

## Regulatory Framework for the Management of Plant Protection Activities in the Republic of Bulgaria

Daniel Stoilov - PhD student  
University of Economics - Varna, Varna, Bulgaria  
d.stoilov@ue-varna.bg

### Abstract

*The dynamic international trade of goods is directly correlated with the application of phytosanitary measures in the import and export of agricultural commodities. The control methods applied are one of the most important activities aimed at protecting plants and plant products against harmful organisms. The aim of the current study is to analyze and trace the main features of the adopted regulatory requirements in the Republic of Bulgaria linked to the application of established policies in the implementation of plant protection activities as a condition for ensuring the safety of agricultural production. All national regulatory and legislative institutions are working towards ensuring that mechanisms are in place through the development of regulatory requirements that reliably protect the health of their country's population. Legislation regarding the management of plant protection activities emphasises the implementation of policies related to integrated pest management and sets out basic principles which are subsequently imposed as requirements on all stakeholders to implement. The legal framework integrates requirements for the entire agri-food and supply chain business, identifying each of its elements in a holistic and continuous process. The introduction of requirements links all crop protection activities to the type and frequency of controls according to established regulations.*

*Keywords: plant protection activities, regulatory requirements, fumigation, plant protection products*

*JEL Code: K23, Q18*

### Introduction

Arable land and the agricultural yields it produce are among a country's most valuable natural resources. The global depletion of natural resources has focused the attention of many national agencies and organizations in developing policies and subsequent implementation of regulatory mechanisms to protect the natural resources of individual countries (Stoyanova, 2021).

The dynamic trade of goods internationally is in direct correlation with the implementation of phytosanitary measures in the import and export of agricultural commodities. The applied methods of controlling the use of plant protection products are one of the most important activities aimed at both protecting plants and plant products against harmful organisms, including weeds, and improving agricultural production. Over the last 20 years, the European Union has focused its agricultural policy on reducing dependence on the use of plant protection products to ensure the safety of agricultural produce.

### 1. Plant protection activities for integrated pest management

*The dynamics of production and trade of agricultural commodities at the national and international level is guided by the implementation of generally valid and well-established legal requirements related to the introduction of various regulations and rules for their implementation (Stoyanova, Stefanova & Kirechev, 2019). Actions on the part of the state and departmental institutions bound by the legislative framework are aimed at improving control measures in the cultivation of plants and animals, their processing into food, including protection of public health (Stefanova, 2015). The restructuring of legislation is aimed at enhancing safety policies and strategies, improving control activities towards all stakeholders in the food to agri-food chain (Andreeva, Dimitrova, 2020). The objective of the present study is to analyze and trace the main features of the adopted legal requirements in the Republic of Bulgaria linked to the implementation of the established policies in the realization of plant protection activities as a condition for ensuring the safety of both the cultivated plants and the produced agricultural products.*

All regulatory and legislative institutions are working towards ensuring mechanisms are in place through the development and validation of regulatory requirements aimed at protecting the

health of their country's population. The cornerstone of plant protection legislation emphasises integrated pest management and relies on accepted principles which are later made requirements for all stakeholders to implement. The legal framework integrates the whole business of the agri-food and logistics chain, identifying each of its elements as a holistic and continuous process, by introducing a policy and linking activities to the type and frequency of control according to the rules established by the regulation (Parliament European, 2017).

Some researchers (Nikolova, Linkova, Krysteva, 2016) have drawn the attention of different stakeholders to identify the problems in crop production and the different opportunities as prospects for sustainable development of the agricultural sector. By developing and implementing different approaches, it can be achieved to reduce the risks and impacts of pesticide usage on human health, agro-ecosystem stability and environmental pollution with sustainable use of natural resources.

The definition of the term "economically important pests" as defined in the Plant Protection Act (PPA) and related sub-regulations is essential in order to identify the different types of hazards to plants and crop production. The content of this concept is perceived as diseases, pests and weeds that occur annually, cause significant losses to agricultural production and affect the safety and quality of plants and plant products.

The protection of plants and plant products from economically important pests is a statutory process requiring farmers to apply general principles of integrated pest management in the cultivation of agricultural crops by following the rules of good plant protection practice developed and approved for the particular culture (Regulation No. 14, 2016).

