



Experiences with the development of general and crop specific IPP guidelines from CABI's perspective

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100 years
of scientific endeavour

www.cabi.org

KNOWLEDGE FOR LIFE

Overview

- CABI in brief
- IOBC Commission for Integrated Production
- CABI Europe's experiences with the development and implementation of technical guidelines in non EU member countries
- CABI Europe's major findings and conclusions

CABI



In brief

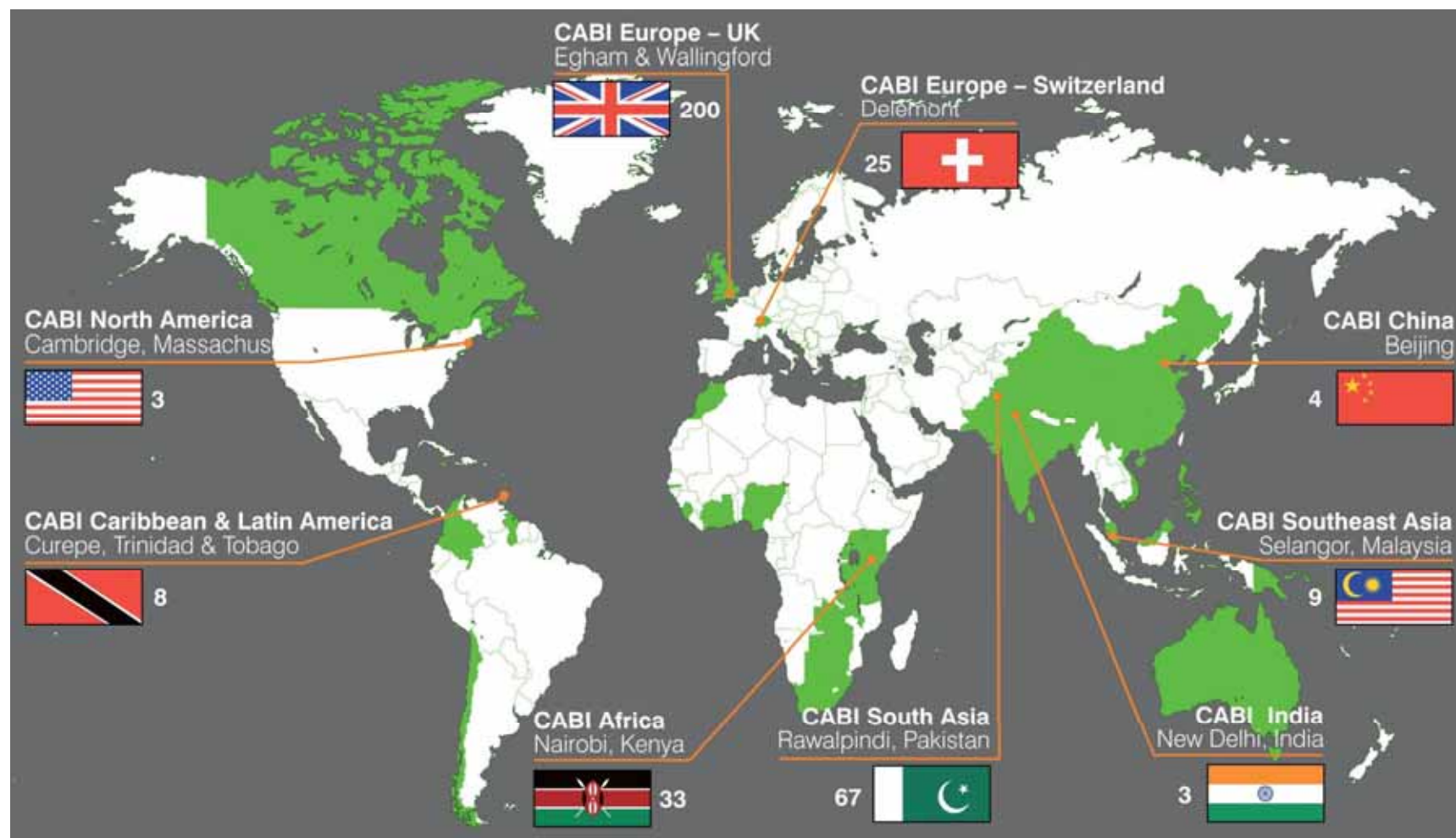
- CABI provides scientific expertise and information about agriculture and the environment
- Activities include: scientific publishing, development projects and research, and microbial services
- Established in **1910**
- **Not-for-profit**
- Owned by **47 member countries**
- Since 1998, registered with the UN as an international treaty (CAB International)

Our member countries



Global reach

- 9 Centres
- 350+ staff
- 47 Member countries



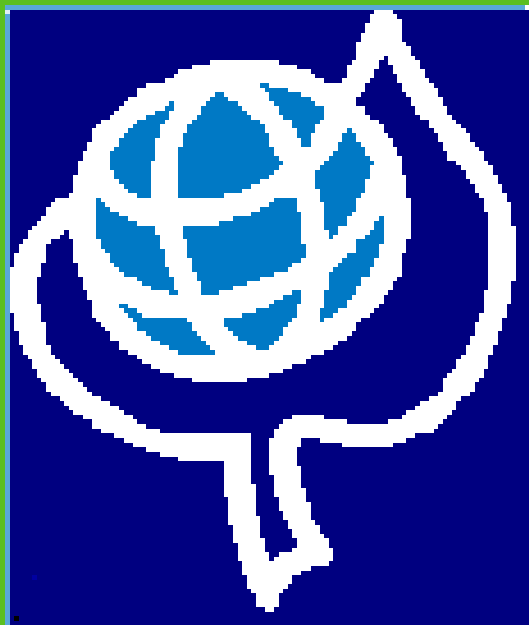
Who does CABI work for and with?



