

## **A Farmer's Toolbox for Integrated Pest Management**

AGRI/2020/OP/0003

### **Case study**

**The use of crop specific guidelines for controlling implementation of IPM at farm level in Belgium**

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### **Abstract**

Building on the national food safety monitoring activities, the regional Belgian authorities have developed an IPM monitoring approach based on crop specific guidelines. Such monitoring is currently used in routine by external and independent organisations. The annual results show a high level of compliance leading to the conclusion that IPM is correctly implemented in Belgium.

## 1. Introduction

In Belgium, the quantity of plant protection products sold per ha shows a slight tendency to a reduction between 2011 and 2019 moving from 4.9 kg/ha in 2011 to 4.3 kg/ha in 2019. The Harmonised Risk Indicator 1 (HRI 1) shows the same trajectory decreasing from 102 in 2011 to 72 in 2018 (Eurostat, 2020). When compared to other EU Member States, Belgian statistics show that the country uses less pesticides than its neighbour the Netherlands, but much more than Germany (2.7 kg/ha) and France (2.0 kg/ha).

Belgium has a long history regarding the reduction of dependency on pesticide use, dating back to 1998 with the Law of 21 December 1998 on product standards to promote sustainable production and consumption patterns, and to protect the environment and public health. This law provided for a federal reduction programme which must be updated every two years. Therefore, the implementation of the SUD came in continuation of this initial plan. Belgium is one of the seven EU Member States to have set measurable targets for pesticides as part of its National Action Plan for the sustainable use of pesticides (NAPAN) implementing Directive 2009/128/EC establishing a framework for Community action to achieve sustainable use of pesticides. The NAPAN covers a period of five years (2013-17 and 2018-22). Federal and regional authorities are responsible, within their respective areas of competence, for implementing the plan. Since 2013, NAPAN has brought together the objectives and measures of pesticide reduction programmes at the federal and regional levels and includes joint actions. In the NAPAN (TaskForce NAPAN, 2014), the quantitative target in the Walloon plan is formulated as follows: *“The initiatives within the programme must enable Wallonia to progressively achieve the targets in the initial Federal Pesticide and Biocide Reduction Plan with a 50% reduction in the environmental impact for non-agricultural use and a 25% reduction in the environmental impact for agricultural use”*.

Directive 2009/128/EC requires farmers to apply integrated pest management (IPM) and non-chemical alternatives. This means that they should only turn to pesticides if prevention and other methods fail or are ineffective. The CAP encourages the sustainable use of pesticides by supporting advisory services, the acquisition of precision farming and mechanical weeding equipment, organic farming, AECM and Natura 2000 sites. However, IPM is not part of the cross compliance or green payment requirements in Belgium. In Brussels-Capital, subsidies for the Good Food Strategy (EUR 2.5 million in 2018) are subject to compliance with the IPM. Wallonia is setting up pilot farms to disseminate the IPM practice for the main crops. In Flanders, IPM is required by law through the 2013 Decree on Sustainable Use of Pesticides; agricultural practice centres (“praktijkcentra”) disseminate IPM guidelines (IPM-richtlijnen).

In line with obligations of Article 14 of the SUD, Member States must make sure that the principles of IPM are applied to all professional users. Paragraph 5 of the same article specifies that *“Member States shall establish appropriate incentives to encourage professional users to implement crop or sector-specific guidelines for integrated pest management (IPM) on a voluntary basis. Public authorities and/or organisations representing particular professional users may draw up such guidelines. Member States shall refer to those guidelines that they consider relevant in their National Action Plan”*.

This case study presents the overall approach taken by Walloon authorities to draft these guidelines and implement them at regional level. The overall organisation governing this approach is also described and presented in detail.