Based on Article 55 of Regulation (EC) No 1107/2009, our national legislation is linked to the general principles of integrated pest management for a more targeted implementation of planned and actually applied pest control measures. The general principles of integrated pest management can be summarised in the following few areas:

1. Pest protection and/or limitation should be achieved or assisted, mainly by: crop rotation, carrying out appropriate agricultural measures, applying balanced fertilization, liming, irrigation practices and preventing the spread of pests by applying sanitary measures (e.g. by regular cleaning of machinery), protecting and maintaining beneficial organisms, e.g. by applying plant protection measures or by using ecological infrastructures in or outside the arable fields.

2. Monitoring pests by appropriate methods and means, through scientifically based warning, prediction and early diagnosis systems;

3. Based on the results of monitoring, evidence-based decisions should be taken on the feasibility and necessity of when to apply plant protection measures. A determining factor in decision-making is the established economic harm thresholds. Prior to treatment, consideration should be given to established economic harm thresholds, specific areas, crops grown and climate conditions.

4. Sustainable biological, physical and other non-chemical methods to be preferred over chemical methods where they provide a satisfactory level of pest control.

5. Pesticides applied should be selective for the target and have minimal side effects on human health, beneficial organisms and the environment.

6. Limit the use of pesticides and other forms of intervention to the extent necessary (use of lower doses, reduced number of treatments according to the assessed acceptable risk to the crop), without increasing the risk of resistance building in pests.

7. Where there is a risk of resistance development, but crop protection requires repeated applications of pesticides, the measures applied need to be implemented with available strategies against resistance development to maintain the effectiveness of the products. This may involve the use of several pesticides with different mechanisms of action.

8. Based on data on pesticides used and pest surveillance data, check how successful they are for plant protection. The specific principles of integrated pest management under which integrated production of plants and plant products is carried out (EC Regulation 1107/2009, 2009) can also be applied in crop protection.

Integrated pest management involves regulating and maintaining pest populations at a level where they do not cause economic harm, while preserving natural and beneficial organisms as much as possible. The presence of a certain number of harmful organisms is a prerequisite for the sustainability of the agro-biocenosis and for the increase of its self-regulation. Decision-making in integrated pest management is based on a system of observation, diagnosis, forecasting and signalling. Disease and pest forecasting is mainly based on pest diagnostic data and data from the impact of the environment on pest and host plant development.

## **2. Methodology and experimental methods**

The main method applied in the study is the qualitative approach, and an analysis of the advantages and disadvantages in the approach and in the structure of the legislative requirements is carried out. The usefulness of the systematic approach in developing the general legislative framework defining the implementation of plant protection activities is evaluated.

The usefulness of a preventive approach with the application of the principles of integrated pest management set out in the legislation providing requirements on the types of plant protection activities applied throughout the agri-food chain is assessed. The results of the analysis show that the regulatory requirements are in direct relation to the strategic issues and objectives of the government in terms of the principles set.

With regard to the protection of agricultural commodities, all Bulgarian companies involved in the production, storage and trade of agricultural commodities are obliged by the requirements set by the operation of the Plant Protection Act (PPA, 2014). It regulates the public relations concerning the application of internationally accepted rules on plant protection measures, the protection of plants and plant products from economically important pests and their transboundary spread and the protection of integrated production of plants and plant products (International Food and Agriculture Organization, 1997).

The adoption of the requirements of the Plant Protection Act and Regulation No. 8 of 2015 on the periodicity and scope of phytosanitary control harmonises the relevant EU regulations in our national phytosanitary legislation on emergency measures to prevent the introduction into the EU and the spread of quarantine and emerging pests in the EU.

From 14 December 2019, the implementation of Regulation (EU) 2016/2031 of the European Parliament and of the Council of 26 October 2016 on protective measures against plant pests and Regulation (EU) 2017/625 of the European Parliament and of the Council on official controls and other official activities to ensure the enforcement of food and feed law, animal health and welfare rules, plant health and plant protection products (Regulation (EU) 2017/625, 2017), (Regulation (EU) 2016/2031, 2016) is required. In response to the adopted Regulation (EU) 2016/2031 and harmonization with it, the Plant Protection Amendment Act was adopted (Plant Protection Amendment Act, 2020).