- Farmers
- Extension workers
- Member country governments
- Non-governmental organizations
- Charities and foundations
- Research agencies
- National donor agencies
- Development agencies
- Universities
- Corporate organizations

We work in partnership with others to achieve our objectives; **building the capacity of our local partners** is an integral part of all our activities

IOBC



Integrated Production

IOBC Commission on Integrated Production

- In 1977, an International Organisation for Biological Control (IOBC / WPRS) Commission on Integrated Production (IP) was established
- CABI, as an institutional member of IOBC, uses the outputs of this Commission to guide its work in implementing IP together with local partners

IOBC

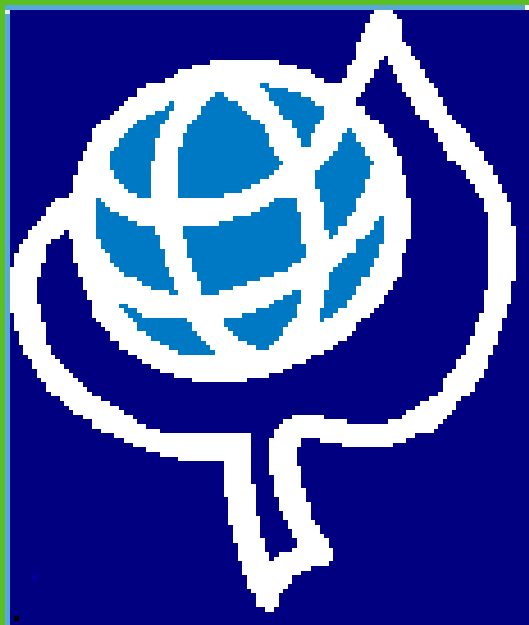


Integrated
Production

IOBC Definition of Integrated Production

“Integrated Production/Farming is a farming system that produces high quality food and other products by using natural resources and regulating mechanisms to replace polluting inputs and to secure sustainable farming.”