## 2. Research theme

This case study will analyse how the crop-specific guidelines, which are today being used by both Flemish and Walloon authorities to monitor the implementation of IPM at farm level, have been developed, as well as the role of the involved stakeholders in establishing the monitoring program. Then, a detailed description of these guidelines is provided highlighting the requirements farmers have to respect, before the mechanisms for controlling farmers are described. Finally, the case study will explore the potential of the replicability of the Belgian approach to other countries.

## 3. Methodology

The case study was conducted using an extensive literature review completed by interviews with the main actors of the process, of which the Walloon authorities and stakeholders.

## 4. Activities and results

### Legal framework leading to the development of crop-specific guidelines

Belgium has had an existing legislative framework on IPM far before the entry into force of the SUD. The law of 21 December 1998 on product standards to promote sustainable production and consumption patterns and to protect the environment and public health provides for a federal reduction programme which must be updated every two years.

This main legal text can be summarised by the following elements:

- 26 March 2004 - Government of Flanders Decision for the recognition of the integrated production method for stone fruit and of producers that cultivate in keeping with this method, Belgian Official Journal of 10 June 2004;
- 13 February 2003 - Ministerial Order laying down the specifications and the parcel register on the integrated production method of stone fruit, Belgian Official Journal of 7 March 2003, amended by the Ministerial Order of 17 September 2004, Belgian Official Journal of 15 October 2004;
- 13 February 2003 - Ministerial Order laying down special conditions for the recognition of inspection bodies regarding the integrated production of stone fruit, Belgian Official Journal of 7 March 2003;
- 12 December 2008 - Government of Flanders Decision on organic production and labelling of organic products 16 September 2005 - Ministerial Order laying down the rules regarding derogations for seed and seed potatoes in the organic production method;
- 7 February 2006 - Ministerial Order amending the Ministerial Order of 16 September 2005 laying down the rules regarding derogations for seed and seed potatoes in the organic production method;

- 28 November 2006 - Ministerial Order amending the Ministerial Order of 16 September 2005 laying down the rules regarding derogations for seed and seed potatoes in the organic production method; and
- 22 June 2009 - Ministerial Order implementing Articles 7, 9, 10, 11 and 48 of the Government of Flanders Decision of 12 December 2008 on organic production and labelling of organic products.

The first reduction programme (PRPB) for plant protection products for agricultural use and biocides was launched on 22 February 2005. It covers the 2005-2010 period and was drawn up in cooperation with all the players involved: the government at the various levels, the professional organisations for the protection of consumers and the environment, and so on.

The first update (2007-2008) takes stock of the first two years, specifies priority actions for the forthcoming period and contains a revision of the management structures for the programme. This update also fills in a few gaps in the original text, by defining priority axes. From 2010 onwards, Belgium continued its policy, with due regard for the European legislation and namely the framework directive 2009/128/EC of the European Parliament and of the Council for the sustainable use of pesticides, by implementing its National Allocation Plan following on from the PRPB.

Based on that history, awareness-raising of professional users as regards IPM is an important point of focus in the Belgian NAP. Specific legislation addresses the need to implement IPM at farm level, of which:

- Walloon region decree of 10 November 2016, enforced by Ministry Decree of 26 January 2017 and modified by Ministry decree of 6 March 2019, which partly enforces Directive 2009/128/EC and establishes a technical committee under its Article 4. The missions of the committee are to:
  - Study all questions linked to IPM in Wallonia;
  - Evaluate whether or not IPM can be applied to all agricultural sectors and all crops; and,
  - Establish draft crop-specific guidelines and propose modifications to adapt the guidelines to technical evolutions and knowledge in IPM.

The technical committee is composed of all stakeholders concerned by the use of pesticides ranging from e.g. monitoring authorities and stakeholders involved in water protection and water quality, agricultural economic representatives, researchers, and advisors.

Under this same decree, farmers can, on a voluntary basis, register to a certified control body in order to be able to receive the certificate "Lutte intégrée" (IPM). In case the farmer is not certified, the Decree specifies that control can be performed by regional bodies (Département de la Police et des contrôles de administration) following a control grid developed by the administration (not public document).