The established norms of the Regulation, respectively the Act amending the Plant Protection Act, aim to update the approaches applied in plant health control towards improving the effectiveness of the planned measures for the protection of the Union territory and plants. The implementation of the control is in the direction to ensure the security and safety on the implementation of commercial and logistic activities, as well as to mitigate the impact of climate change in the trade of goods (Mednikarov & Lutzkanova, 2021). These approaches are embedded in regulations by linking them to the expectations and requirements of different stakeholders.

It is very important to note that by establishing the rules for phytosanitary control of plants and plant products and the protective measures against the development and introduction into the country of quarantine pests of plants and plant products, the Republic of Bulgaria is committed to implement all the mechanisms of protection against their spread defined as requirements at international level (Directive 2000/29/EC, 2000). The requirements adopted are subject to the generally applicable principles of integrated pest management with the choice of appropriate methods

and means.

It can be pointed out that the range of methods applied is linked to scientifically based systems for warning, forecasting and early diagnosis. The decisions taken are tailored to the types and frequency of plant protection measures applied, based on established economic damage thresholds. Last but not least in deciding on the type of plant protection methods to be applied are the types of quarantine pests that are specific to the product in question, the particular areas of production and the climatic conditions at the time.

Depending on the type of agricultural commodity marketed, different chemical, biological and physical pest control methods may be applied. In most cases, physical and chemical methods of plant protection are applied to control pests, the choice being determined by the degree of risk to the crop, taking care not to increase the degree of impact of a given hazard in the direction of building resistance in pests (Stefanova, 2022).

The plant protection products applied need to be selective for the target and have minimal side effects on human health, beneficial organisms and the environment.

### **3. Results**

The adequacy and effectiveness of protection measures against quarantine and non-quarantine pests are associated with the use of chemical methods with the application of appropriate plant protection products (PPPs). The choice of plant protection method is dictated by the type of pest that has emerged and the extent of damage. The choice of a particular type of PPP is determined by the type and purpose of the agricultural produce and the products derived from it, as well as the specific regulatory requirements for these products and their storage conditions. Currently, to ensure the sustainability of logistics chains, both domestically and in international trade, especially when the agricultural crop is intended for export from the territory of the country to third countries, it is mandatory to apply chemical methods of plant protection to prevent the impact of various hazards (Stefanova, 2022). It is essential to note that the use of chemical methods prevents the transboundary transmission of pests in line with accepted international agreements. These methods are accomplished through the use of DPPs of different composition and action.

According to FAO (Food and Agriculture Organization) and WHO (World Health Organization), as the content of the term pesticide is put for any PPP that is used to prevent, destroy, attract, repel or control any pest of crop plants and animals throughout the period of production until realization. The use of pesticides as a means of carrying out plant protection activities is controlled by legislation and any placing on the market of plant protection products is linked to regulatory authorisation (Regulation (EC) No 1107/2009, 2009).

Internationally, numerous pieces of legislation are in place, imposing requirements on all actors involved in the production and marketing of PPPs based on sound science. Ensuring that quarantine and non-quarantine pests are rendered harmless can lead to an overdose of the PPPs used and compromise the safety of stored agricultural commodities. Achieving safety in the use of PPPs especially when storing already harvested agricultural products is becoming a leading strategy for producers and marketers (Stefanova, 2022A). Improper application of PPPs leads to increased levels of their residues in environmental components, agricultural products and food produced from them. It is particularly important that the level of residues in produce is at a safe level for the health of consumers, as low as possible. The presence of pesticide residues above the maximum residue limits poses a risk to the health of consumers and can have serious adverse effects if not strictly controlled. 'Pesticide residues' are defined as residues (including active substances, metabolites and/or breakdown or reaction products, of products or active substances) currently used or used in the past in plant protection products.

In order to regulate residue levels, the European Union has introduced measures for Maximum Residue Levels (MRLs) of pesticides, which are the highest legally allowed level of pesticide residues in food and feed. The European Food Safety Authority (EFSA) is mainly responsible for harmonising

MRLs across Member States. As a member of the EU, our country is obliged to ensure that MRLs for pesticide residues are respected and monitored. Exceeding MRLs does not always mean that the product is dangerous to the health of the consumer and that it is unfit for consumption. The MRL is not a toxicological risk limit but is set on the basis of a maximum level of pesticide residues in a particular agricultural crop. The detection of pesticide residues exceeding the MRL in a product is an indication that the relevant Good Pesticide Practice (GPP) has not been followed in its production. To assess and evaluate whether there is a toxicological risk to the health of consumers, long and short-term exposure assessments are carried out (Regulation (EC) No 1107/2009, 2009).