IOBC

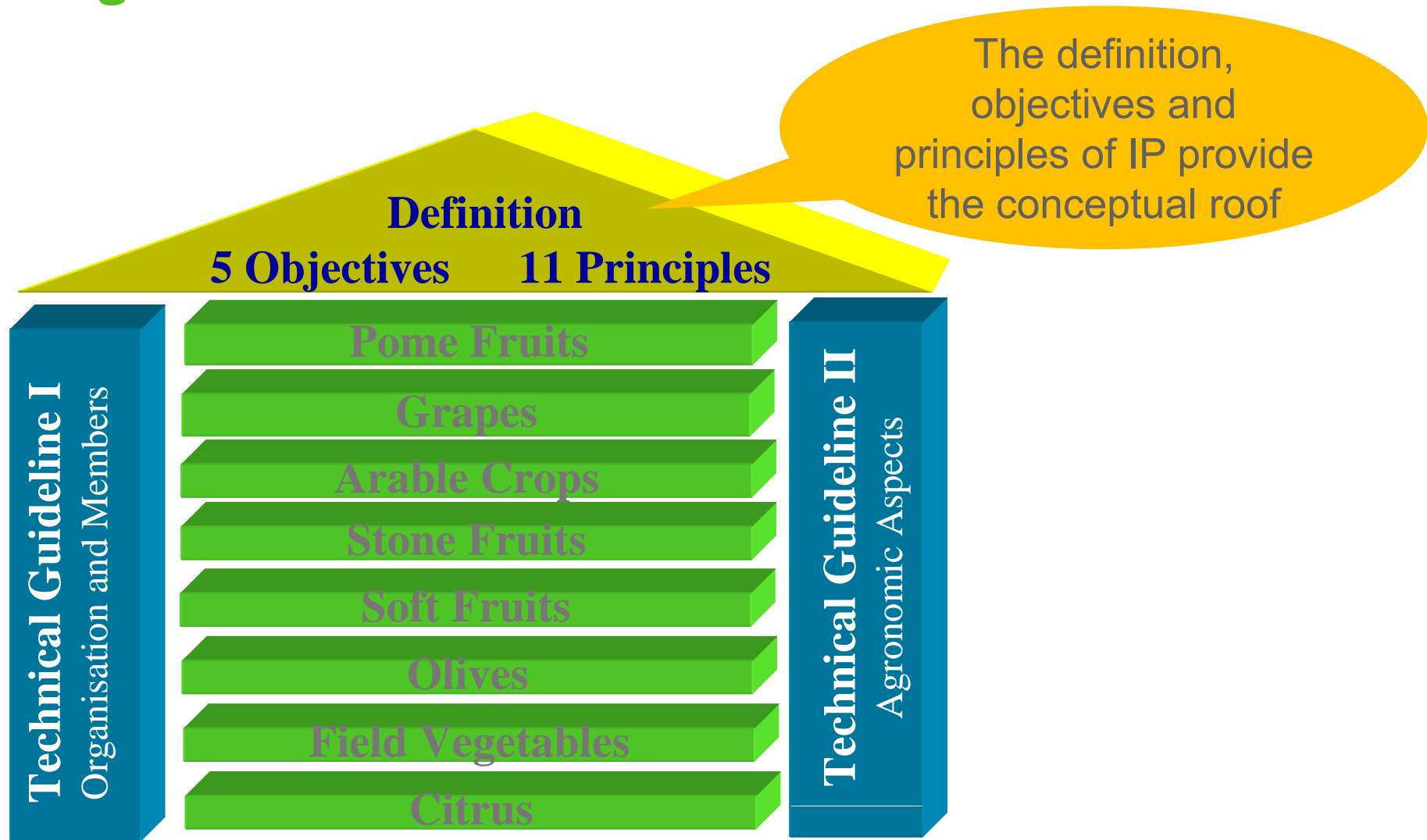


Integrated Production

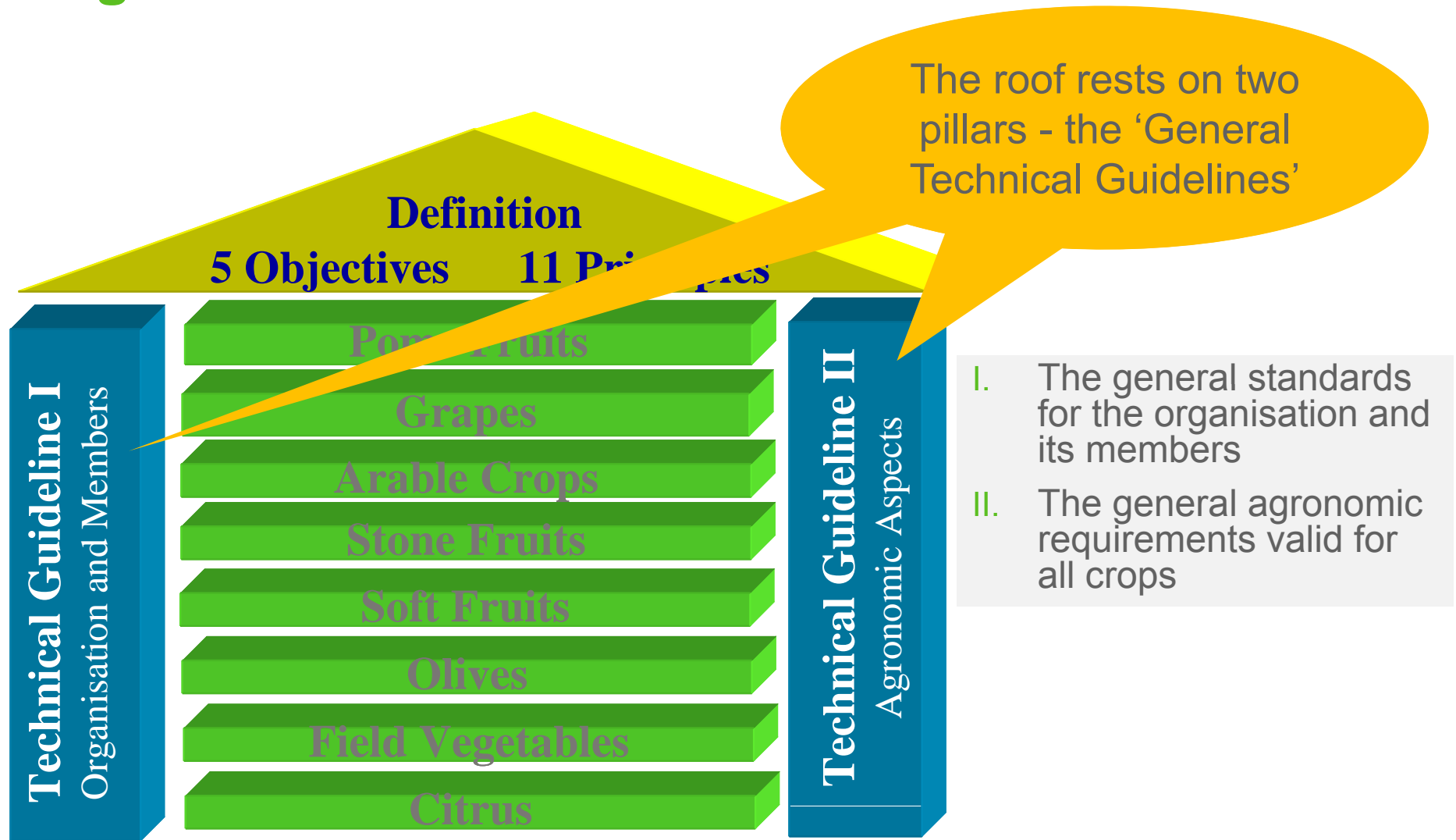
IOBC Commission on Integrated Production

- In 1993, the Commission published a conceptual framework for IP: *‘Integrated Production: Principles and Technical Guidelines’*, which:
 - defines Integrated Production/Integrated Farming
 - describes the underlying strategy
 - establishes technical guidelines and standards for implementation.
- The document was updated in 1999 and 2004
- This IP framework raised international interest and recognition, and provided the basis for the development of technical guidelines for IPM / ICM / IP worldwide

The IOBC Conceptual Framework of Integrated Production



The IOBC Conceptual Framework of Integrated Production



IOBC IP Principles and Technical Guidelines



IOBC / WPRS
Commission "IP-Guidelines and Endorsement"

OILB / SROP
Commission "Directives de PI et Agrément"

