Organic Agriculture

Peppercorn Farming

What is Organic Agriculture?

Natural farming and ecological farming which has the following principles:

- Diversity of plants and animals
- Self reliant of organic matters and nutrients in the farm
- Using renewable resources in the farm
- Maintain ecological system in the farm
- Avoid pollution to the environment
- Management with care of humanity
- Conserving energy with minimum impacts on the environment

General Farm Management

- No chemical fertilizer, pesticides and hormones
- Organic plot and conventional plot must be separated
- All farmers and workers have good understanding of organic farming
- Good record keeping from planting, using of inputs, harvesting , post-harvest cropping and complaint from customers
- Public forest invasion is prohibited
- Any changes in farm land, crop type, inputs,… must be reported

Ecosystem in Organic Farm

Farmer shall maintain and enhance biodiversity in the farm by conserving at least 5% of the field to be habitats of diversified plants and animals such as

- Forest land, flooded forest, bushes or big trees
- Hedges in the borders
- Ditches
- Natural fish ponds
- Idle areas with natural plants


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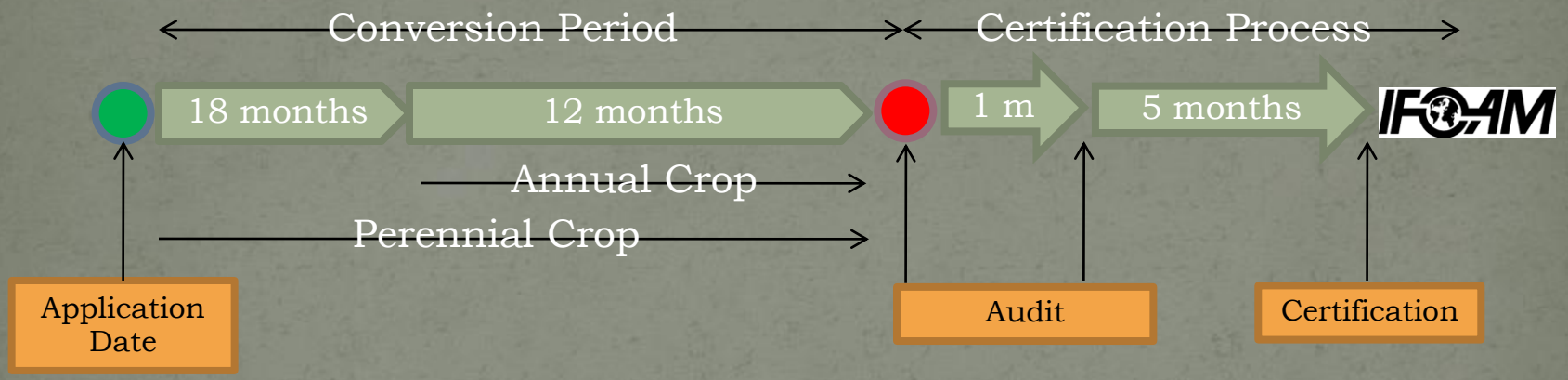
GMO (Genetically Modified Organism)

- Using GMO products are prohibited
- Inputs, additives and ingredients shall be traced back one step of the production to verify no GMO contents
- Farmer must ask the inputs suppliers for the declaration letters to certify no GMO contents
- The connecting conventional production plot can not use GMO products as well

Length of conversion period



Conversion Period	Non-EU markets (month)	EU markets (month)
Annual Crop	12	24
Perennial Crop	18	36

In case where prohibited input is applied, the conversion period is extended to 24 months for annual crop and 36 months for perennial crop since the last use of prohibited inputs