As of January 2015, the adoption of Regulation No. 2/23.01.2015 sets maximum residue limits for pesticides in or on food intended for human consumption. The normative act determines the content of maximum residue limits (MRLs) of pesticides in or on food, including the conditions and the procedure for sampling when conducting official controls on food (Regulation No. 2, 2015).

Structurally and substantively, the individual Bulgarian regulations have failed to adapt in a timely manner to the dynamically changing regulatory requirements in the European Union associated with the issuance of numerous new or updating of existing ones. If the current national legislation does not include the current requirements related to the results and regulation of the rules for plant protection activities adopted in the EU, then any organization that carries out or trades in PPPs is obliged to apply EU legislation, i.e. to apply the relevant newly adopted or updated document such as a Regulation or Directive.

Plant protection products shall be authorised for placing on the market and use on the territory of the Republic of Bulgaria where they comply with the requirements laid down in Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC.

In the Republic of Bulgaria, plant protection products are placed on the market and used after authorisation by the Bulgarian Food Safety Agency. Regulation (EC) No 1107/2009 (in particular Article 55 thereof) states that plant protection products must be used correctly. Proper use includes the application of the principles of good plant protection practice and compliance with the conditions under which the product is authorised and the indications given on the labels. Proper use shall also comply with the provisions of Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides, in particular the general principles of integrated pest management as set out in Article 14 and Annex III thereof, which shall apply from 1 January 2014 at the latest.

Legislation on the sustainable use of pesticides sets specific requirements that Member States must meet:

- access to initial and further training for professional users of plant protection products, distributors and consultants, and a certification system for those with the necessary knowledge;
- the sale of pesticides;
- information and awareness programmes on pesticides;
- information collection systems on acute and chronic pesticide poisoning incidents;
- inspection of pesticide application equipment used;
- aerial spraying and protection of the aquatic environment and drinking water;
- reduction of pesticide risks in certain areas and handling of pesticides, their packaging and unused quantities of plant protection products;
- integrated pest management with risk management indicators (Regulation No 2, 2012).

The trading and repackaging of PPPs shall be carried out in accordance with the terms and conditions of the Plant Protection Act and its implementing regulations. Under the Plant Protection Act, trade in plant protection products and repackaging of PPPs shall be carried out by persons who are traders within the meaning of the Commercial Act and hold a permit issued by the Executive

Director of the Bulgarian Food Safety Agency. Permits shall be issued for a period of 5 years and may not be transferred to another person. The authorisation regime concerning the requirements for placing plant protection products on the market (such as testing, field trials, laboratory studies, evaluations, data, etc.) aims to ensure that PPPs registered according to the type of active substance are on the market and at the same time are safe for humans and the environment. These need to be effective against economically important pests that are capable of compromising crop yields. The number of aerial spraying permits issued for 2021 is 56, including 49 for agricultural areas, 6 for forest areas and 1 for other areas. 110 900 dka of agricultural areas, 22 773 dka of forest areas and 300 dka of other areas have been treated (MAFF, 2022)<sup>1</sup>.

Plant protection products:

- shall be stored in the manufacturer's or repacker's original, sealed packaging in accordance with the requirements laid down by the manufacturer and indicated on the label;
- which are unsuitable for use or have had their authorisation withdrawn and the grace period for use has expired, shall be clearly labelled and stored indoors, in designated and secure areas, in plant protection product storage facilities and shall be treated in accordance with the Waste Management Act; The responsibility for the storage, transfer for disposal and financial provision for the disposal of unsuitable or unauthorised plant protection products shall lie with their holder;
- shall be used in accordance with Article 55 of Regulation (EC) No 1107/2009 and in accordance with the provisions of the PDO and its implementing acts;
- shall be used in accordance with their authorised use and in compliance with the conditions and instructions indicated on the labels and in a manner that prevents damage to other plants and plant products and does not endanger human and animal health or the environment; the conditions, order and manner of use of plant protection products shall be laid down by a regulation of the Minister for Agriculture and Food;
- shall be applied using specialised machinery and equipment complying with the requirements of the Law on Registration and Control of Agricultural and Forestry Machinery.