**Integrated Production
Principles and Technical Guidelines**

3rd Edition, 2004

Edited by
E.F. Boller, J. Avilla, E. Joerg, C. Malavolta,
F.G. Wijnands & P. Esbjerg

IOBC wprs Bulletin
Bulletin OILB srop Vol. 27 (2) 2004

- Provides a framework for the formulation of regional or national guidelines and standards
- Aids harmonisation of these concepts and guidelines at an international level

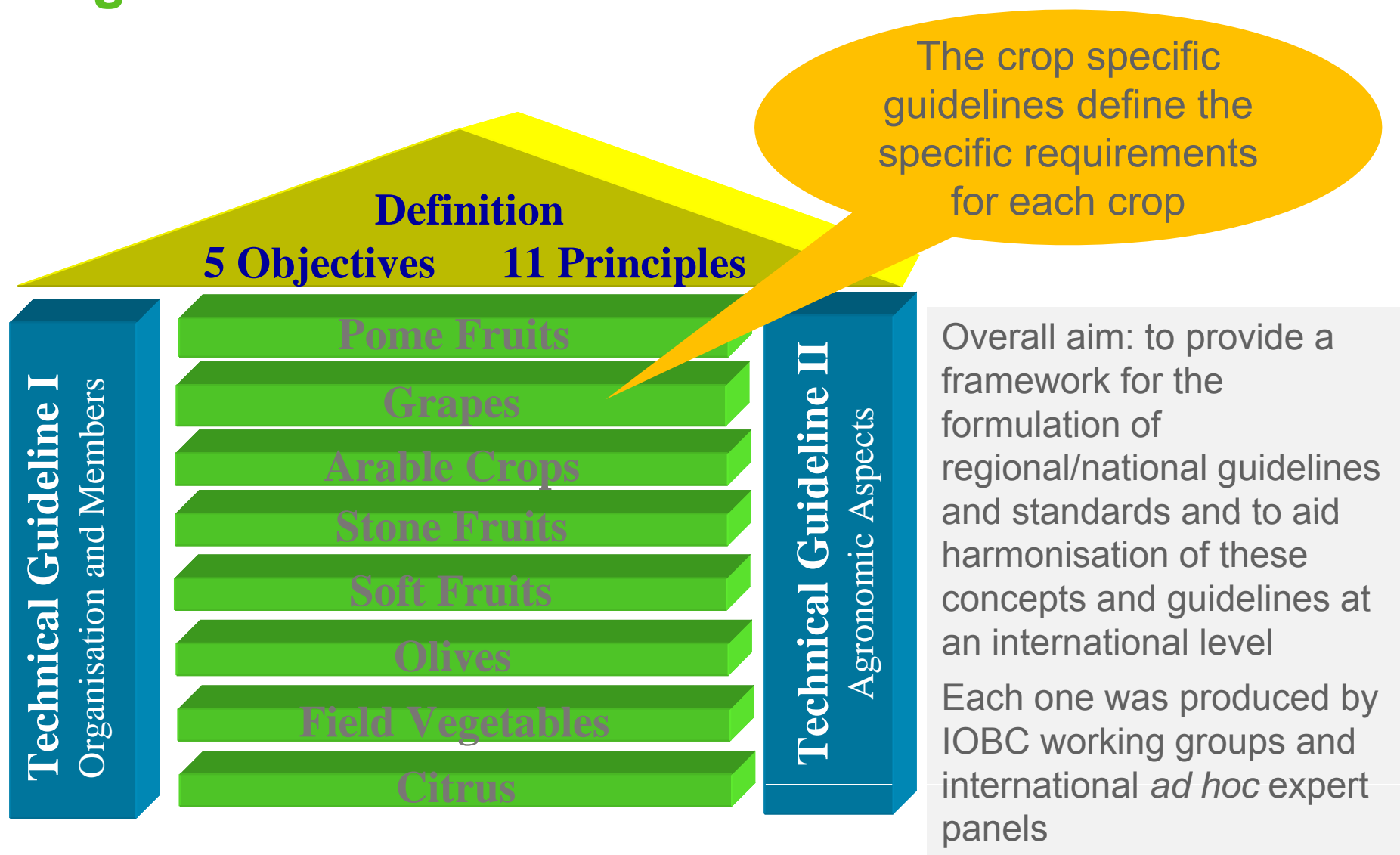
IOBC IP Technical Guidelines II



Content

1. General Aspects
2. Biological Diversity and Landscape
3. Site Selection
4. Site Management
5. Cultivars, Seeds, Rootstock, and Cultivation Systems
6. Nutrition
7. Irrigation
8. Integrated Plant Protection
9. Harvest
10. Post-harvest Management and Storage
11. Animal Production on Mixed farms
12. Worker's Health, Safety and Welfare

The IOBC Conceptual Framework of Integrated Production



Annexes of the IP Technical Guidelines

1. Key Pests and Diseases List (Annex I)
2. Green & Yellow List (Annex II)
3. Positive Pesticide List (Annex III)

These documents provide the necessary tools for the planning and implementation of IP activities at farm level.

