



# The State of integrated Crop and Pest Management in Europe: Institutional framework and prospects for the development

**Dr. habil. Bernd Freier**

Federal Biological Research Centre for Agriculture and Forestry,  
Institute for Integrated Plant Protection, D-14532 Kleinmachnow

# IPM in Europe

- Historical background
- Status quo and institutional framework
- Prospects

[www.bba.de](http://www.bba.de)

# The Beginning of Integrated Plant Protection (IPM)

Since 1943: Investigations on ecological effects of new insecticides in Northern America (PICKETT and PATTERSON, 1953)

→ Their aim: several instruments must be „integrated“

Since 1954: Similar investigations in Europe (STEINER, 1962)

1959: STERN et al. published „Integrated control concept“ (**1st definition**)

1959: Foundation of **1st IPM-working group in Europe**

„**Working Group for Integrated Plant Protection in Orchards**“

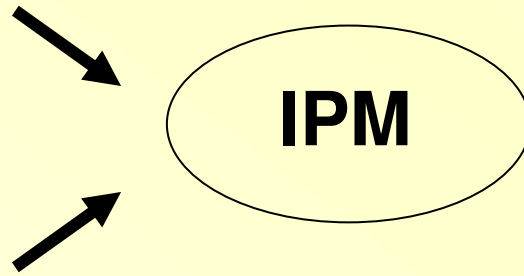
within the **IOBC** (Int. Organ. for Biolog. and Integr. Control of Noxious Animals and Plants, established in 1956)

1986: Incorporation of IPM as long-term aim into German Plant Protection Act

**IOBC** established several working groups which promoted IPM in Western and Eastern Europe **in the seventies and eighties**

**IOBCwprs** (Western Europe)

Aim: IPM to limit pesticide usage and ecological impact



**IOBCeprs** (Eastern Europe)

Aim: IPM with alternatives to pesticides because of lack of chemical pesticides

2006: 20 wprs and 16 eprs working/study groups

## The problem of definition

Compendium of IPM Definitions: A Collection of IPM Definitions and their Citations in Worldwide IPM Literature  
BAJWA & KOGAN (1998), Integrated Plant Protection Centre,  
Oregon State Univ., Corvallis, Oregon, USA

67 definitions particularly from the U.S.

Many well-known, officially published definitions were not considered,  
e. g. AGENDA 21, EU, German Plant Protection Act

**>100 IPM-definitions!**

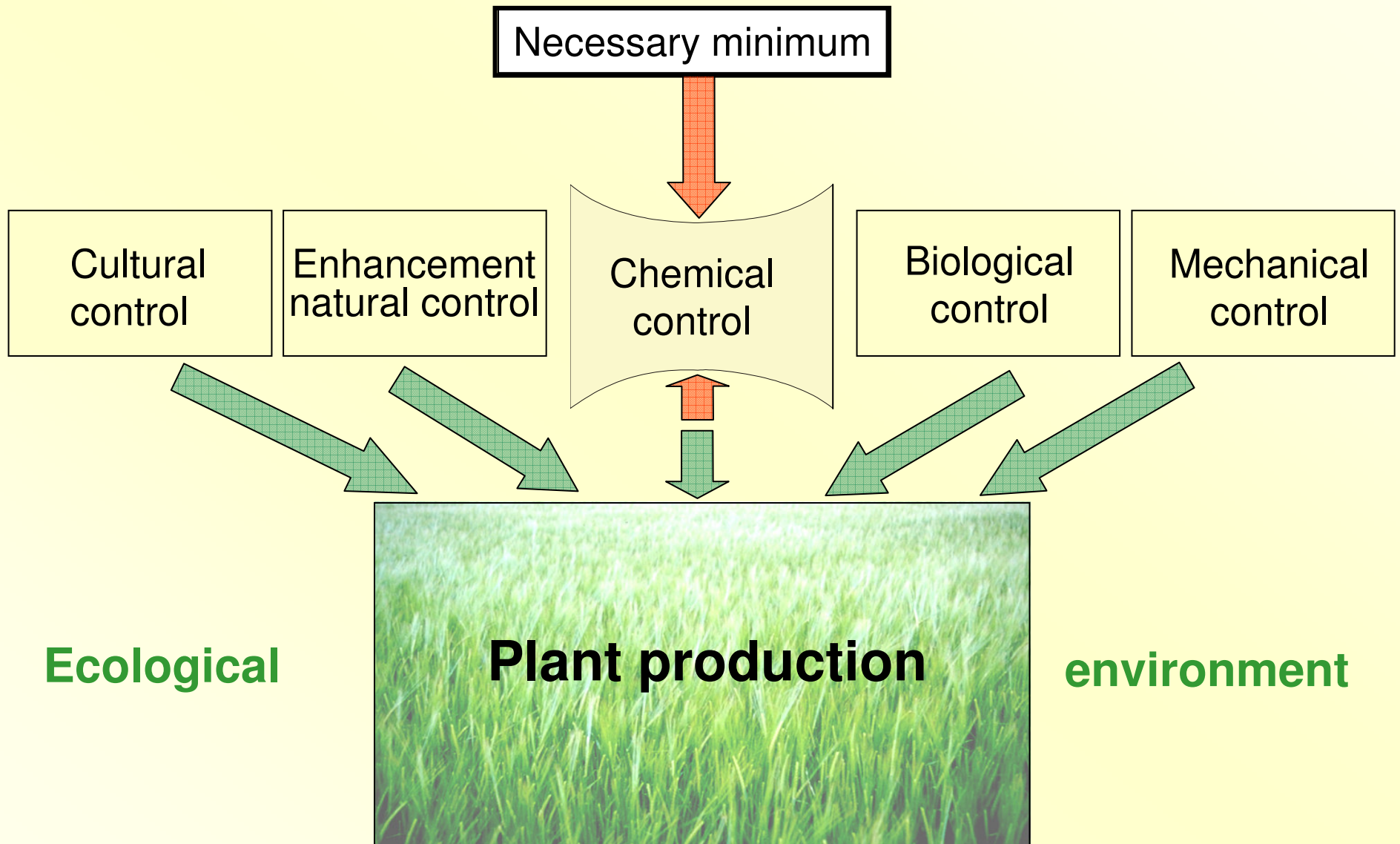
## IPM-Definition in Directive 91/414 EEC