In 2019, 146 plant protection products were authorised for placing on the market and use, as required by the Plant Protection Act and Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market. 60 authorisations for plant protection products were withdrawn or suspended and 3 refusals were issued for applications for parallel trade and restricted and controlled use of plant protection products (MAFF, 2020)

Plant protection product storage facilities must have controlled access, ensure the reliable and safe storage of plant protection products therein and comply with the requirements of the Spatial Planning Act and the regulations governing the requirements for the types of PPP marketing and storage facilities issued on the basis of the PPP Act;

Category of use means the assignment of a plant protection product to a particular group in order to limit its use to a particular category of users. According to the Plant Protection Act, the three categories of use are as follows:

- 1) PPPs of the first (professional) category of use shall only be applied by or under the supervision of an agronomist with a specialty in plant protection;
- 2) PPPs of the second (restricted) category of use shall be applied by persons with a university degree in agronomy or a secondary agricultural education - crop production;
- 3) PPPs of the third (free) category of use may be applied by persons aged 18 years or over.

A new system of categorisation of PPPs is introduced as follows:

The usage category for a plant protection product shall be determined as a result of an expert

---

<sup>1</sup> Ministry of Agriculture, Food and Forestry

evaluation of the product, taking into account:

- the conditions and restrictions of the approval of the active substances;
- the classification of plant protection products into one or more environmental and health hazard categories according to Article 2 of the Act on the protection against harmful effects of chemical substances and mixtures or one or more hazard classes according to Regulation (EC) No 1272/2008;
- the risk assessment, including the need to use personal protective equipment;
- the authorised uses and the category of users.

The adopted requirements prohibit the use and storage for use of unauthorised or unsuitable plant protection products as well as the use of plant protection products on crops and against pests not covered by the authorised use. The application of PPPs at a dose/quantity or concentration that exceeds the maximum authorised dose/quantity per unit area or percentage of working solution for the use concerned is prohibited. Harvesting of agricultural produce before the expiry of the quarantine period of the plant protection products used, as indicated on the label, shall be restricted.

The correctness of the decision and the control measures depend on the multifaceted information on: the plant health situation in the agroecosystem; the occurrence, distribution, density, development, degree of attack and expected losses of the pests; the relationship between harmful and beneficial flora and fauna; the effect of the plant protection measures carried out, as well as on an accurate analysis. The implementation of preventive or remedial measures based on forecasting contributes to a further reduction of risks to human health and the environment.

"Fumigation" is a specialized chemical method of destroying harmful insects on plant production, premises and areas.

The activity of fumigation and decontamination of areas, premises and plant production against plant pests and plant products is a strictly specific and regulated activity, which is carried out only by persons specially trained for this purpose (Regulation No 104, 2006). Plant protection products used in this activity are highly toxic substances of the first (professional) category for use (HPA, 2014). The implementation of the activity may only be carried out by qualified personnel with the necessary education (may only be applied by or under the supervision of an agronomist with a specialty in plant protection). "Category of use of PPP" is a classification of PPP depending on its toxicological, ecotoxicological characteristics and the required qualification of the user in its use. In 2020, 5,649 inspections of the use of PPPs were carried out, including 4,085 documentary inspections at the OSPH, 1,415 documentary inspections during farm visits, 32 during aerial spraying, 17 during fumigation, 18 during seed decontamination and 85 during treatment with ground equipment (MAFF, 2021).

### **Conclusion**

Ensuring a high level of protection of human, animal and plant health and protection of the environment shall only be achieved by the correct use of plant protection products in accordance with the requirements of the relevant authorisation, taking into account the principles of integrated pest management, giving preference where possible to non-chemical and natural methods of pest control.

It should be concluded that the regulatory framework in the Republic of Bulgaria, as an EU member state, strictly regulates the management of plant protection activities, with the main emphasis on the correct and sustainable use of pesticides, and the protection of the environment. The changes in the regulatory framework are related to the enforcement of synergistic approaches between all direct and indirect participants in the agri-food chain, including the implementation of strict control by the competent authorities on the use of PPPs when carrying out plant protection activities.

Awareness of the place and role of each organisation in the agri-food chain is crucial. Irrespective of the mechanisms applied to legislate requirements for producers and users of PPPs, it is necessary for each of the actors, individually and in cooperation with the others, to consciously ensure that they are met. The implementation of actions at institutional and governmental level aims

to prevent and reduce the consequences of the unregulated or improper use of PPPs in plant protection activities, which can be the cause of many food incidents from the consumption of contaminated food or feed, not only in Europe but also worldwide.