Type and Variety of Crops

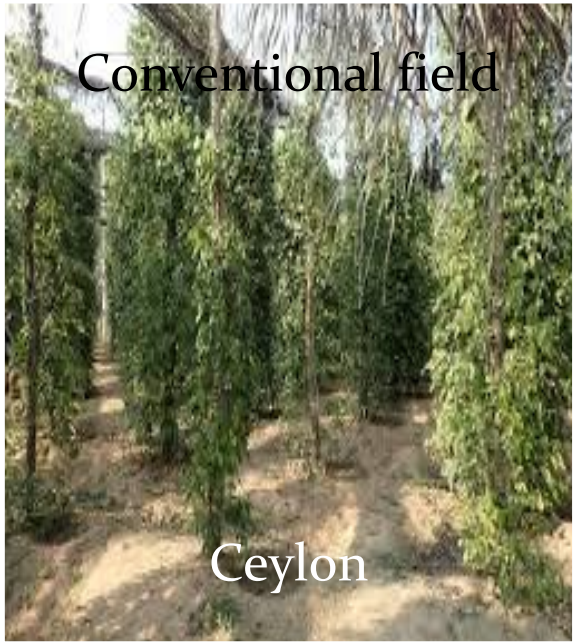
- Seed and plant propagation shall be from organic agriculture
- Growing plant propagation from non-organic farm can be used but the produce in the first 12 months can not be sold as organic product.

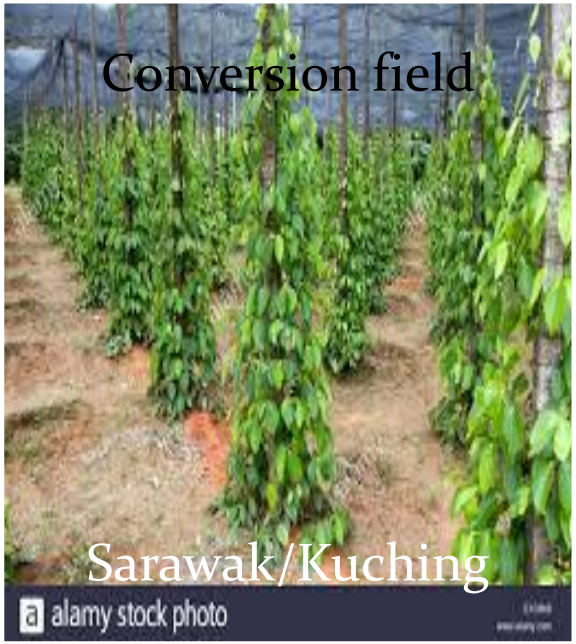
Diversity of plants

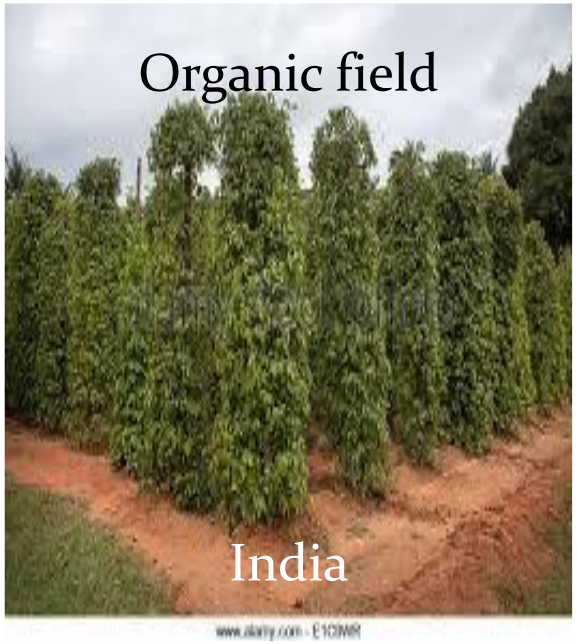
Farmer shall establish diversity of plants in the farm by growing cover crops and/or other diverse plant species

Parallel Production

Crops grown in conventional field , conversion field and organic field must be different . Control of product mixing, harvesting and sales separation must be informed. Both conventional and conversion field must be conversed to organic field within 5 years







