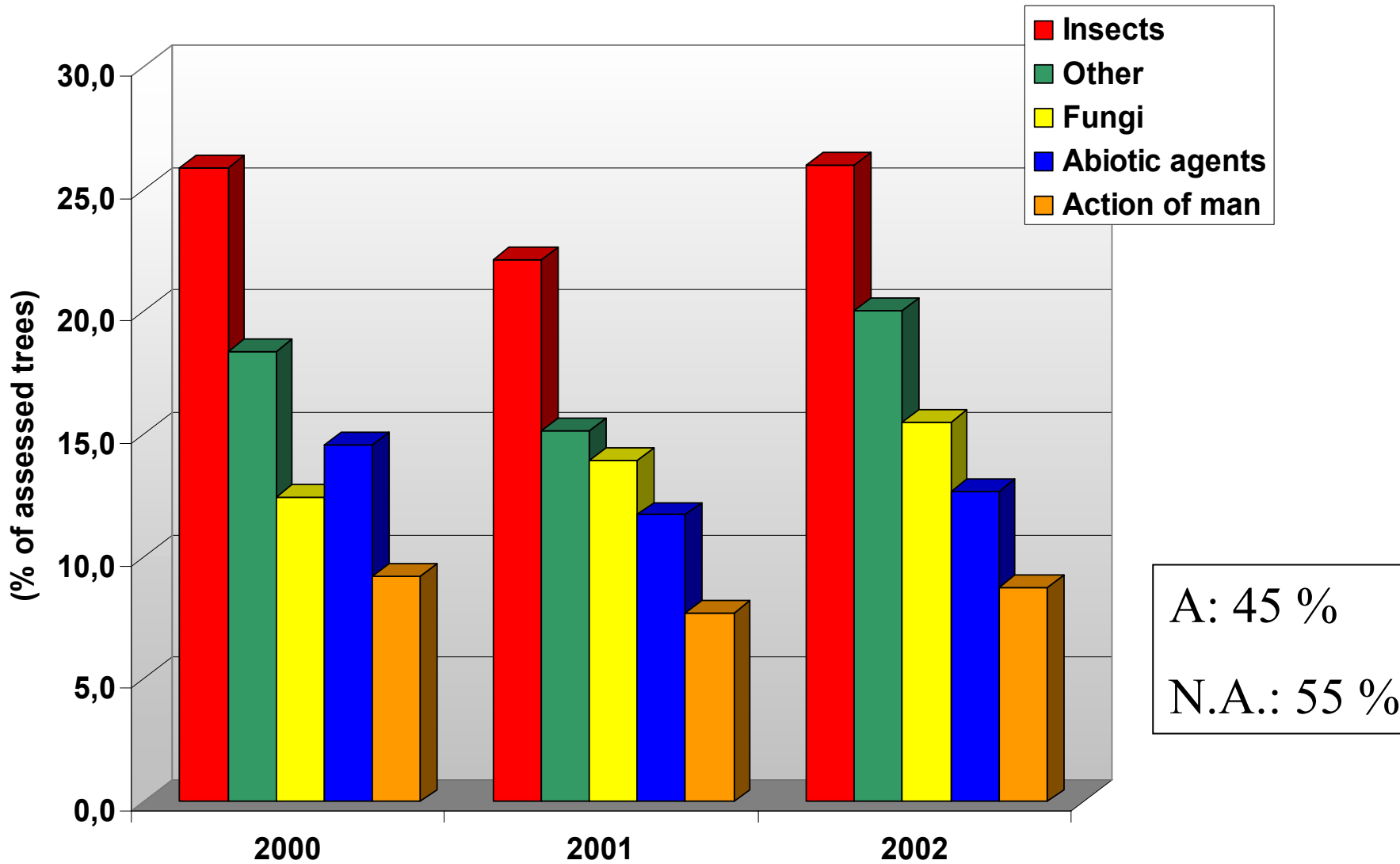


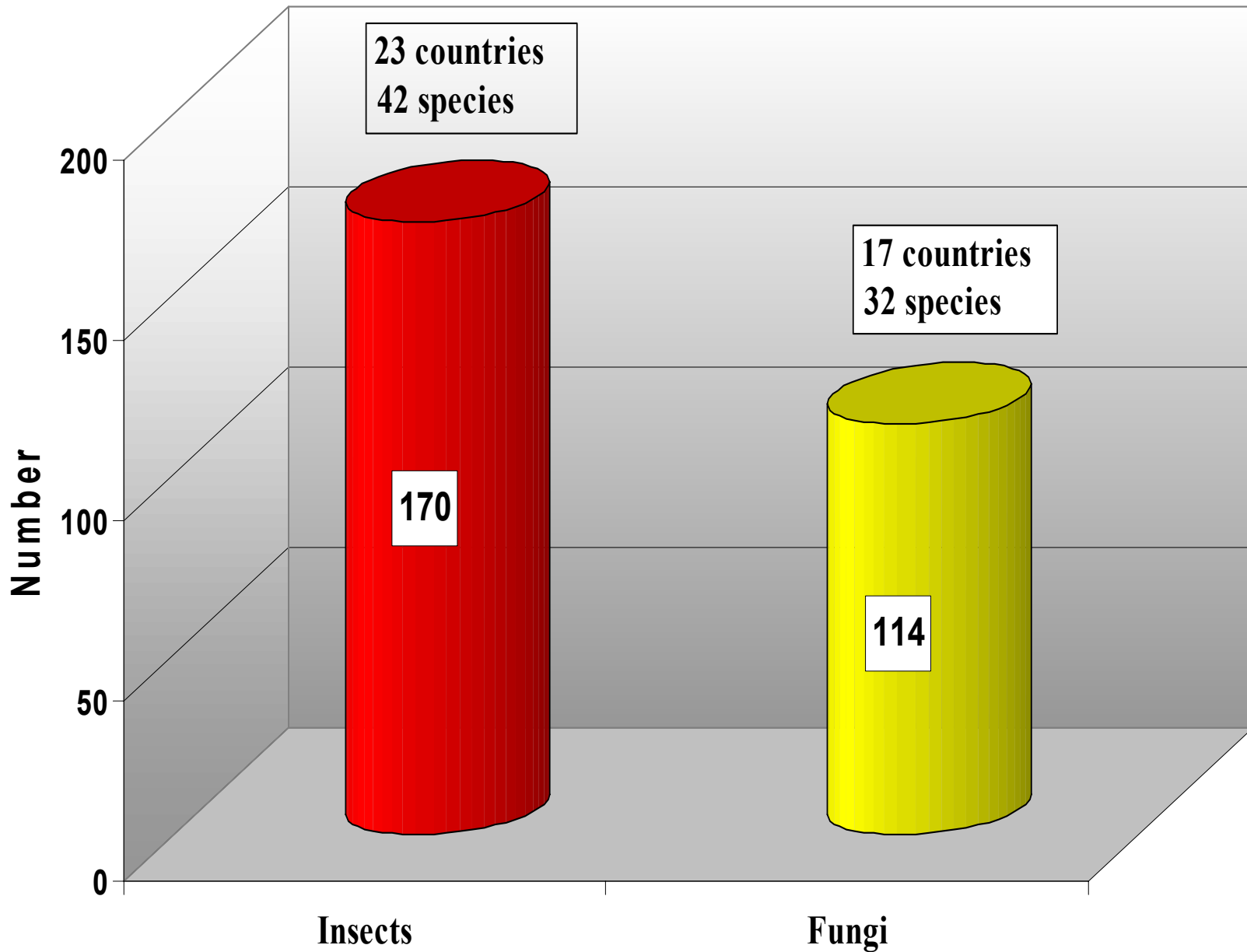