Uniform requirements in EU legislation require planning and implementation of joint actions by all stakeholders related to the impact of identified risks in order to protect plant, human and animal health.

### References

1. Mednikarov, B., & Lutzkanova, S. (2021). Applicability of the OODA LOOP Theory for Analysis of Human Error Processes in the Maritime Safety. *Pedagogika*, 93(S7), 241-250.
2. Parliament European. (2017) Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant. *OJ L 95*, 7.4.2017., p. 1–142
3. Stefanova, M. (2015) *Possibilities for Integrating the Requirements of Food Quality and Safety Management Standards*. Scientific works of University of Food technologies 2016, Plovdiv: University of Food technologies, 63, (1), 111 - 118.
4. Stefanova, M. (2022) Changes in Quality and Risk Management in Logistics, in M. Stefanova, Integrating Quality and Risk Management in Logistics, IntechOpen, London. <https://doi.org/10.5772/intechopen.103670>
5. Stefanova, M., (2022A) Quality Management Costs in Logistics', in L. D. Kounis (ed.), Quality Control - An Anthology of Cases, IntechOpen, London. <https://doi.org/10.5772/intechopen.103786>
6. Stoyanova, A., Stefanova, M., Kirechev, D. (2019). Risk Assessment of Timber Wood Fumigation by Applying the Requirments of ISO 9001:2015. Digitalisation and Circular Economy: Forestry and Forestry Based Industry Implications : Proceedings of Scientic Papers: 12th Woodema Annual International Scientific Conference, Sept., 11 - 13, Varna, BG, Sofia : Union of Scientists of Bulgaria, 2019, 231 - 238, ISBN 978-954397042-1
7. Andreeva, A., Dimitrova, D. (2020) Nova pravna ramka za administrativno satrudnichestvo mejdu darjavite chelnki na ES za povishavane na zastitata na potrebitelite. Product quality and certification: Proceedings of an international Scientific-practical conference dedicated to the 100th anniversary of the University of Economics - Varna, Varna: Science and Economics, pp 46-55
8. Годишен доклад за състоянието и развитието на земеделието 2021. (2022). МЗХГ. Godishen doklad za sastoyaniето i razvitiето na zemedeliето 2021. (2022). MZHГ.
9. Директива 2000/29/ЕО на Съвета от 8 май 2000 г. относно защитните мерки срещу въвеждането в Общността на вредители по растенията или растителните продукти и срещу тяхното разпространение в Общността; Direktiva 2000/29/ЕО на Saveta ot 8 may 2000 g. otnosno zashtitnite merki sreshtu vavezhdaneto v Obshtnostta na vrediteli po rasteniyata ili rastitelните продукти i sreshtu tyahното разпространение v Obshtnostta;
10. Закон за защита на растенията (Обн. ДВ. бр.61 от 25 Юли 2014 г., изм. ДВ. бр.17 от 26 Февруари 2019г.), изм. и доп. ДВ. бр.65 от 21 Юли 2020г. Zakon za zashtita na rasteniyata (Obn. DV. br.61 ot 25 Yuli 2014 g., izm. DV. br.17 ot 26 Fevruari 2019g.), izm. i dop. DV. br.65 ot 21 Yuli 2020g.
11. Закон за изменение и допълнение на Закона за защита на растенията (Обн. ДВ. бр.65 от 21 Юли 2020г.). Zakon za izmenenie i dopalnenie na Zakona za zashtita na rasteniyata (Obn. DV. br.65 ot 21 Yuli 2020g.).
12. Международната конвенция по растителна защита, одобрена от Конференцията на Международната организация по земеделие и прехранване - ноември 1997 г. (ратифицирана със закон - ДВ, бр. 32 от 2005 г.) (ДВ, бр. 75 от 2005 г.); Mezhdunarodnata