Annexes of the IP Technical Guidelines

Annex II - Green & Yellow List

- This document uses a traffic light system to inform farmers of the best methods for prevention, monitoring and control of the most common and problematic pests and diseases (i.e. those listed in Annex I)

Annexes of the IP Technical Guidelines

Annex II - Green & Yellow List

	Green list, preferred options			Yellow options with restrictions	
	1 Prevention	2 Monitoring	3 Direct Control	4 Direct Control	5 Restrictions
General aspects					
Pest Problem 1					
Pest Problem 2					
Pest Problem 3					
Disease Problem 1					
Disease Problem 2					
Weed Problem 1					

CABI Europe's experiences with the development and implementation of crop-specific guidelines



- Kosovo: Tomatoes, cucumbers, strawberries
- Albania: Apples
- DPRK: Cabbage and maize
- Argentina: Tobacco
- Turkey: Tobacco
- Brazil: Tobacco
- Tanzania: Tomato

Integrated Production in Kosovo



Funded by:
Intercooperation

Crops:

- Indoor tomatoes
- Indoor cucumbers
- Field strawberries

Partners:

- Ministry of Agriculture, Forestry and Rural Development
- Farmers
- Farmer service providers (Intercooperation)
- University

Guidelines developed:

- General Technical Guideline for Integrated Production
- Technical Guideline for Indoor Tomato Integrated Production
- Technical Guideline for Indoor Cucumber Integrated Production
- Technical Guideline for Strawberry Integrated Production



Integrated Production in Albania



Funded by:

Swiss Agency for
Development and
Cooperation

Swiss National Science
Foundation



Crop:

- Apples

Partners:

- Agrinet (local NGO service provider for apple growers)
- Producer club
- Centre for Agricultural Technology Transfer
- University (Agriculture faculty)
- Agrobusiness School
- Ministry of Agriculture (national and regional)

Guideline developed:

- Technical Guideline for Apple Integrated Production

IPM in DPR Korea



Funded by:
Swiss Agency for
Development and
Cooperation
EuropeAid

Crops:

- Cabbage
- Maize

Partners:

- Ministry of Agriculture (HQ)
- Plant Protection Stations, MoA
- Pyongyang Agricultural University
- Cooperative farms
- Academy of Agricultural Sciences

Guidelines developed:

- Best Practices for Cabbage Production
- Best Practices for Maize Cultivation

IPM in Argentina, Turkey & Brazil



Funded by:

Philip Morris International

Philip Morris Turkey

Philip Morris Brazil

Leaf supplier companies



Crop:

- Tobacco (Oriental tobacco in Turkey)

Partners:

- Leaf supplier companies
- PMI affiliates

Guideline developed:

- Integrated Pest Management Technical Guideline for Tobacco Production*

* Based and structured according to IOBC IP Technical Guidelines, but also incorporating PMI's Good Agricultural Practice (GAP) standards

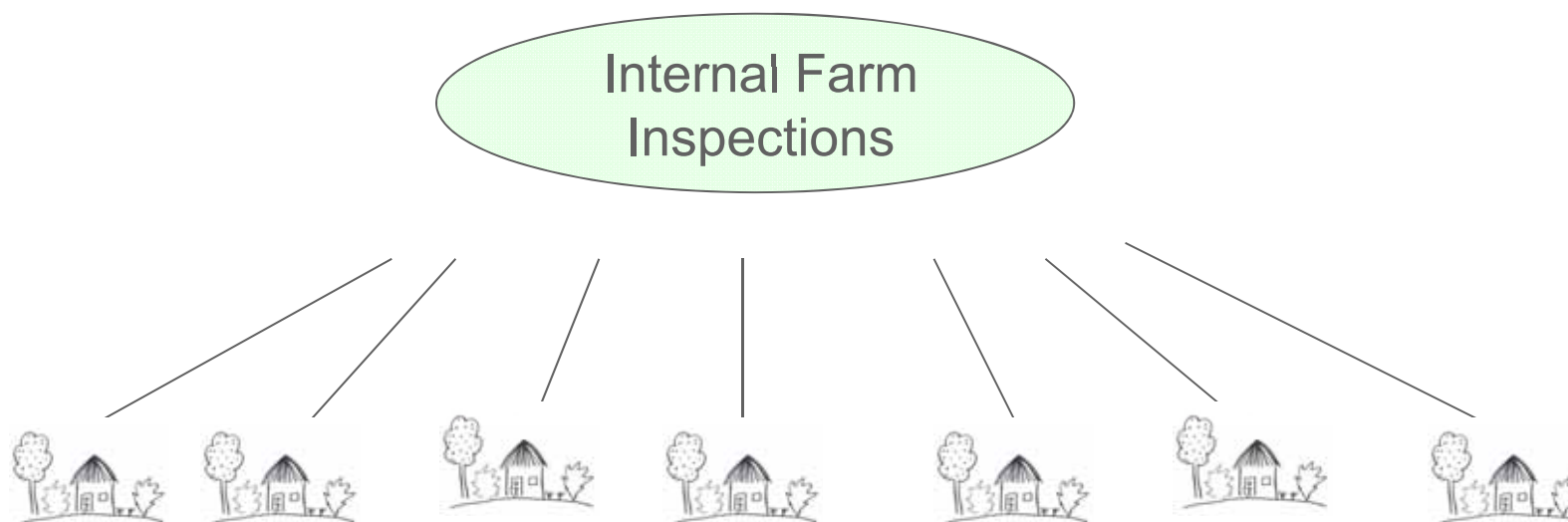


Internal farm inspection system

- A cost effective method of assessing that all farmers belonging to a producer club, or contracted by a company, comply with specific production standards
- Also used to identify particular problems being experienced by farmers
- Farms are inspected using a ‘farm inspection protocol’, which covers virtually all aspects of the Technical Guideline

