conclusion

- Take the issue of knowledge transfer serious
- Use European action plan and available policy instruments for knowledge transfer
- Improve stakeholder involvement into research priortiy setting
- Include knowledge transfer activities into the research projects
- Adapt existing material to specific situations
- Extend range of available material

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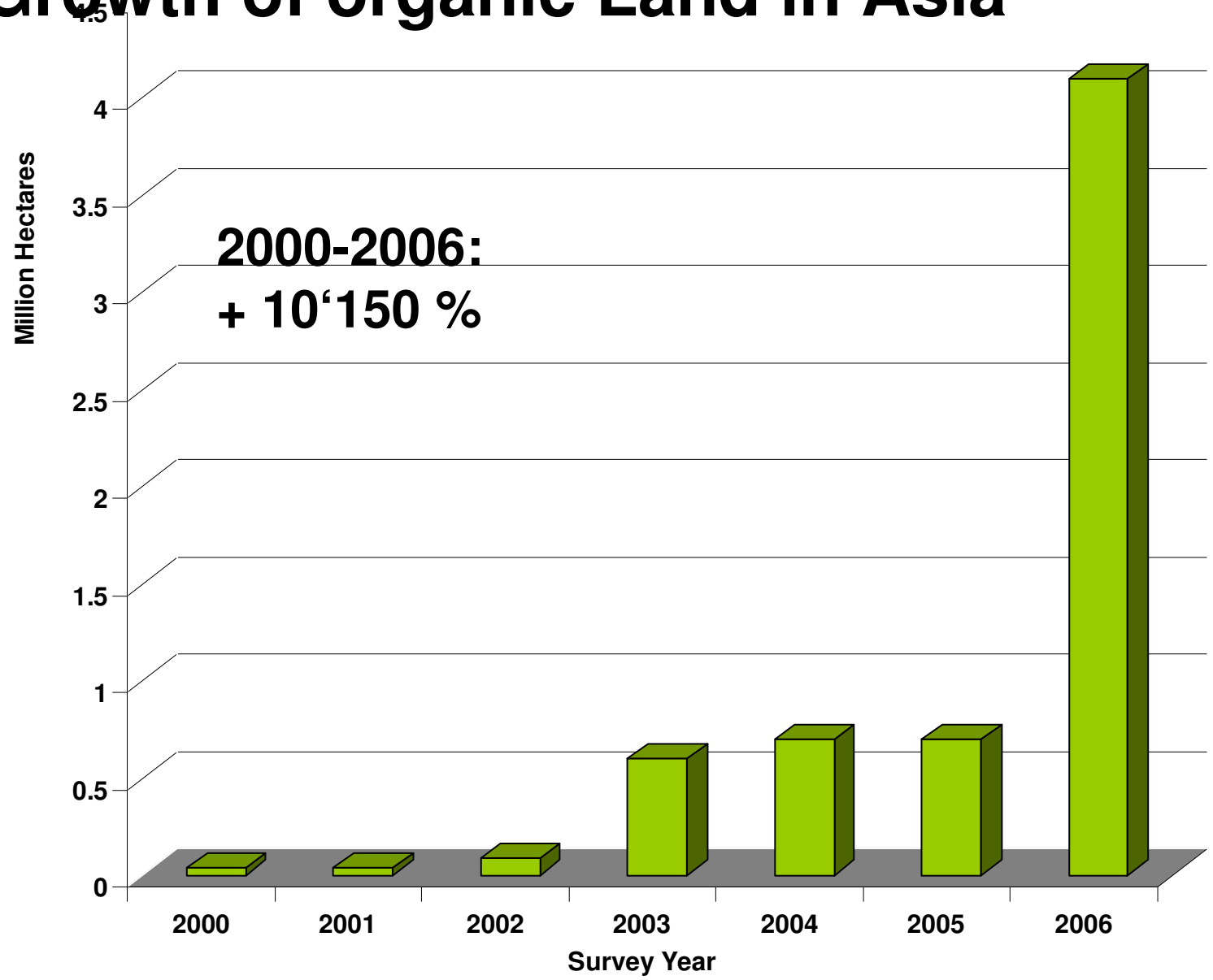
Growth of organic Land in Asia



