



Appendix 5 of Basic Document on Integrated Production 2004:

- Green and yellow lists of plant protection measures
- Liste verte et jaune des mesures phytosanitaires
- Grüne und gelbe Pflanzenschutzliste
- Lista verde e gialla delle misure fitosanitarie
- Listas verde y amarilla de medidas fitosanitarias

*The **green list** of plant protection measures is one of the key documents established by IOBC endorsed growers' organisations. Once established for a given crop, it retains its validity for several years and serves as important tool for the organisation, the individual farmer and the inspection body.*

*The **yellow list** requires annual updating.*

The green list of plant protection measures

Indirect (preventive) plant protection measures are the preferred options in an Integrated Plant Protection program. They are based on numerous agronomic aspects such as fertilizers (especially N), soil management, ecological infrastructures, choice of adequate cultivars and clones etc. They are supported by the introduction and/or protection of key antagonists in the cropping area. Adequate monitoring tools and economic thresholds are the instruments to decide if, when and what kind of highly selective direct control measures must be applied.

All these aspects are often not clearly identified as equally relevant for the planning of Integrated Plant Protection and are usually scattered over different chapters of IP guidelines.

A carefully designed green list is a powerful tool to assemble and display all elements that are relevant for a modern plant protection program.

Measures listed on the green list must be applicable on the farm without restrictions. The general layout of a green list is prepared by the growers' organisation with greatest possible participation of the members involved. The farm specific options are selected and applied by the individual member.

The IOBC Commission on IP Guidelines proposes to organise the plant protection documents in three parts in order to facilitate the preparation of the green list and to provide highest transparency for the individual farmer, the inspection service and last but not least the critical consumers:



The **“Passport”** is valid for a climatically and agronomically homogeneous area and should

- show the logo and name of the organisation and the date of implementation;
- identify the geographic area concerned;
- summarise the relevant regional or local characteristics (that are normally known to the individual farmers and the organisation but not necessarily known to outsiders) such as
 - List of **key pests, diseases and weeds** requiring regular attention;
 - List of identified **key antagonists**;
 - Annual precipitation (rain fall) in mm and its monthly distribution;
 - Other items relevant for the planning of Integrated Plant Protection.

A theoretical example of a “Passport” for grapes in a difficult climatic, pest and disease situation is given [HERE](#).

The „Green List“

is a crop specific document prepared by the organisation considering the characteristics given in the „Passport“ and giving adequate freedom to the individual member to select the most appropriate measures. It should be kept as slim as possible for easy interpretation and practical application (e.g. 1 page). Once established for a given crop, the Green List and the “Passport” retain their validity for several years.

This document should show in the heading

- the name of the organisation, the crop concerned and the year of publication;
- an empty space for the name and location of the farm and of the responsible owner/manager;
- an empty space for the identification of the specific plot(s) if large surfaces and/or different cultivars necessitate different programs.

The document should list the key problems (mentioned in the “Passport”) and address and summarise the relevant indirect and direct plant protection measures in the following chronological order (e.g. as horizontal flow-chart):

1. Indirect plant protection measures:

- *Planning stage/new plantations:*
Choice of cultivars; yield expectation; sowing density and time; protection/maintenance of old and/or establishment of new ecological infrastructures, etc.
- *During growth season:*
Reducing N-fertilizers (monitoring tools; maximum input/ha/year and application window); no-fertilizer and no pesticide “check window”; enhancing antagonists by habitat-management (e.g. establishing/maintenance of diversified green cover, alternating mowing in crop area; establishing and manipulating ecological infrastructures in off-crop area); improving quality of ecological infrastructures; verifying presence or introduction of key antagonists, etc.

2. Monitoring tools: Thresholds for key pests given; use of available forecasting methods etc. Subscription to existing official forecasting services (weekly bulletins, newsletters, hot-lines etc.).

3. Direct plant protection (control) of key pests, diseases and weeds:

Restrictive list of highly selective biological, biotechnical (e.g. mating disruption), physical and chemical control procedures.

Models of possible green lists for individual crops are published in the IOBC Tool Box on internet www.iobc.ch.

The „Yellow List“

Ideally, the measures indicated in the green list should give adequate results for keeping key pests, diseases and weeds below economic thresholds using a highly sustainable approach.

The growers' organisation will prepare an emergency (yellow) list of control measures to be applied

- if the green-list measures alone cannot achieve the expected results;

- in cases of unexpected emergencies;

- as part of a resistance management scheme.

Therefore, it is a very restrictive list of „second choice“ plant protection measures – mostly pesticides – that must exhibit only minor negative side-effects. These “yellow measures” have clearly defined criteria and restrictions of use.

Yellow lists are produced and updated annually by growers' organisations in close collaboration with competent official agencies.

4. The list of yellow direct control measures (trade name, active ingredients of pesticides, dose).

5. The precise criteria and restrictions of use of each control measure.

Against what target organism and under which circumstances can the product be used ? What are the precise restrictions (e.g. only 2 treatments; only in physiological stage X) ?

Simplified principle of a green-yellow flow chart

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

In order to keep the green-yellow lists slim and readable, it is recommended that additional and detailed product information is compiled on a separate data sheet to provide satisfactory information to the farmer and the public.

This technical data sheet should provide a certain amount of information with respect to

- **product characteristics:**

name and content of active ingredient, commercial name, formulation, applied dose or amount per ha, safe-to-harvest interval in days; for herbicides half-life in the soil in days etc.

- **the toxicological and eco-toxicological profile:**

WHO (human) toxicity classification.

Presence or absence of toxicity for key antagonists, honey bees, fish and for the 2 international standard indicator antagonists (i.e. the predatory mite *Typhlodromus pyri* and the parasitoids *Trichogramma spp.* and/or *Aphidius spp.*) if not yet included in the key antagonists.

Highly desirable are data on other characteristics such as toxicity for earthworms, soil micro-fauna, wildlife; for herbicides the leaching potential.

An IOBC database showing the side-effects of pesticides on 16 beneficial organisms has been published in the IOBC Toolbox (www.iobc.ch) to assist interested organisations to select suitable pesticides for their yellow lists.