The rational application of a **combination** of biological, biotechnological, chemical, cultural or plant-breeding measures whereby the **use of plant protection products is limited to the strict minimum** necessary to maintain the pest population at levels below those causing economically unacceptable damage or loss.

## IPM-Definition in German Plant Protection Law

A **combination** of techniques which, giving **precedence** to biological, biotechnological, plant breeding, cultivation and cropping methods, **restricts the application of chemical pesticides to the necessary minimum**.

# Elements of Control in IPM System



# All the numerous definitions and interpretations of IPM contain **general universally valid principles**

- IPM is a system approach
- IPM ensures sustainable plant production at the best level
- IPM preserves agro-ecological state and exploits natural control
- IPM gives precedence to preventive and non-chemical control measures
- IPM limits pesticide use to the necessary minimum
- IPM is a knowledge-intensive system dependent on excellent decision-making
- IPM is open to new ideas, scientific findings and technical advances



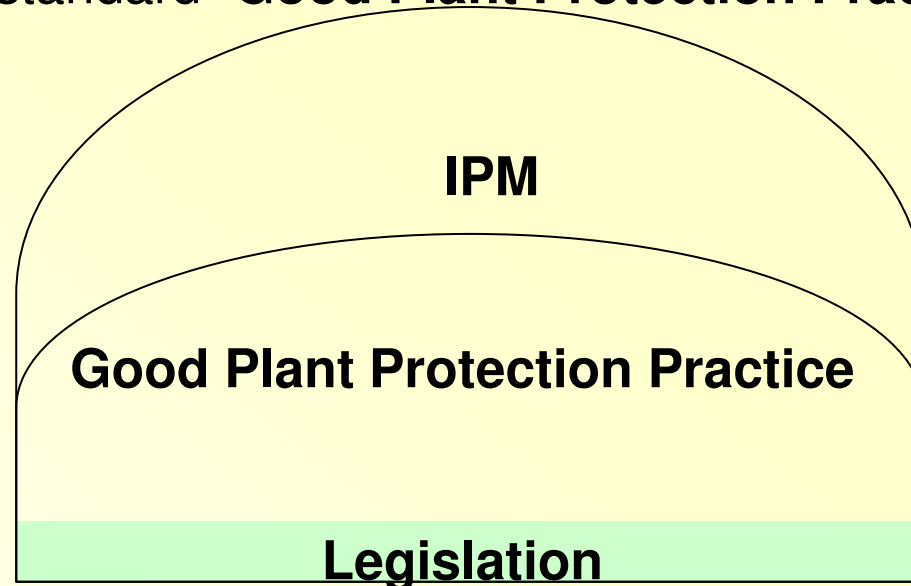
## First long-term experiences with IPM:

IPM is a sophisticated concept and **difficult to put into practice**

**Main benefit:** pesticide reduction by 20-30 %; better ecological situation

**Problem:** No uniform international IPM standard

Difficulties putting IPM into practice were a reason for creation of lower and practicable-for-all-standard “**Good Plant Protection Practice**” in Europe



## IPMEurope (established 1993)

Natural Resources Institute, University of Greenwich, Kent, U.K.