Submanual
Assessment of damage causes

Ad hoc Group Biotic Damage

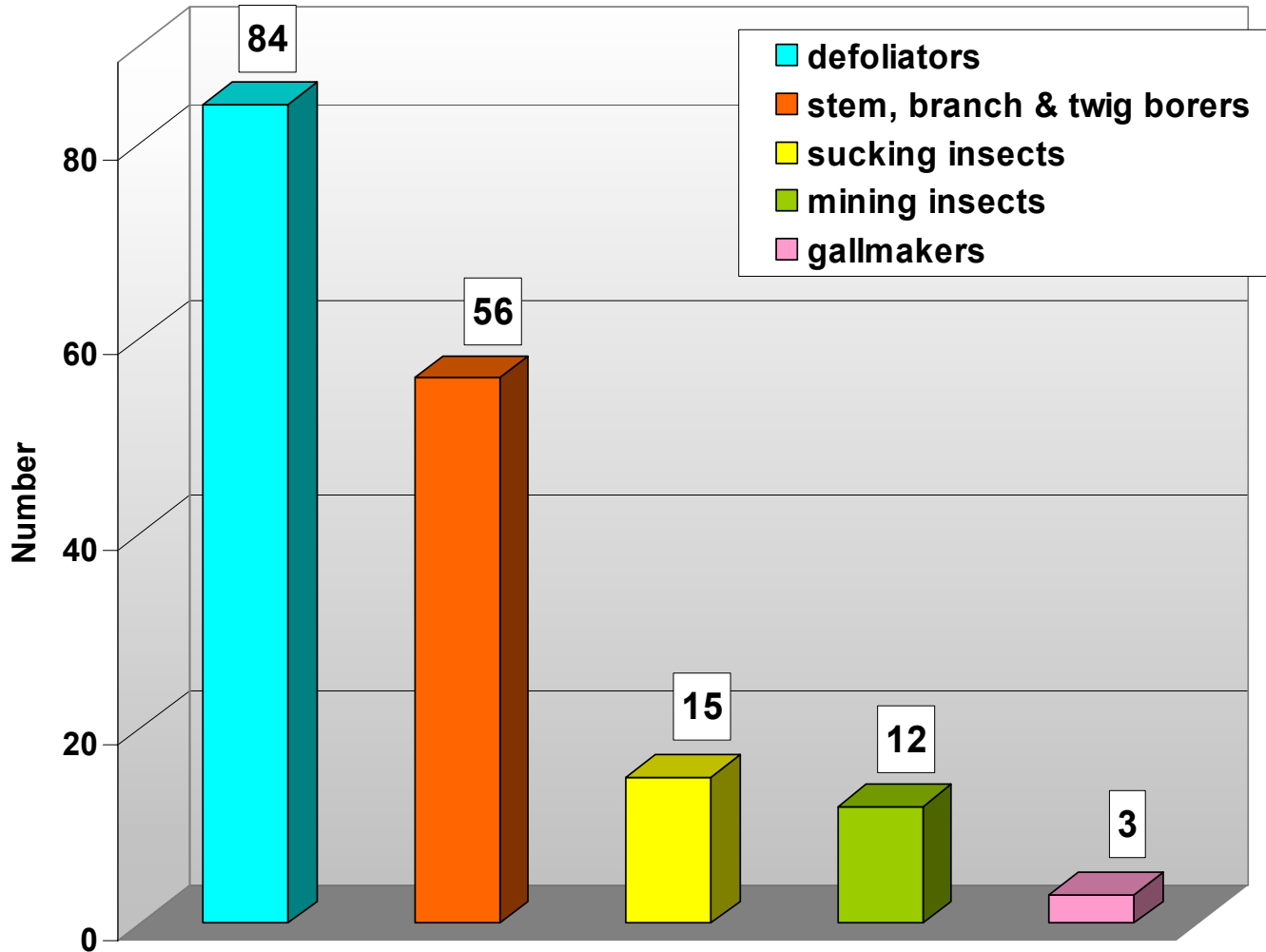
Information on Damage Causes in
the ‘Forest Condition in Europe’
Reports