- Walloon government decree modified by ministry decree of 21 January 2011 establishing and enforcement a specific guideline addressing IPM in pome fruits, completed by an additional Walloon government decree establishing a financial aid in

pome fruit production<sup>1</sup>.

The technical committee drafted two crop-specific guidelines as a response to the Article 14 requirements. These guidelines, organised in the format of a check-list, are part of the quality specifications of the agricultural sector (Vegaplan). In the section below, we first present Vegaplan and then describe the content and the operationalisation of the crop specific guidelines.

### Implementation and operationalisation of the legislation: description of Vegaplan

Vegaplan was founded in 2003, by the members of the agricultural associations FWA, CBB, BB and ABS, as a platform including all economic actors of which primary production, trade, auctions, and the processing industries. Vegaplan relies on a coordination between buyers (CPPC) and agricultural associations. It follows a 'supply chain' approach and its purpose is the administrative management of the Vegaplan Standards and the accompanying sector guides (G-040 modules A, B and D and G-033). This includes the following tasks:

- Developing and managing the specifications of the standard;
- Managing the database which contains all the participants and their certification status;
- International cooperation and striving for exchangeability with foreign systems;
- Organising various trainings for producers;
- Informing and communicating with all interested parties; and,
- Organising courses and giving advice to certification institutions with an eye to the uniform interpretation of the requirements.

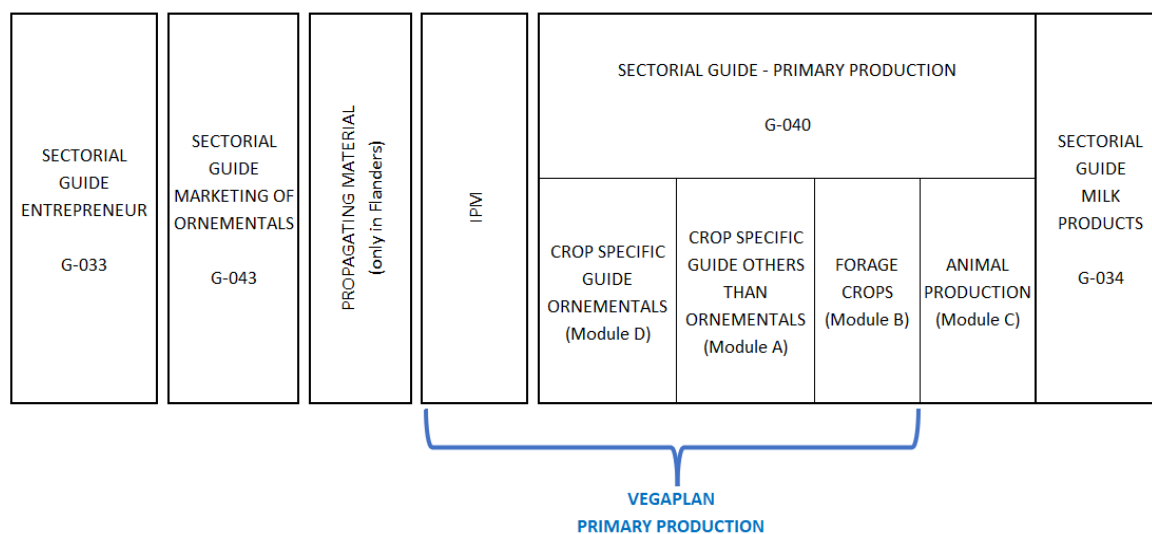
Vegaplan primarily focuses on agricultural companies and contract workers that wish to obtain a Vegaplan or sector guide certificate. It also concentrates on all the customers of the primary vegetable sector: companies from trade and the processing industry of vegetable raw materials.

