



Measuring the general phytosanitary situation: development of a plant health barometer*

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Introduction

- To measure the safety of the food chain, 3 barometers were developed by the Scientific Committee of the Belgian Food Safety Agency: the food safety barometer (Advice SciCom 28/2010), the animal health barometer (Advice SciCom 09/2011) and the plant health barometer (Advice SciCom 10/2011).
- These instruments provide an overview on the general status of the safety of the food chain in Belgium in accordance with the competencies of the FASFC.

Objective: measuring and monitoring the yearly evolution of the general plant health (phytosanitary situation) of plants and plant products in Belgium in an objective manner, and communicating about it in a comprehensive way.

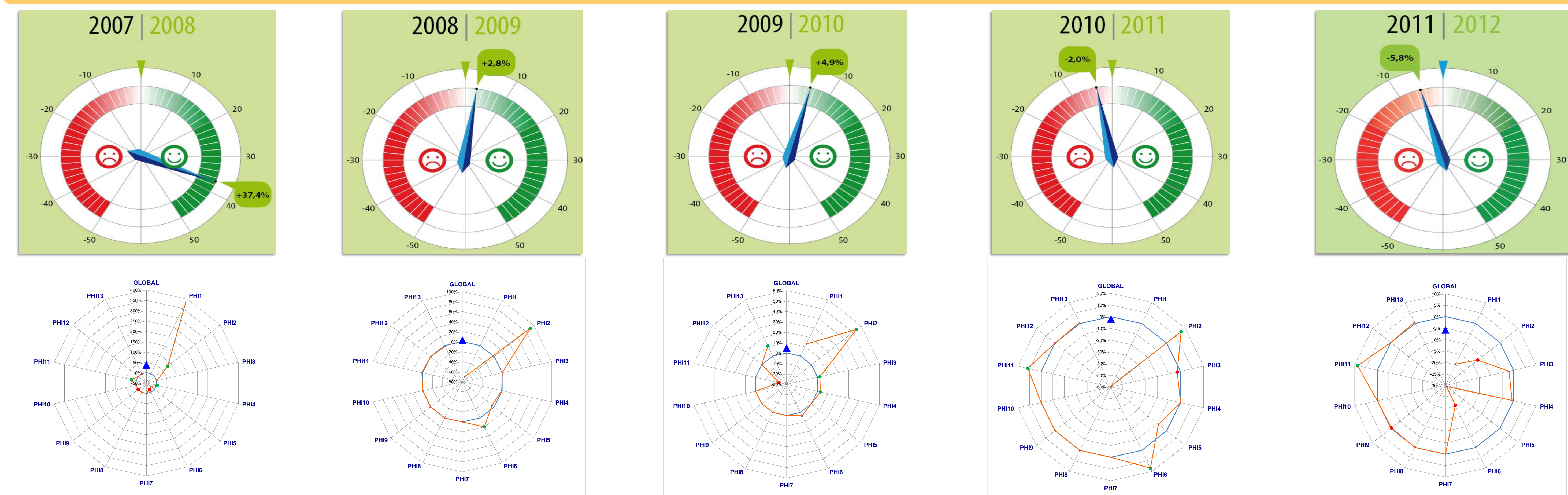
Material and Methods

- The plant health barometer consists of a set of 13 carefully chosen, measurable plant health indicators (PHI), see table 1, which together reflect the general phytosanitary situation. These indicators were monitored between 2007 and 2012.
- The **scope** of the plant health barometer is restricted to the presence/absence of **only quarantine harmful organisms**. The presence/absence of these quarantine organisms defines the phytosanitary situation.
- This set of indicators covers all stages of the entire plant production chain (suppliers, primary production, distribution/trade, propagating of plants, processing of plants, forests and green spaces) and the various types of plants and plant products.
- Some indicators (PHI1, PHI2, PHI4) are related to the preventive approach of the phytosanitary policy (mandatory notification of plant diseases and harmful organisms, self-checking for the primary plant production sector and traceability).
- Some indicators (PHI3, PHI4, PHI6) are related to the production process control (inspection and audits).
- Other indicators (PHI7-13) target specific pests and diseases associated with defined plants or plant products.
- The majority of these indicators are measured within the context of the control program of the FASFC.
- The relative importance of the indicators in the barometer was weighted by the various stakeholders of the food chain (see table 1).
- Based on the results of these PHI and the weighting of the relative importance of these indicators a plant health barometer was defined. This barometer measures the state of the general phytosanitary situation of plants and plant products in Belgium on an annual basis, and this in relation to the previous year. The result of the barometer is expressed as a comparison with the state of a previous year as it is difficult to express plant health in absolute figures.