Level I Damage Causes





Insects



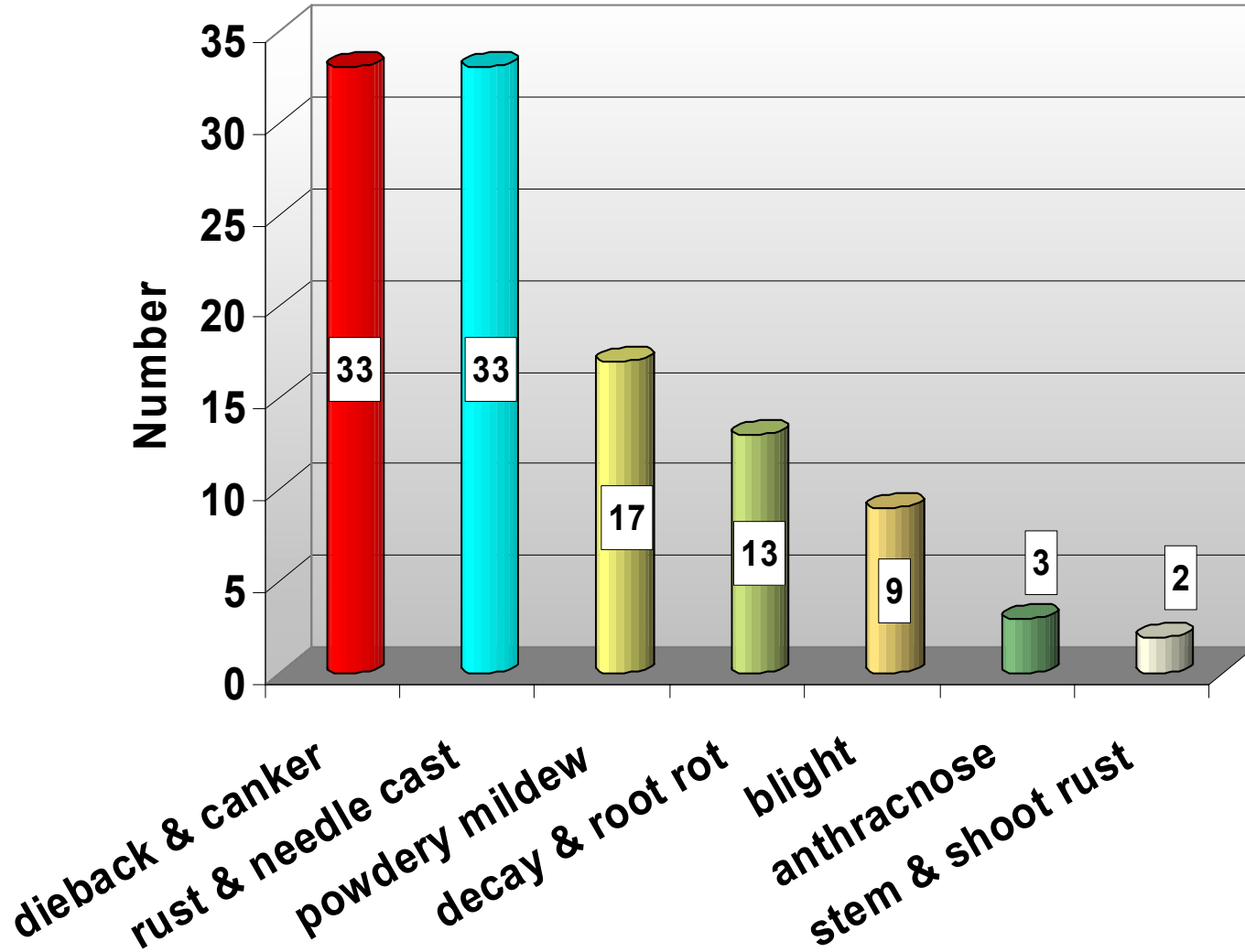
Defoliators

- *Thaumetopoea* spp.
- *Lymantria monacha*,
L. dispar
- *Tortrix viridana*,
Operophtera brumata,
Erranis defoliaria
- *Rhynchaenus fagi*
- *Diprion pini*,
Neodiprion sertifer

Stem, branch & twig borers

- *Ips typographus*,
Trypodendron domesticum, *T. signatum*
- *Tomicus piniperda*
- *Coroebus* spp.
- *Agrilus biguttatus*

Fungi



Dieback & canker

- *Gremmeniella abietina*
(*Ascocalyx abietina*)
- *Cenangium*
ferruginosum
- *Crumenulopsis*
sorroria

Rust & Needle cast

- Lophodermium
seditiosum
- Chrysomyxa spp.
- Melampsora spp.
- ...