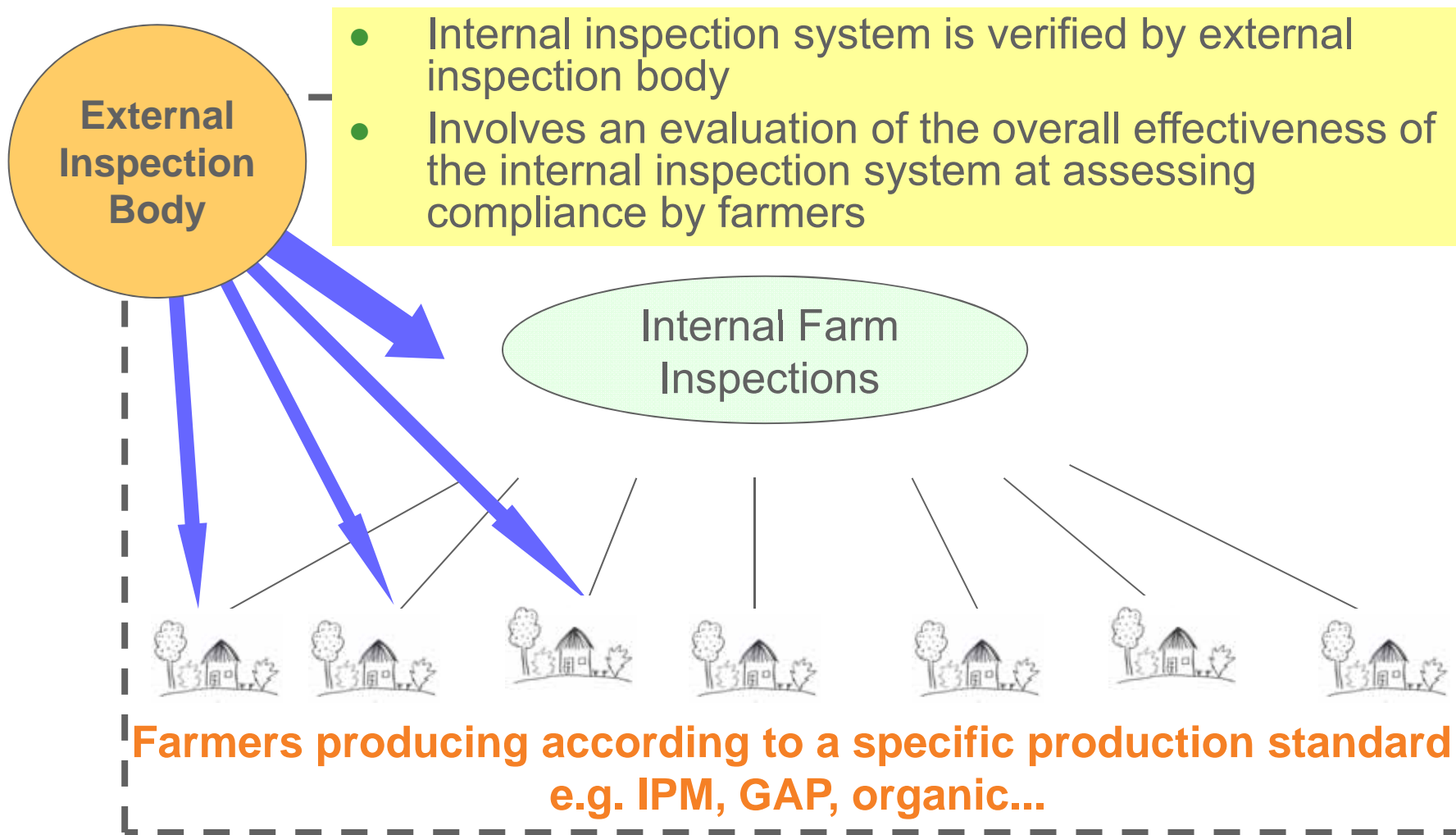
Internal Farm Inspection System

- Farm inspections are conducted by relevant stakeholders (e.g. farmers, extensionists, etc.)
- Farm inspection protocol is filled out during each farm visit



**Farmers producing according to a specific production standard
e.g. IPM, GAP, organic...**

Internal Farm Inspection System



CABI Europe's main findings

- General technical guidelines are useful for describing a national-level agriculture policy (policy document)
- Crop- and region-specific technical guidelines are more effective for farm-level implementation of IPM
- Green & Yellow List is a valuable aid for farmers, detailing:
 - Preventive measures
 - Monitoring procedures
 - Non-chemical pest management options
 - Recommended pesticide products
- Crop- and region-specific technical guidelines must be accompanied by an inspection system