The Vegaplan standards, that come on the top of the sectorial guides, are targeting farmers/entrepreneurs and cover the following domains: food safety based on the General Food Law requirement (Regulation (EC) No 178/2002), hygiene based on regulations (EC) No 852/2004 for food and 183/2005 for animal feed, traceability, mandatory information, criteria for market access, sustainability and IPM. The scope of the sectorial guides, accompanying the Vegaplan standards, is rather large and addresses farmers and contractors. The guides include food safety, traceability, and mandatory notifications.

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<sup>1</sup> Pursuant to Commission Regulation (EU) No 702/2014 of 25 June 2014 declaring certain categories of aid in the agricultural and forestry sectors and in rural areas compatible with the internal market in application of Articles 107 and 108 of the Treaty on the Functioning of the European Union.

### Organisation of the standards and sectorial guide in Vegaplan



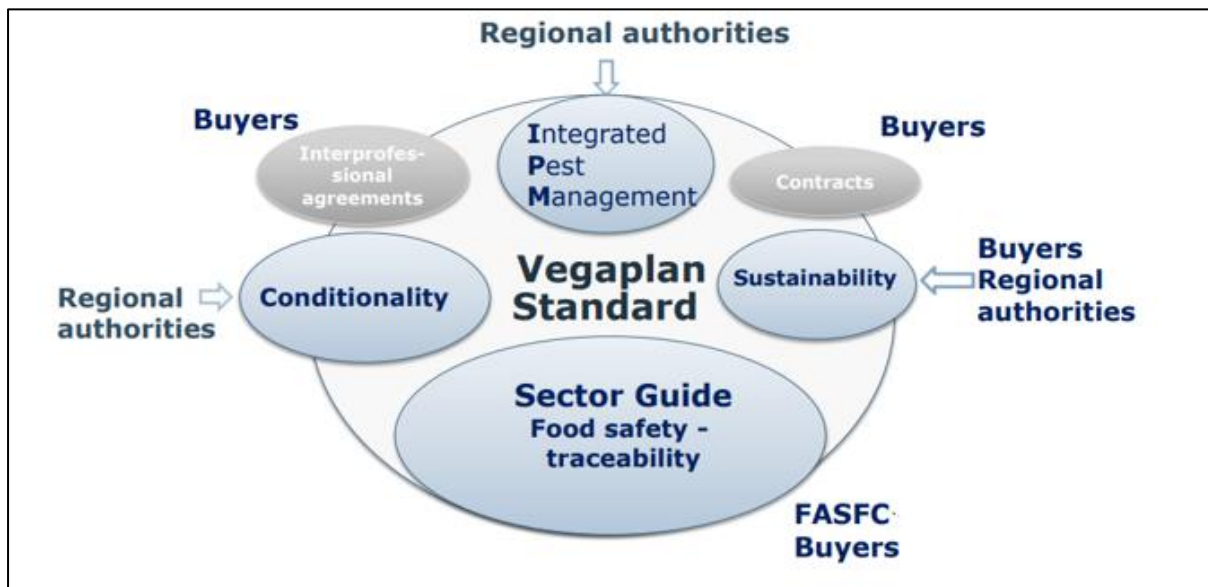
The content of the standards is developed based on risk analysis (safety/quality/environment) and a 'frequency/severity' index for each group of products based on support from the agricultural associations which represent/advocate the retained requirements towards their members. The standards are included in the supply conditions of the buyers (= access to markets). The standards are coordinated with the authorities: the FASFC (Federal Agency for the Safety of the Food Chain) as regards food safety and traceability requirements and the regions (Flanders and Wallonia) when it relates to IPM. The standards are linked to foreign standards in particular in Germany and the Netherlands that both recognised the Belgium certificate in trade.

As of December 2018, a large number of farmers are members of Vegaplan. Over 80 % of Flemish and 45 % of Walloon growers are members of a voluntary quality assurance/own-control scheme.