- konventsia po rastitelna zashtita, odobrena ot Konferentsiyata na Mezhdunarodnata organizatsiya po zemedelie i prehranvane - noemvri 1997 g. (ratifitsirana sas zakon - DV, br. 32 ot 2005 g.) (DV, br. 75 ot 2005 g.);
13. Наредба № 14 от 19 септември 2016 г. за опазване на растенията и растителните продукти от икономически важни вредители, в сила от 04.10.2016 г., Издадена от министъра на земеделието и храните, Обн. ДВ. бр.77 от 4 Октомври 2016г. Naredba № 14 ot 19 septemvri 2016 g. za opazvane na rasteniyata i rastitelnite produkti ot ikonomicheski vazhni vrediteli, v sila ot 04.10.2016 g., Izdadena ot ministara na zemedeliето i hranite, Obn. DV. br.77 ot 4 Oktomvri 2016g.
  14. Наредба № 2 от 23 януари 2015 г. за максимално допустимите количества на остатъци от пестициди във или върху храни, ДВ обн. бр.9 от 3 февруари 2015г., в сила от 03.02.2015 г. МЗ. Naredba № 2 ot 23 yanuari 2015 g. za maksimalno dopustimite kolichestva na ostatatsi ot pestitsidi vav ili varhu hrani, DV obn. br.9 ot 3 fevruari 2015g., v sila ot 03.02.2015 g. MZ
  15. Наредба № 2 от 30 януари 2012 г. за условията, начините и реда за прилагане на продукти за растителна защита в горските територии издадена от министерството на земеделието и храните. ДВ обн. бр. 10 от 3 февруари 2012г. МЗХГ. Naredba№ 2 ot 30 yanuari 2012 g. za usloviyata, nachinite i reda za prilagane na produkti za rastitelna zashtita v gorskite teritorii izdadena ot ministerstvoto na zemedeliето i hranite. DV obn. br. 10 ot 3 fevruari 2012g. MZHГ.
  16. Наредба № 104 от 22 август 2006 г. за контрол върху предлагането на пазара и употребата на продукти за растителна защита. Наредба за изискванията към складовата база, транспортирането и съхранението на продукти за растителна защита. (Обн. ДВ. бр.101 от 15 Декември 2006г.); Naredba № 104 ot 22 avgust 2006 g. za kontrol varhu predlaganeto na pazara i upotrebata na produkti za rastitelna zashtita. Naredba za iziskvaniyata kam skladovata baza, transportiraneto i sahraneniето na produkti za rastitelna zashtita. (Obn. DV. br.101 ot 15 Dekemvri 2006g.);
  17. Наредба № 112 от 13 октомври 2006 г. за специфичните изисквания при извършване на фумигация и обеззаразяване на площи, помещения и растителна продукция срещу вредители. Naredba № 112 ot 13 oktomvri 2006 g. za spetsifichnite iziskvaniya pri izvarshvane na fumigatsiya i obezzarazyavane na ploshti, pomeshteniya i rastitelna produktsiya sreshu vrediteli.
  18. Регламент (ЕС) 2016/2031 на Европейския парламент и на Съвета от 26 октомври 2016 година за защитните мерки срещу вредителите по растенията, за изменение на регламенти (ЕС) № 228/2013, (ЕС) № 652/2014 и (ЕС) № 1143/2014 на Европейския парламент и на Съвета и за отмяна на директиви 69/464/ЕИО, 74/647/ЕИО, 93/85/ЕИО, 98/57/ЕО, 2000/29/ЕО, 2006/91/ЕО и 2007/33/ЕО на Съвета. *OJ L 317, 23.11.2016, p. 4–104 Current consolidated version: 14/12/2019. ELI: <http://data.europa.eu/eli/reg/2016/2031/oj>* Reglamente (ES) 2016/2031 na Evropeyskiya parlament i na Saveta ot 26 oktomvri 2016 godina za zashtitnite merki sreshu vreditelite po rasteniyata, za izmenenie na reglamenti (ES) № 228/2013, (ES) № 652/2014 i (ES) № 1143/2014 na Evropeyskiya parlament i na Saveta i za otmyana na direktivi 69/464/EIO, 74/647/EIO, 93/85/EIO, 98/57/EO, 2000/29/EO, 2006/91/EO i 2007/33/EO na Saveta. *OJ L 317, 23.11.2016, p. 4–104 Current consolidated version: 14/12/2019. ELI: <http://data.europa.eu/eli/reg/2016/2031/oj>*
  19. Регламент (ЕС) 2017/625 на Европейския парламент и на Съвета от 15 март 2017 година относно официалния контрол и другите официални дейности, извършвани с цел да се гарантира прилагането на законодателството в областта на храните и фуражите, правилата относно здравеопазването на животните и хуманното отношение към тях, здравето на растенията и продуктите за растителна защита, за изменение на регламенти (ЕО) № 999/2001, (ЕО) № 396/2005, (ЕО) № 1069/2009, (ЕО) № 1107/2009, (ЕС) № 1151/2012, (ЕС) № 652/2014, (ЕС) 2016/429 и (ЕС) 2016/2031 на Европейския парламент и на Съвета, регламенти (ЕО) № 1/2005 и (ЕО) № 1099/2009 на Съвета и директиви 98/58/ЕО,