Technical challenges

Monitoring

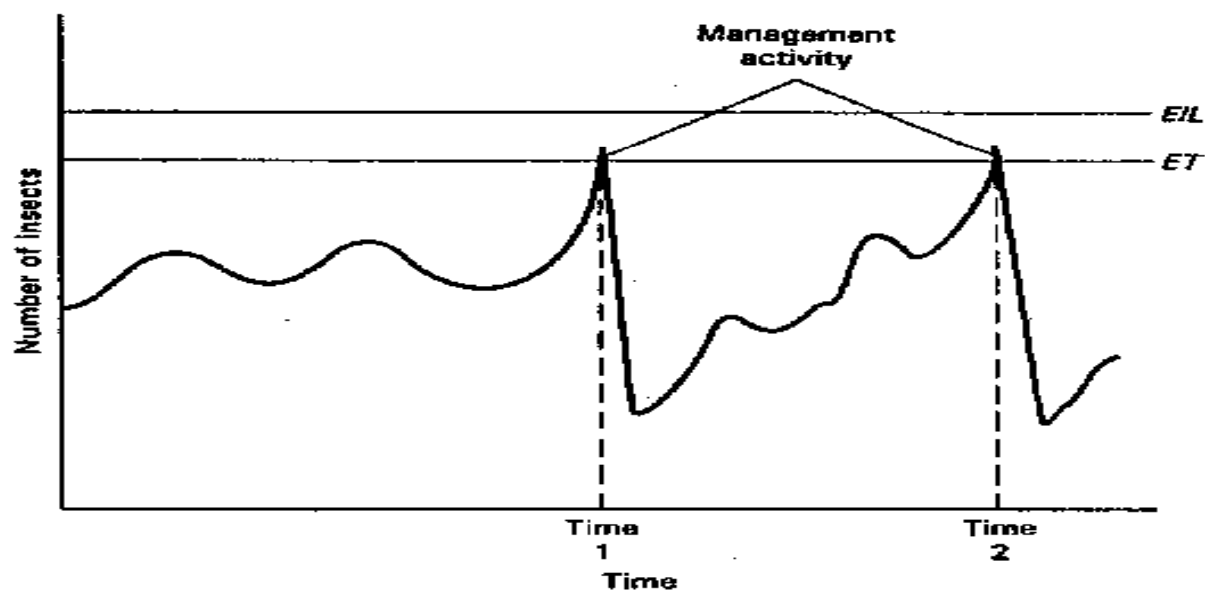
- Farmers often not motivated to conduct pest monitoring
- Pesticides are often cheap and are less labour-intensive in their application in comparison to monitoring



Technical challenges

Threshold values as a basis for decision-making

- Threshold values are often unavailable
- Better defined action threshold levels are important for improving **reliable decision making**



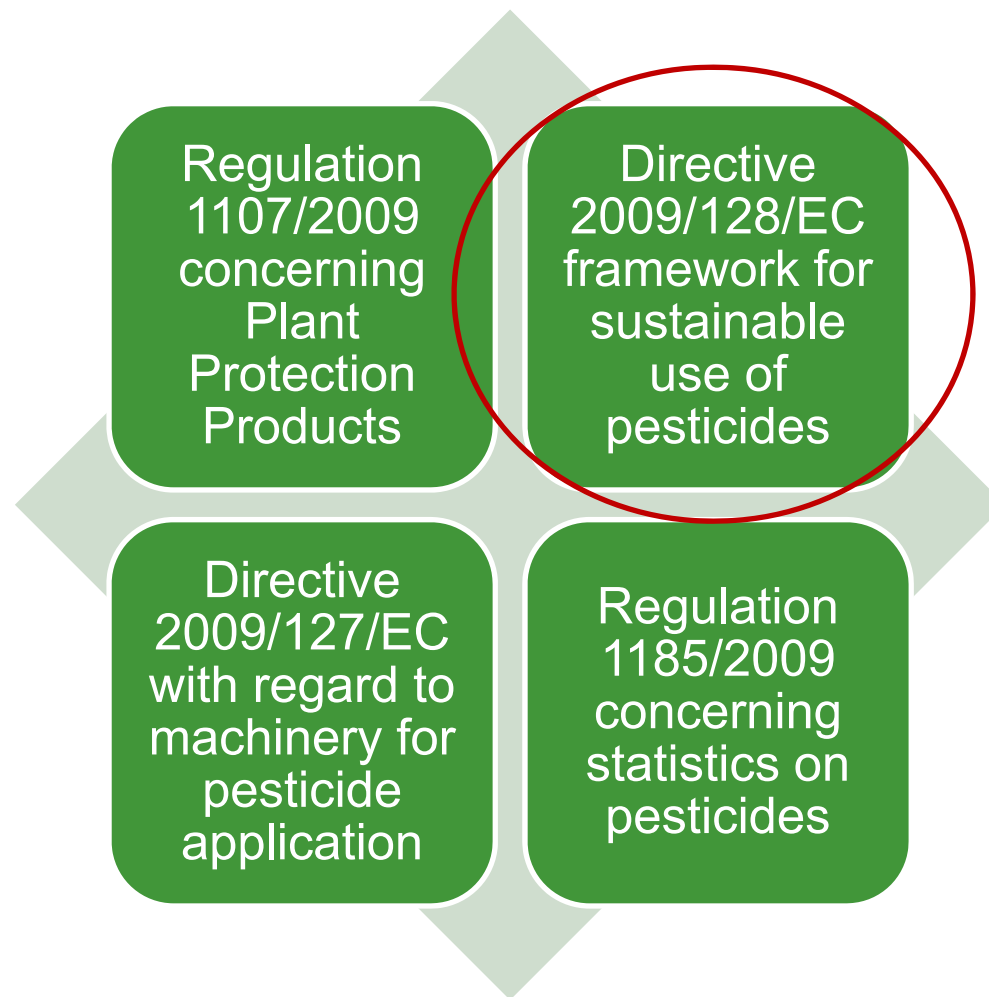
Technical challenges

Measures for prevention and/or suppression of harmful organisms

- Key requirements of IPM may not be compatible with economic realities
- For example, innovative ideas are required for implementing crop rotation and ecological compensation areas on smallholder farms