Soil, Water, and Fertilizer Management

- Annual soil sampling for nutritional assessment
- Maintain proper soil pH (adding lime, dolomite, marl or sawdust ash)
- Leguminous crop should be sown for soil covering and producing green manure
- Avoid or reduce using heavy machine that cause soil compaction
- Water conservation is recommended
- Preventing salination of soil (planting cover crops)

Soil Improvement

- Try to use organic matter produced within the farm
- Planning for the use of organic fertilizer
- Fresh animal manure, human excrement and urban waste can not be used
- Poultry manure or animal by-products must be from free-ranged farms
- Ingredients for composting must be approved prior to usage
- Mineral fertilizers can be used for composting and supplementing
- Organic industrial waste can be used after being approved
- Microbial can be used for soil improvement, composting , water treatment and waste treatment

Soil and water conservation

- Burning of organic materials must be controlled
- Prevention of soil erosion
- Control the excessive use of water, quality and recycling of water and water extraction
- Soil removal from farm is prohibited

Prevention and Control of disease, insect and weed

- Distribution of beneficial animal and natural pest enemies
- Growing the insect repellent plants
- Good cultural practices to control weed such as plowing, rotation, mixed crop and mulching crop with natural materials

Prevention and Control of disease, insect and weed

- Only methods and products specified in pest control products list are allowed
- Rice straw for mulching from organic rice farm is preferred
- Use of plastic based on PE, PP, Polycarbonate for mulching, netting, sun blocking is allowed and should be removed after use, not burned.

Samples of methods and products used to control diseases, insects and weeds

Method or Products	Details/Restriction/Benefits
Sulfur	Control fungus but may burn leaves in hot weather
Chitin	From sea animals only. To control nematode
Micro organisms	Except GMO, Trichoderma to protect rotted roots
Sodium bicarbonate	Can be used against various fungus and molds
Marigold	Companion crop to control nematode
Beneficial insects	Use insect to control natural pest
Tobacco	To control worms and flies
Neem	To control insects and worms
Derris	To control worms and flies