PHI	Type of indicator	Weighting factor
1	Mandatory notification of plant diseases and harmful organisms	1,47
2	Self-checking for plant production	1,43
3	Phytosanitary inspections (physical checks)	1,91
4	Phytosanitary inspections (traceability)	1,08
5	Harmful organisms regulated and detected in Belgium	1,34
6	Phytosanitary import controls	1,91
7	<i>Bursaphelenchus xylophilus</i> (Pine wood nematode)	0,48
8	<i>Meloidogyne chitwoodi</i> and/or <i>M. fallax</i> (Root-knot nematodes)	0,48
9	<i>Globodera rostochiensis</i> and/or <i>G. pallida</i> (Cyst nematodes)	0,52
10	<i>Ralstonia solanacearum</i> and/or <i>Clavibacter michiganensis</i> subsp. <i>sepedonicus</i> (Potato brown rot and/or ring rot)	0,78
11	<i>Pospiviroidae</i>	0,69
12	<i>Diabrotica virgifera</i> Le Conte (Corn rootworm)	0,39
13	<i>Phytophthora ramorum</i> (Sudden oak death)	0,52

Table 1: Overview of the plant health indicators (PHI) and their weighting factors

Results



Legend : ▲ : overall plant health ; ● : significant improvement of the plant health indicator ; ● : significant deterioration of the plant health indicator ; blue line : status quo.

The overall value of **+37.4%** is mainly the result of the increase of the number of mandatory notifications of plant diseases and harmful organisms to the FASFC (PHI1) and of the significant improvement of the situation in relation to self-checking at plant production level (PHI2) and to the detection of *Pospiviroidae* (PHI11). In the same time, a significant improvement is observed for PHI4 and significant deteriorations are observed for PHI6 and PHI9.

The overall value of **+2.8%** is mainly the result of significant improvements of the situation in relation to respectively self-checking at plant production level (PHI2) and the phytosanitary import controls (PHI6). In the same time, the number of mandatory notifications of plant diseases and harmful organisms to the FASFC (PHI1) decreases.

The overall value of **+4.9%** is mainly the result of significant improvements of the situation in relation to self-checking at plant production level (PHI2) and to the detection of *Phytophthora ramorum* (Sudden oak death) (PHI13). In the same time, significant improvements are observed for PHI3 and PHI4 and a significant deterioration is observed for PHI11.

The overall value of **-2.0%** is mainly the result of the decrease of the number of mandatory notifications of plant diseases and harmful organisms to the FASFC (PHI1). In the same time, significant improvements are observed for PHI2, PHI6 and PHI11 and a significant deterioration is observed for PHI3.

The overall value of **-5.8%** is mainly the result of an important, even if non-significant, deterioration of the situation concerning the harmful organisms regulated and detected in Belgium (PHI5). In the same time, significant deteriorations are observed for PHI2, PHI6 and PHI9 and a significant improvement is observed for PHI11.

Discussion and conclusions

- The plant health barometer provides an image of the general phytosanitary situation of plants and plant products in Belgium on a yearly basis and this compared to the situation of a previous year.
- It is a unique tool to communicate in an intelligible, comprehensible manner on aspects of plant health to consumers and professional stakeholders in the plant production chain.
- Based on 13 plant health indicators, it has been found that plant health in Belgium shows a positive evolution from 2007 until 2010 and a negative evolution from 2010 until 2012. Globally, the evolution between 2007 and 2012 is however still positive.
- Each indicator has its respective strengths and weaknesses and the whole set of indicators is representative for plant health in Belgium and incorporates various aspects of the plant production chain.

For further information please visit <http://www.favv-afscs.fgov.be/scientificcommittee/barometer/>