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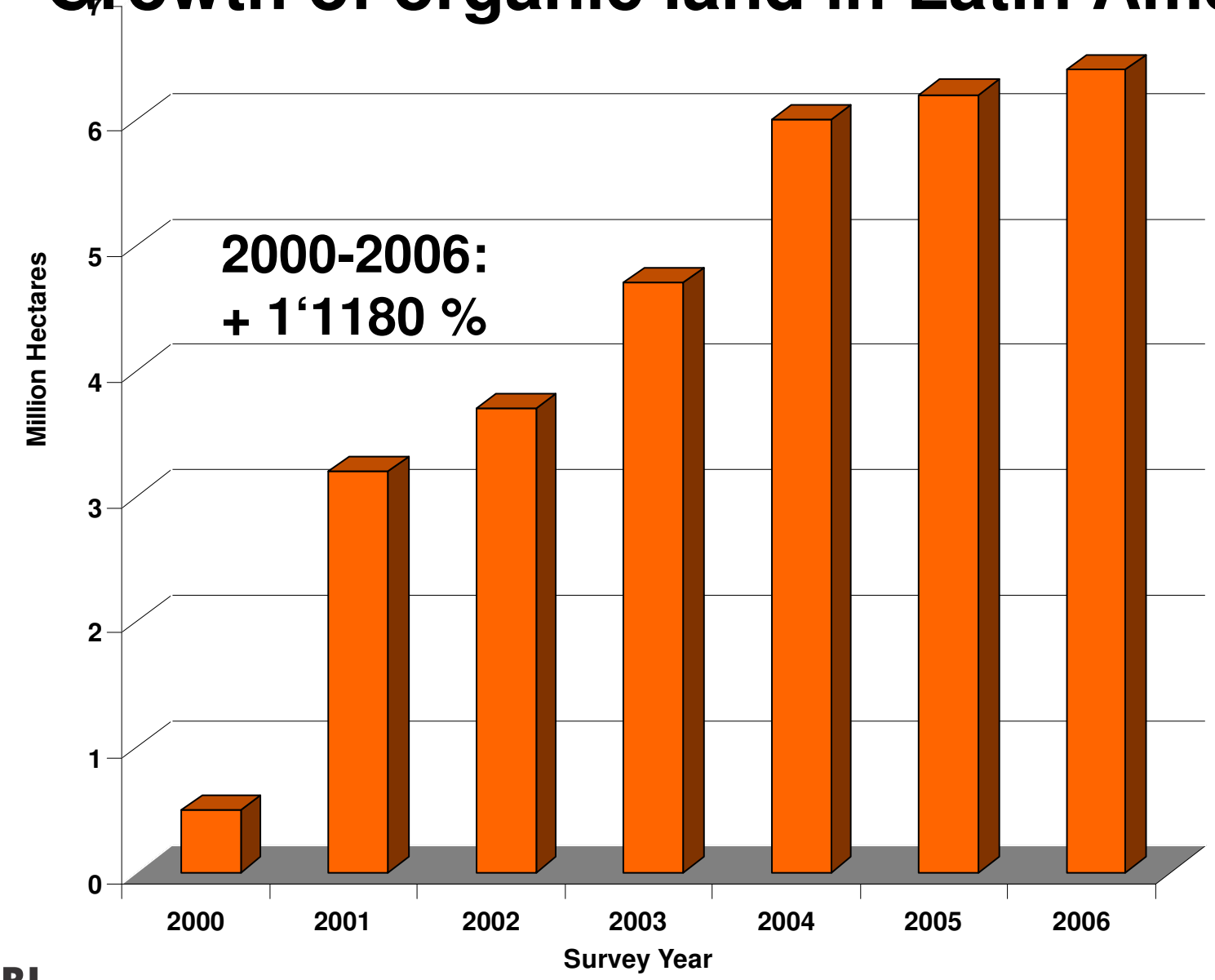
Growth of organic land in Latin America



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