#### Participation to Vegaplan

Vegaplan	June. 2018
<b>Farmers</b>	
<ul style="list-style-type: none"> <li>● Vegaplan standard</li> <li>- The NL</li> <li>- France</li> <li>- Luxemburg</li> <li>● Sector guide</li> </ul>	16 316 200 966 5 15 551
<b>Farm contractors</b>	
<ul style="list-style-type: none"> <li>● Vegaplan standard</li> <li>● Sector guide</li> </ul>	1100 966
<b>Trade, processing and auctions</b>	277
<b>Certification bodies</b>	
<ul style="list-style-type: none"> <li>● Farmers</li> <li>● Contractors</li> </ul>	10 8

### Governance of Vegaplan



### The IPM Vegaplan crop-specific guidelines

The first guidelines on IPM were published in annex of the Ministerial Decree of 26 January 2017 implementing the decree of the Walloon government of 10 November 2016 on integrated pest management. It was modified by the ministerial decree of March 10, 2021.

Two crop specific guidelines were developed in both Wallonia and Flanders following the same approach. The main difference is that the Flemish guides includes additional obligations related to environmental issues, mainly buffer zones around water areas and health issues related to PPP manipulation when filling the sprayer. The first guideline addresses ornamental crops and the second one "all crops other than ornamentals ones". The two guidelines are organised on the same principles and follow the food safety guideline's structure. The rest of this section focuses on the second guideline which has been studied in detail.

The guidelines follow the structure of the eight IPM principles as listed under Annex III of Directive 2009/128/EC. They also include a list of useful addresses and weblinks to users.

For each principle, the guidelines establish three levels of obligations:

- Level 1: Mandatory measures for the targeted crops;
- Level 2: 70% of measures under Level 2 have to be applied at the farm level;
- Level 3: Measures proposed to farmers. Not compulsory.

Then, per requirement under each principle, the level of obligation (1 to 3) is indicated for a group of crops (arable crops, forage crops, open field vegetables, glasshouse and greenhouse vegetables, and fruits). For example, for agricultural crops, the total number of requirements per principle and per level of obligation is established as follows:



**Number of requirements per principle and per level of obligation in the guideline for  
agricultural crops**

IPM principle	Number of obligations for		
	Level 1 (mandatory)	Level 2 (70% to be established at farm level)	Level 3: optional
<b>IPM principle 1: Good agricultural practices</b>			
1.1. Crop rotation	4	12	
1.2. Use of appropriate cultivation methods	2	1	1
1.3 Use of resistant cultivars	1		
1.4 Use of certified seed	1	1	
1.5 Fertilisation	1	3	1
1.6. Prevention of propagation of harmful organisms	1	1	
1.7 Protection of useful organisms	1		
<b>IPM principle 2 and 3: Monitoring and thresholds</b>			
	2	1	
<b>IPM principle 4: Alternative methods</b>			
			1
<b>IPM principle 5: Pesticide selection</b>			
	1	3	
<b>IPM principle 6: Dosage</b>			
	2	1	3
<b>IPM principle 7: Anti-resistance strategies</b>			
	1	2	1
<b>IPM principle 8: Evaluation of the agronomic efficacy of the products</b>			
	1		3

Annex 1A of the guideline lists a series of additional cultivation practices (e.g. farmers have to use precision agriculture) and farmers have to implement, at least, one of them. For agricultural crops, the list includes 20 different practices.

Annex 1B lists 20 good practices on conditions of use (e.g. clean machinery regularly) of which farmers have to respect at least two of them.

Annex 1C proposes 18 methods related to the management of the environment (e.g. favour birds by properly placing and maintaining nesting boxes and / or perches (tits, raptors, etc.)). Farmers have to integrate at least two of them in their IPM approach.