- 1999/74/ЕО, 2007/43/ЕО, 2008/119/ЕО и 2008/120/ЕО на Съвета, и за отмяна на регламенти (ЕО) № 854/2004 и (ЕО) № 882/2004 на Европейския парламент и на Съвета, директиви 89/608/ЕИО, 89/662/ЕИО, 90/425/ЕИО, 91/496/ЕИО, 96/23/ЕО, 96/93/ЕО и 97/78/ЕО на Съвета и Решение 92/438/ЕИО на Съвета (Регламент относно официалния контрол) Текст от значение за ЕИП. *OJ L 95, 7.4.2017, p. 1–142* Current consolidated version: 28/01/2022. ELI: <http://data.europa.eu/eli/reg/2017/625/oj>. Регламент (ЕС) 2017/625 на Европейския парламент и на Съвета от 15 март 2017 година относно официалния контрол и другите официални дейности, извършвани с цел да се гарантира прилагането на законодателството в областта на храните и фуражите, правилата относно здравеопазването на животните иumannoto отношение към тях, здравето на растенията и продуктите за растителна заштита, за изменение на регламенти (ЕО) № 999/2001, (ЕО) № 396/2005, (ЕО) № 1069/2009, (ЕО) № 1107/2009, (ЕС) № 1151/2012, (ЕС) № 652/2014, (ЕС) 2016/429 и (ЕС) 2016/2031 на Европейския парламент и на Съвета, регламенти (ЕО) № 1/2005 и (ЕО) № 1099/2009 на Съвета и директиви 98/58/ЕО, 1999/74/ЕО, 2007/43/ЕО, 2008/119/ЕО и 2008/120/ЕО на Съвета, и за отмяна на регламенти (ЕО) № 854/2004 и (ЕО) № 882/2004 на Европейския парламент и на Съвета, директиви 89/608/ЕИО, 89/662/ЕИО, 90/425/ЕИО, 91/496/ЕИО, 96/23/ЕО, 96/93/ЕО и 97/78/ЕО на Съвета и Решение 92/438/ЕИО на Съвета (Регламент относно официалния контрол) Текст от значение за ЕИП. *OJ L 95, 7.4.2017, p. 1–142* Current consolidated version: 28/01/2022. ELI: <http://data.europa.eu/eli/reg/2017/625/oj>
20. Регламент (ЕО) № 1107/2009 на Европейския парламент и на Съвета от 21 октомври 2009 г. на директиви 79/117/ЕИО и 91/414/ЕИО на Съвета (ОВ, L 309/1 от 24 ноември 2009 г.); *OJ L 309, 24.11.2009, p. 1–50*. Current consolidated version: 27/03/2021. ELI: <http://data.europa.eu/eli/reg/2009/1107/oj>. Регламент (ЕО) № 1107/2009 на Европейския парламент и на Съвета от 21 октомври 2009 г. на директиви 79/117/ЕИО и 91/414/ЕИО на Съвета (ОВ, L 309/1 от 24 ноември 2009 г.); *OJ L 309, 24.11.2009, p. 1–50*. Current consolidated version: 27/03/2021. ELI: <http://data.europa.eu/eli/reg/2009/1107/oj>
21. Стоянова, А. (2021) Земеделската земя като източник на опасности за храните. Устойчиво управление на поземлените ресурси - съвременни практики и решения : Сборник с доклади от Национална кръгла маса организирана от катедра „Аграрна икономика“ при ИУ - Варна, 15 ноември 2019 г., Варна: Наука и икономика, 153-162. Stoyanova, A. (2021) Zemedelskata zemya kato iztochnik na opasnosti za hranite. Ustoychivo upravlenie na pozemlenite resursi - savremenni praktiki i resheniya : Sbornik s dokladi ot Natsionalna kragla masa organizirana ot katedra „Agrarna ikonomika“ pri IU - Varna, 15 noemvri 2019 g., Varna: Nauka i ikonomika, 153-162.