Derris

Neem

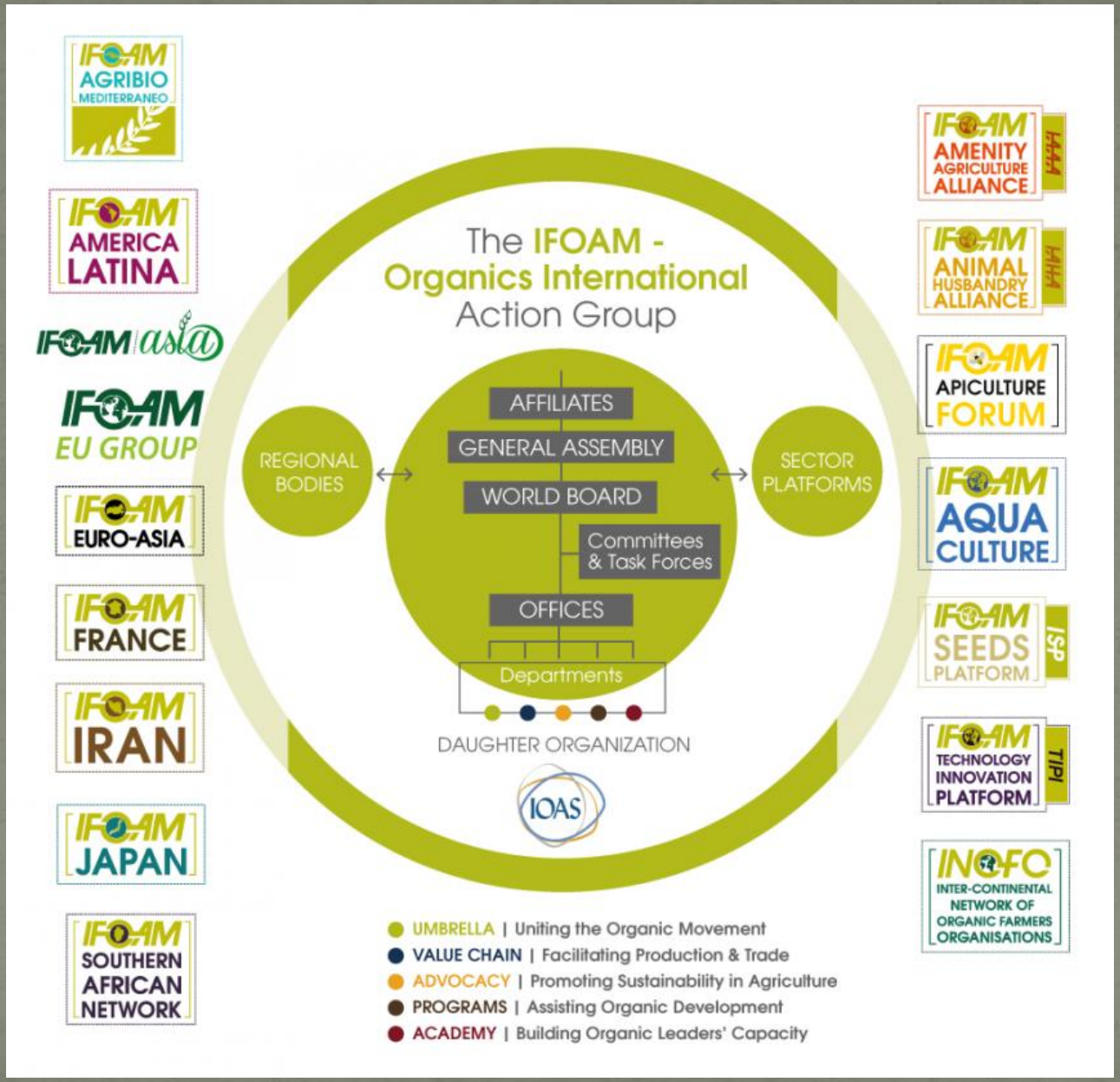
Tobacco

Protection of contamination

- Buffer area (min. 1 meter wide) is required to prevent contamination from the adjoining conventional field
- If contamination by air-drift, different crop grown buffer can not be sold as organic product
- If contamination by water source, earth bund or drainage shall be established
- Soil, water or products should be analyzed if there is high risk of chemical, heavy metal and GMO contamination
- Spray equipment in conventional field can not be used in organic field
- Use of machines in conventional field must be cleaned before using in organic field
- Prohibited inputs can not be kept in organic field