*“Concerted European Policy on IPM in international Co-operation:  
A Framework towards a Strategy” (1998)*

### 6 Requirements

- Common European IPM guidelines based on a set of agreed principles
- Strengthen partnerships with key stakeholders
- Promote the effective utilisation of European resources
- National IPM Development committees

...

## Directive 91/414/EEC

9 references to IPM

3 references to „principles of integrated control”

**Principles of IPM still have not been published in EC**

**EC does not have an institutional framework for IPM**

Also in Member States no national IPM standards

General guidelines for Good Plant Protection Practice in DK, D, NL, UK and other Member States

**IPM is accepted as model** in all European countries

## Draft of new 414/EEC contains a new and longer definition of IPM:

Careful consideration of all available pest control techniques and subsequent **integration of appropriate measures** that discourage the development of pest populations and **keep plant protection products and other interventions to levels** that are economically justified and **reduce (?) or minimise risks** to human health and the environment. Integrated pest management emphasises the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms.

„**Necessary minimum**“ was delated!

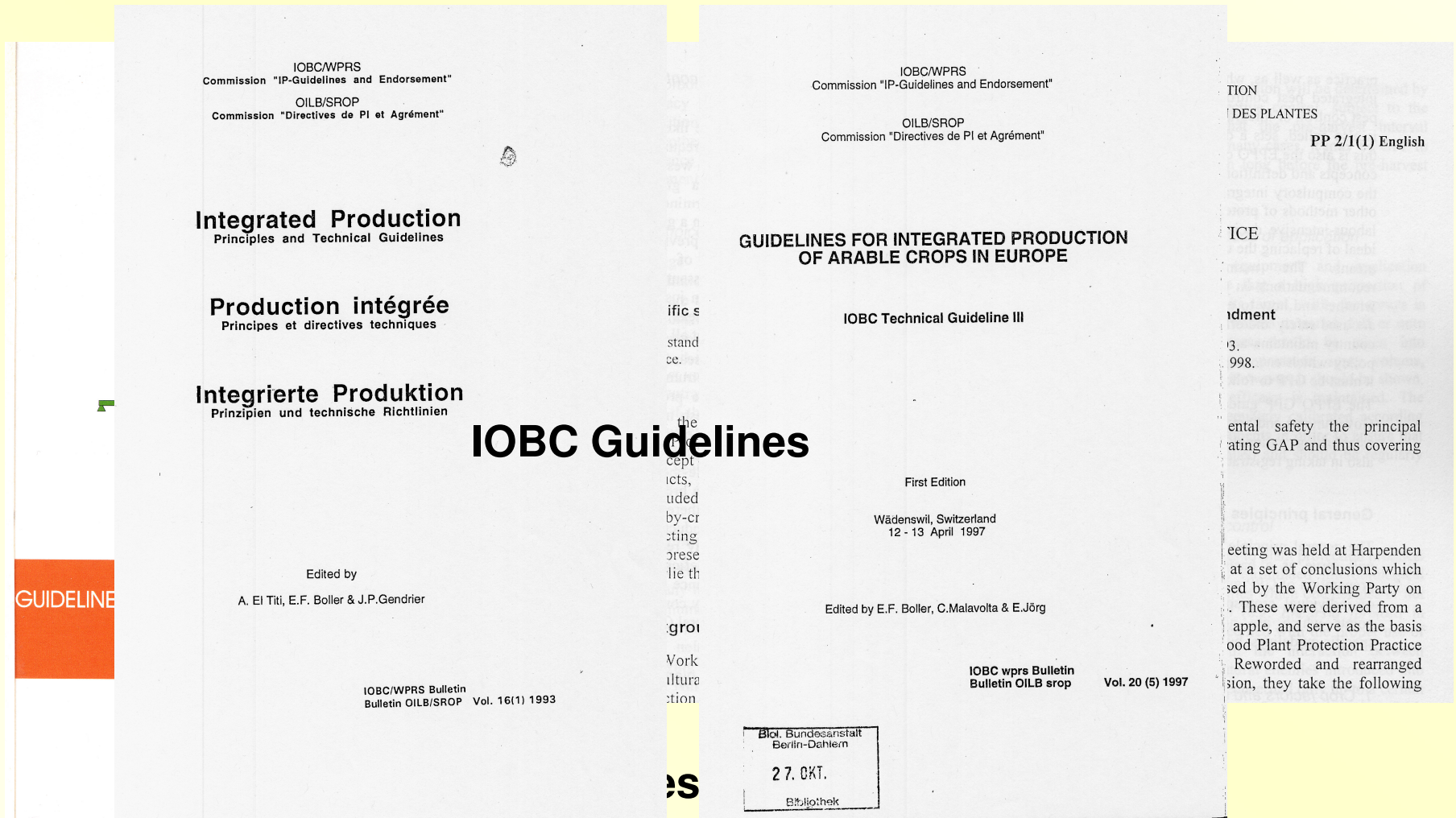
## Thematic strategy (draft)