Conclusion

- A lot of information is already available
- potential for improving cause-effect studies
- links to phenology, litterfall, ...
- practical information for forest management

But:

- *No information about impact on tree condition (level I)*
- *more specific information on damage causes needed*
- *Harmonisation needed*

Submanual on the Assessment of Damage Causes

OBJECTIVES

- **to assess the impact of damage factors on crown condition (→ cause/effect studies)**
- **to provide baseline data on the distribution & occurrence of damage factors in Europe**

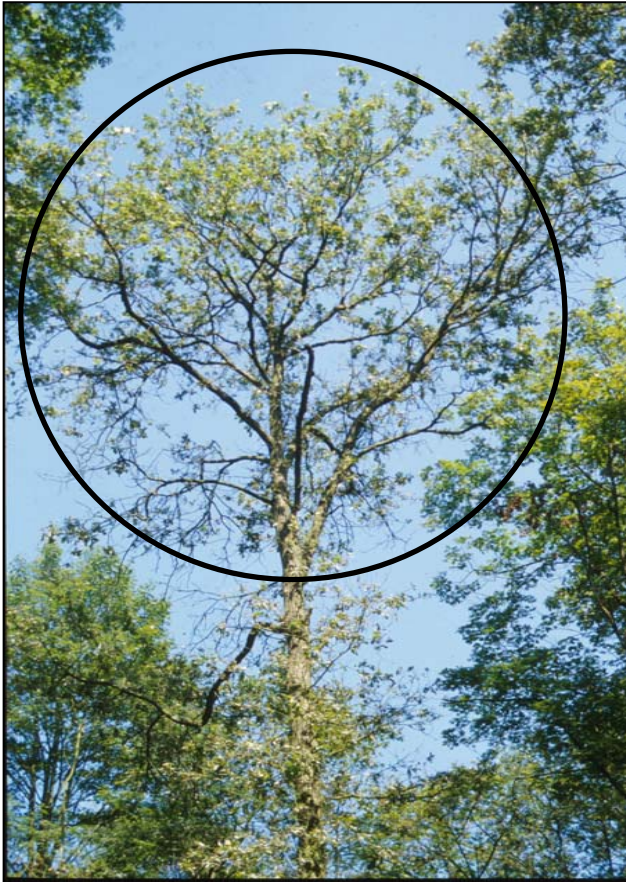
Basic principles

- 1 method for level I / level II
- hierarchical reporting system
- quantifiable
- maximum use of codes
- maximum use of existing Crown Manual

Parameters

- Symptom description
- Damage cause (diagnosis)
- Quantification of damage extent

1. Symptom description



- **Affected part:** leaves, branches & stem
 - **specification:** broadly.
- **Symptom:** devoured
 - **specification:** holes or partly devoured
- **Location in crown:** total crown

Symptom description

- Restricted to what is **relevant for tree condition**
- national list
- Field crews: **if cause is known** > no / limited description (automatic procedure)

2. Causes

- Game and grazing code 100
- Insects 200
- Fungi 300
- Abiotic agents 400
- Direct action of men 500
- Fire 600
- Atmospheric pollutants 700
- Other factors 800
- *(Investigated but) unidentified* 999

Agent group	Code	Class	Code
INSECTS	200	Defoliators	210
		Stem, branch, twig borers	220
		Bud borers	230
		Fruit borers	240
		Sucking insects	250
		Mining insects	260
		Gall makers	270
		Other insects	290

Causes

- **Diagnosis:**
 - Annexes
(symptom - possible cause)
 - Field guide
 - Expert confirmation
- **National list** - classified according to Agent Groups and Classes of Manual

3. Quantification

- **Extent:** quantity (%) of the affected part of the tree due to the action of the causal agent or factor
- **Assessable crown**

Quantification

Class	Code
0 %	0
1 – 10 %	1
11 – 20 %	2
21 – 40 %	3
41 – 60 %	4
61 – 80 %	5
81 – 99 %	6
100 %	7

4. Frequency

- L I : L II: once - CCA
- L II key plots:
 - 2nd assessment if important damage is observed
 - early warning system

5. Level I / Level II parameters

		Level I	Level II
Symptom description	Affected part	x	x
	Specification	x	x
	Symptom	x	x
	Specification		x
	Location in crown		x
Cause		x	x
Extent		x	x

6. Reporting

- Adapt existing forms Crown Condition Assessment
- 1 form level I / level II

7. Training Course

- Orléans - France 7 - 9 June 2004
- Training & Discussion > amendments

8. Implementation

- 2004 : voluntary basis
- 2005 : official start