Annex 1D presents a series of pest monitoring systems that the farmer can choose to use to decide when and how to spray. At least one of the methods shall be applied by individual farmers. This list includes the following:

- Visual observations by individual farmers including record-keeping on the observations made;
- Monitoring bulletins prepared by regional advisors that farmers can subscribe to;

- Support from a certified advisor;
- Use of meteorological data to decide for a preventive treatment or not (e.g. mildew on potatoes) including record-keeping;
- Analysis of samples to check whether or not a given disease is present or not. Analysis report to be kept by farmers; and,
- Reflect on the spraying strategy based on the biology of the pest disease. Strategy to be described on paper.

Annex 1E lists 14 alternative methods, described in generic terms. Farmers have to implement at least one of these 14 methods.

The two regions have together developed an online application that farmers can use to understand their obligations as regards implementation of IPM. Under this application, the farmer can enter the crops he is cultivating and a few other parameters on the characteristics of his farms and then the application lists all obligations and controls that apply for that crop. That list can be usefully used to perform the annual self-controls and to record all data and self-assessments.

Each of the requirements, mandatory or not, is described in rather generic terms and leaves freedom to farmers on how to design its IPM strategy. The mandatory requirements are those based on good agricultural practices which are already largely implemented by farmers. For example, in sugar beet it is mandatory to respect a crop rotation of three years. That practice is largely in place since several years due to the presence of *Rhizomania*. *Rhizomania* is a well-known soil-borne disease that occurs throughout the major sugar beet growing regions of the world, causing severe yield losses in the absence of effective control measures. It is caused by Beet necrotic yellow vein virus (BNYVV), which is transmitted by the obligate root-infecting parasite *Polymyxa betae*. In the absence of robust crop protection products, the most efficient way of getting no or low infection is to rotate crops at least for a period of three years. Farmers know that if they reduce their crop rotation, the crop will suffer from *Rhizomania* attacks. In this sense, the Level 1 requirements are not very restrictive for farmers. The Walloon authorities recognised this point and have highlighted that this could be explained by the fact that such requirements have already been in place for a long time.

When it relates to IPM principle 6: selection of pesticides, the guidelines do not mention any name of commercial PPPs as they rely on crop specific advisory services that are existing in the country. It is up to each farmer to follow the recommendations of such public advisory services.

Controls, following ISO 17065, are performed by external organisms controlling IPM implementation together with other obligations related e.g. to food safety. Growers in this scheme are inspected once every three years, with an additional 5-10 % random inspections. This control monitors compliance with IPM since June 2014 in Flanders, while growers in Wallonia can choose to opt out of the IPM aspect of the control. The control is not performed at field level but at farm level. It is based on the documentation that the farmer provides, except for F&V where controls are also performed by visiting the fields together with the farmers. All farmers from the F&V sector are certified and therefore controlled. In total about 40-45% of farmers are members of Vegaplan.

As mentioned earlier, the IPM controls take place during mandatory controls. Each requirement is controlled via a control method which has been drafted by competent authorities. Such document is not public and is kept confidential by the authorities and the accredited controllers. This additional control for IPM costs farmers EUR 60 per control with no costs for competent authorities. Farmers also have the obligation to perform a self-control every year and to keep records of such self-control if required by the external controllers.

It should also be mentioned that the guidelines are being used by economic actors in their relationship with farmers:

- Sugar factories have all included in their contract with farmers, the obligation for them to be members of Vegaplan; and
- A limited premium exists for farmers that are members of Vegaplan.

The most recent statistics show that, out of 18 316 check lists taken into consideration, the level of compliance is high (>94% in 2019) for both IPM and food safety requirements. The reporting system has recently been improved to allow distinguishing between level of compliance as regards food safety from IPM requirements.

## 5. Discussion and conclusions

The case study presents a concrete approach for controlling the implementation of IPM at farm level which seems to be efficient.