Different type of buffers

The IFOAM Network

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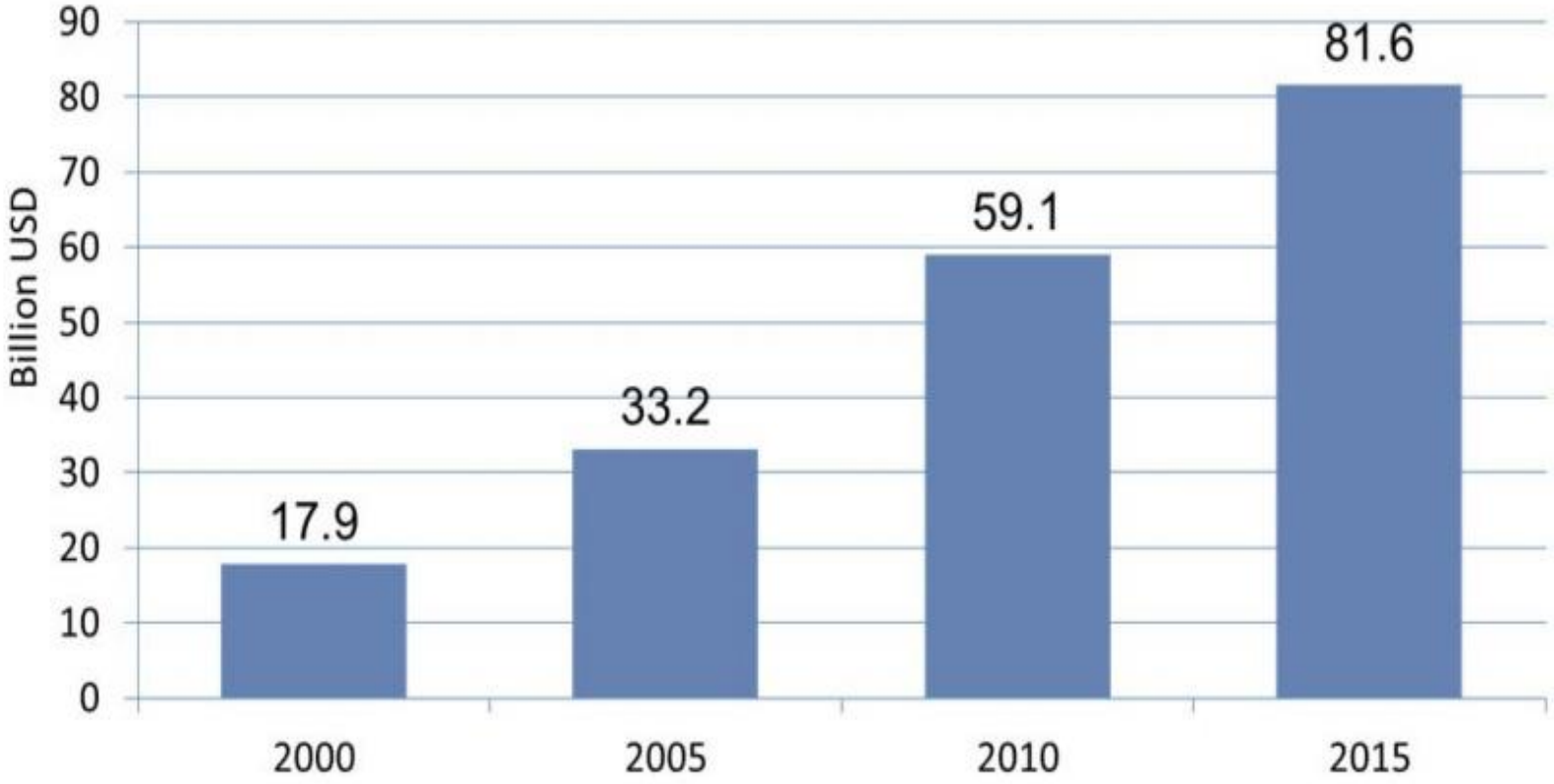
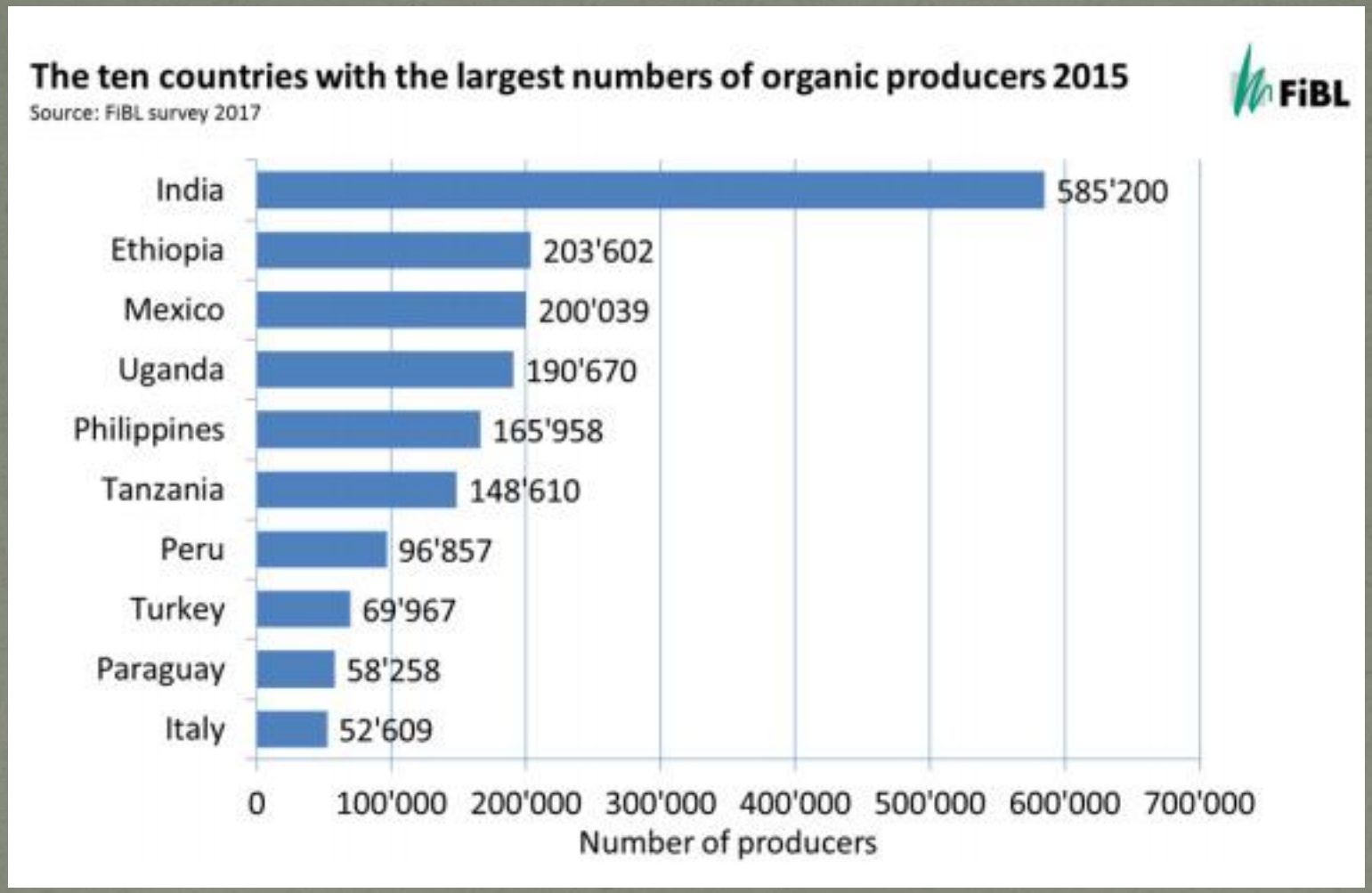
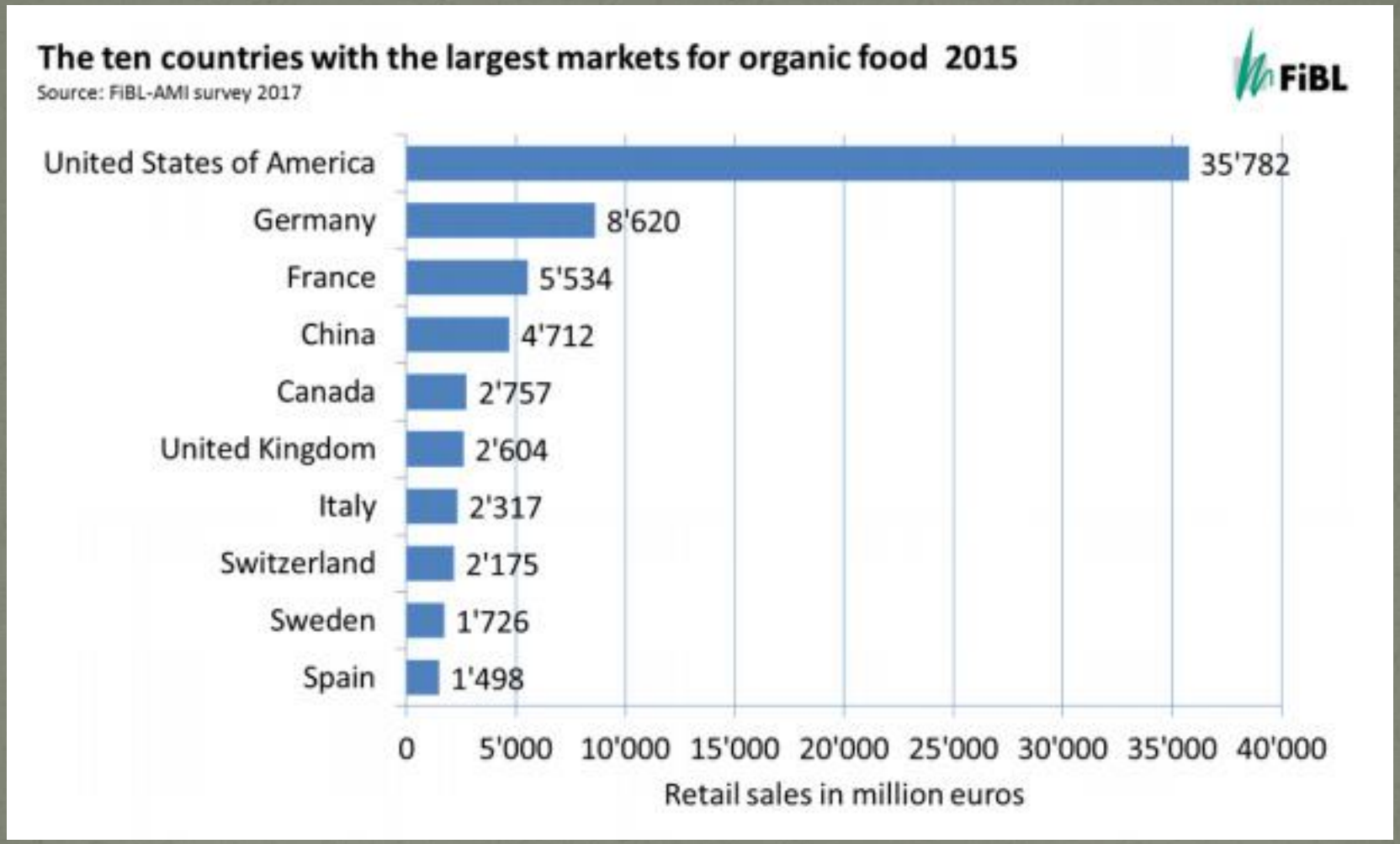
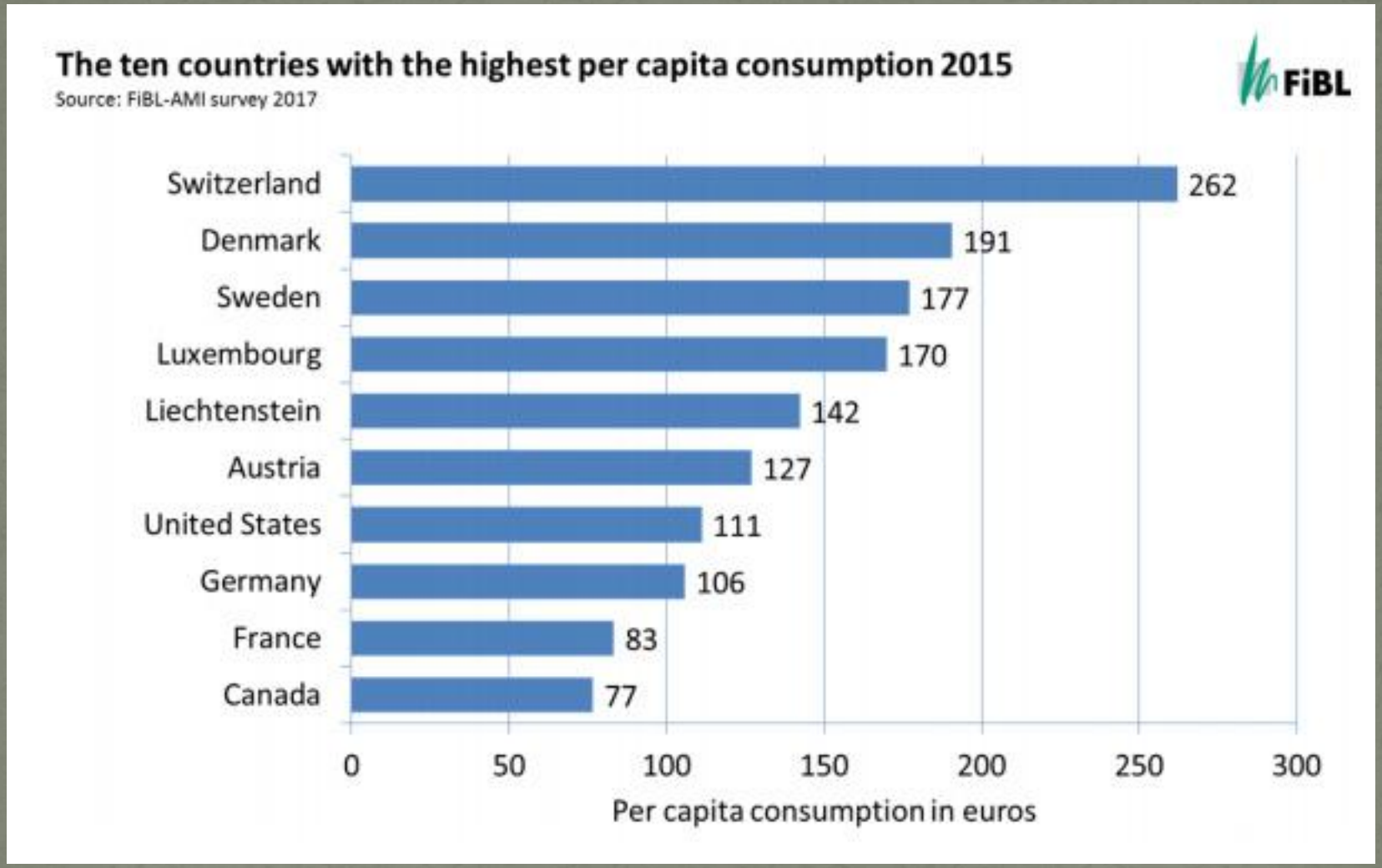
Development of the global organic market 2000-2015

Source: Organic Monitor




The ten countries with the largest numbers of organic producers 2015
Source: FiBL survey 2017
FiBL
India
Ethiopia
Mexico
Uganda
Philippines
Tanzania
Peru
Turkey
Paraguay
Italy
585'200
203'602
200'039
190'670
165'958
148'610
96'857
69'967
58'258
52'609
0
100'000
200'000
300'000
400'000
500'000
600'000
700'000
Number of producers


The ten countries with the largest markets for organic food 2015
Source: FiBL-AMI survey 2017
FiBL
United States of America
35'782
Germany
8'620
France
5'534
China
4'712
Canada
2'757
United Kingdom
2'604
Italy
2'317
Switzerland
2'175
Sweden
1'726
Spain
1'498
0
5'000
10'000
15'000
20'000
25'000
30'000
35'000
40'000
Retail sales in million euros


The ten countries with the highest per capita consumption 2015
Source: FiBL-AMI survey 2017
FiBL
Switzerland
Denmark
Sweden
Luxembourg
Liechtenstein
Austria
United States
Germany
France
Canada
262
191
177
170
142
127
111
106
83
77
0
50
100
150
200
250
300
Per capita consumption in euros