**General standards** for IPM shall be developed and shall become **mandatory**

**Crop-specific standards** for IPM shall be developed  
But implementation shall remain **voluntary**

# General IPM standards must contain more details than principles

see EPPO Guidelines on GPP, IOBC Guidelines on IP, Regional guidelines on IP



# Publication of Principles of IPM in Germany in 2002

Nachrichtenbl. Deut. Pflanzenschutzd., 54 (8), S. 208–211, 2002, ISSN 0027-7479.  
© Eugen Ulmer GmbH & Co., Stuttgart

Biologische Bundesanstalt für Land- und Forstwirtschaft, Institut für integrierten Pflanzenschutz, Kleinmachnow<sup>1</sup>);  
Universität Hohenheim, Stuttgart<sup>2</sup>);  
Landwirtschaftskammer Hannover<sup>3</sup>);  
Aventis CropScience Deutschland GmbH, Frankfurt/M.<sup>4</sup>);  
Umweltbundesamt, Berlin<sup>5</sup>);  
Bundesinstitut für gesundheitlichen Verbraucherschutz und Veterinärmedizin, Berlin<sup>6</sup>)

## Die Grundsätze des integrierten Pflanzenschutzes

### Principles of Integrated Plant Protection

Ulrich Burth<sup>1</sup>), Bernd Freier<sup>1</sup>), Karl Hurle<sup>2</sup>), Manfred Reschke<sup>3</sup>), Reinhold Schiller<sup>4</sup>), Bernd Stein<sup>5</sup>) und Dieter Westphal<sup>6</sup>)

#### Zusammenfassung

Nach dem Pflanzenschutzgesetz gehört zur guten fachlichen Praxis, dass die Grundsätze des integrierten Pflanzenschutzes berücksichtigt werden (§ 2a Pflanzenschutzgesetz – PflSchG). In fünf Grundsätzen werden die Eckpunkte des Leitbildes integrierter Pflanzenschutz beschrieben. Die Umsetzung des integrierten Pflanzenschutzes erfolgt im Rahmen regionaler Richtlinien für die integrierte Produktion, in denen diese Eckpunkte den Pflanzenschutz bestimmen.

**Stichwörter:** Integrierter Pflanzenschutz, Grundsätze des integrierten Pflanzenschutzes

#### Grundsätze des integrierten Pflanzenschutzes

Nach dem Pflanzenschutzgesetz darf Pflanzenschutz nur nach guter fachlicher Praxis durchgeführt werden. Zur guten fachlichen Praxis gehört, dass die Grundsätze des integrierten Pflanzenschutzes und der Schutz des Grundwassers berücksichtigt werden (§ 2a Abs. 1 PflSchG). Zudem wird im Pflanzenschutzgesetz neben der Definition des Pflanzenschutzes auch eine Definition des integrierten Pflanzenschutzes gegeben (§ 2, Nr. 2 PflSchG):

*integrierter Pflanzenschutz: eine Kombination von Verfahren, bei denen unter vorrangiger Berücksichtigung biologischer, biotechnischer, pflanzenzüchterischer sowie anbau- und kulturtechnischer Maßnahmen die Anwendung chemi-*

## **General and crop-specific standards for IPM are necessary**

for:

- Unifying minimum requirements
- Labeling
- Communication between producer, retailer and consumer
- Distinction between GPP and IPM
- Identification of criteria for allocation of EU subsidies



## Minimum Requirements on IPM which should be implemented on EU level (Examples)

- Preparation of an operative IPM concept at the farm level
- Usage of specific (predetermined) non-chemical control methods
- Concept defining minimal quantity and quality of ecological structures at the farm level
- Spray equipment with drift reduced nozzles
- Compliance of regionally determined upper limits of treatment frequency index in main crops
- Field-specific pest monitoring and documentation of infestation data and pesticide use
- Usage of all information sources of authorized IPM advisory service

# Necessary minimum for use of pesticides in IPM according statistical data on pesticide use in a crop and region