In 2015, DG SANTE performed an audit in Belgium on implementation of the PPP regulation and the SUD and concluded that “*there is a comprehensive system of risk-based controls covering all categories of end users in Belgium, except for users of seed treatments and treated seeds. The prohibition of aerial spraying, systematic sprayer testing, pest monitoring and controls on integrated pest management provide assurances on the safe use of plant protection products*”. Such monitoring system certainly contributed to the decrease of HRI 1 and sales of plant protection products in Belgium over the last decade.

The strength of the monitoring system can be summarised as follows:

- The set-up of the technical committee in charge of developing the crop-specific guidelines, which includes all IPM stakeholders, supports the appropriation of the system by farmers. In addition, such committee supports the revision of the guidelines for a more efficient monitoring;
- Monitoring based on crop-specific guidelines built as check-list provides clear instructions to farmers on what they have to do (and not do) to be compliant;
- Controls performed by external certified companies that provide dedicated resources allow to perform a large number of controls every year;
- Vegaplan is recognised by other EU authorities (the Netherlands and Germany); and,
- By integrating the control of IPM in the food safety monitoring approach, the costs for monitoring IPM are low (about 20 EUR per year and per farm).

However, the system shows some weaknesses as reported by the interviewees as follows:

- Not all farmers are controlled as the system relies on a voluntary subscription to Vegaplan. One could thus consider that only farmers that are compliant subscribe to the scheme. Others, who know that they are not compliant, prefer not to register;
- The obligations as described in the crop-specific guidelines are not very restrictive and remain rather generic. Most of them are based on agricultural good practices already implemented by a large majority of farmers;
- The extra cost for controlling implementation of IPM is low as mentioned above. On the one hand this is positive for farmers who do not have to support high costs, but on the other hand, the revenue for the companies performing the controls is low, leading to some causing inclinations to no longer carry out these checks; and,
- The crop-specific guidelines do not provide any information on specific pests or diseases per crop and no detailed information on how to protect the crops by using alternative methods. Such advice is provided by research centres and technical advisors which are crop specific in both Flanders and Wallonia. It should be noted here that in the first crop-specific guideline developed in Belgium on pome fruit (in 2004 – see Walloon Government Decree<sup>2</sup>) such information was available; however, this was removed in the most recently published guidelines.

In conclusion, such approach starts to show its limits in a country where lot of efforts have already been made by farmers over a period of 20 years. However, it can be considered as a very good starting approach for countries in which IPM control mechanisms have not yet been established. The system seems to be easily replicable from Belgium to other Member States.

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<sup>2</sup> Available at <https://agriculture.wallonie.be/documents/20182/21888/AGW+29+avril+2004.pdf/f7278aa8-1f47-4b0f-8223-e92f1ba5f05c>.

## Annex 1 - Bibliography

Vegaplan website:

[www.vegaplan.be](http://www.vegaplan.be)

Annual reports of Vegaplan

<https://agriculture.wallonie.be/productions-integrees>

Link to the crop specific guidelines:

<https://agriculture.wallonie.be/documents/20182/21888/Lutte+int%C3%A9gr%C3%A9e.pdf/6d7f203d-dcdd-4e5a-beee-a90280e3ab72>

[https://agriculture.wallonie.be/documents/20182/21846/cahiers+des+charges+2019+\\_tout+sauf+ornement.docx/269560b2-3de0-42fa-a5d7-56a8c6d0e37f](https://agriculture.wallonie.be/documents/20182/21846/cahiers+des+charges+2019+_tout+sauf+ornement.docx/269560b2-3de0-42fa-a5d7-56a8c6d0e37f)

Crop specific guideline on pome fruits available at:

<https://agriculture.wallonie.be/documents/20182/21888/AGW+29+avril+2004.pdf/f7278aa8-1f47-4b0f-8223-e92f1ba5f05c>

Commission audit report available at: [https://ec.europa.eu/food/audits-analysis/audit\\_reports/details.cfm?rep\\_id=3527](https://ec.europa.eu/food/audits-analysis/audit_reports/details.cfm?rep_id=3527)