New EU Pesticide Regulation & Directive



New EU Directive

Directive 2009/128/EC framework for community action to achieve the sustainable use of pesticides

- Article 14 of the Directive promotes low-pesticide input pest management, including IPM
- It also states that general principles of IPM should be implemented by all professional users by 1st January 2014
- The implementation of the principles of IPM as outlined in Annex 3 of the Directive will be a major challenge for the EU member states

New EU Directive Requirements

Main principles of IPM are set out in Annex 3 of the Directive:

1. Measures for prevention and/or suppression of harmful organisms
2. Monitoring and Forecasting
3. Threshold values as basis for decision-making
4. Non-chemical methods to be preferred (if available and efficient)
5. Target-specificity of any pesticide used and minimization of side effects
6. Reduction of pesticide use to necessary levels
7. Application of anti-resistance strategies
8. Records, documentation and check of success

Conclusions

- The development of general technical guidelines is feasible and will facilitate the implementation of IP (certification of operators and distributors, testing of application equipment, special measures to protect water, public and conservation areas, etc.)
- The development of crop- and region-specific technical guidelines is also possible
- However, technical challenges for the implementation of the IPM requirements (Annex 3) will become obvious (monitoring, thresholds, use of low toxic and alternative products)

Thank You

Organisations endorsed by IOBC (2009)



- TRECOOP FRUITES, Spain
 - pome fruits
 - TYFLO Association, France
 - grapes & wine
 - LIVE (Low Input Viticulture & Enology) USA
 - grapes & wine
-
- GAWI (Belgian growers' association), also bases its guidelines for Integrated Fruit Production on IOBC guidelines

Green and yellow list of plant protection measures for grapes (vinification) 2006

	Green List of preferred options			Yellow List: Options with restrictions	
	1	2	3	4	5
	Preventive measures	Monitoring: Justification of direct Measures (Threshold)	„Green“ direct control measures	“Yellow” direct control measures with restrictions	Indications and restrictions
General Aspects	Green cover, alternating mowing, hedges to enhance antagonists; low nitrogen input	Renew suscription of official phytosanitary bulletin (forecasting service)			
Grape moths		operate pheromone traps where not mating disruption (15 moths/trap/week)	Mating disruption	B. thuringiensis + 1% sugar; or IGR 1 or IGR 2	1x one week after start of 2nd flight if > 15 moths/trap/week or 1x 1 week after start 2 nd flight 1x at beginning of 2nd flight
Spider mites	release/protect predatory mites, alternating mowing; low nitrogen	check 50 leaves in stage 11-13. > 70% of leaves occupied	Predatory mites	Acaricides 1,2 or 3	1x if over 70% leaves occupied at stage 13
Acariosis	release/protect predatory mites, alternating mowing	check lateral shoots in August for symptoms and decide on spring treatment	Predatory mites	Wettable Sulfur 2% Acaricide 3	1x at Stage 03 -05, only prophylaxis possible 1x Stages 05 - 09, only prophylaxis possible
Green grape leafhopper	green cover in summer, alternating mowing, hedges with roses +bramble	operate yellow sticky traps in June-July. 5 larvae per leaf or 300 – 500* /trap/week (*where parasitoids)	Egg parasitoid <i>Anagrus</i>	IGR 3 Insecticide 1	when more than 500/trap/week when more than 300/week/trap 1st generation in highly sensitive varieties only
Downy mildew	tolerant varieties & clones low nitrogen input	first treatment according to forecast	Fungicides 1 or 2 prebloom Fungicides 3 or 4 postbloom	Fungicide 5 Fungicide 6 postbloom Fungicide 7	maximum 3 treatments max. 2 treatments (max. 3kg Cu/ha/year) maximum 2 treatments
Powdery mildew		first treatment according to forecast	Fungicides 9 or 10 prebloom Fungicides 11 or 12 postbloom	Fungicides 13 or 14	maximum 3 treatments of strobilurines maximum 3 treatments of SSH
Botrytis cinerea	tolerant varieties & clones; defoliation/ventilation of grape zone; low nitrogen, grape moth control	restrict 2 treatments to stage 77 and 81	Utilise effect of downy mildew fungicides 3 or 4	Botryticides 1 or 2 or 3 Botryticide 4	maximum 1 treatment maximum 1 treatment
Phomopsis	remove infested prunings	First treatment at stage 03-05 if infested		Wettable Sulfur 2% Fungicides 15, 16	1x stage 03 - 05 maximum 2 treatments stage 05 - 13

Example from IOBC

IPM in Turkey



Funded by:
Philip Morris Turkey
Leaf Supplier Companies

Crop:

- Oriental tobacco

Partners:

- Leaf supplier companies

Guideline developed:

- Integrated Pest Management Technical Guideline for Oriental Tobacco Production*

* Based and structured according to IOBC IP Technical Guidelines, but also incorporating PMI's Good Agricultural Practice (GAP) standards

IPM in Brazil



Funded by:
Philip Morris Brazil



Crop:

- Tobacco

Partners:

- Leaf supplier companies

Guideline to be developed:

- Integrated Pest Management Technical Guideline for Tobacco Production*

* Based and structured according to IOBC IP Technical Guidelines, but also incorporating PMI's Good Agricultural Practice (GAP) standards