XXIV INTERNATIONAL ECO-CONFERENCE[®] 2020 23–25th SEPTEMBER

XI SAFE FOOD



PROCEEDINGS

NOVI SAD, SERBIA

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USE OF PESTICIDES IN AGRICULTURAL PRODUCTION IN THE EUROPEAN UNION – LEGAL ASPECTS*

Abstract

Inadequate and excessive use of pesticides in agricultural production can pose a significant risk to the environment and human health. In recent years, the European Union has paid special attention to the sustainable use of pesticides in agricultural production. The paper analyzes the problems of implementation of legal regulations on sustainable use of pesticides in the Member States of the European Union. That analysis is also important for Serbia, where the process of harmonization of regulations with the EU law has begun. The procedure for issuing approval for a certain plant protection product, ie the active substance it contains, to be placed on the European Union market has also been analyzed.

Key words: pesticides, agricultural production, European Union directives, human health

INTRODUCTION

Producing enough food for a growing world population brings with it numerous challenges. According to the *Food and Agriculture Organization of the United Nations*, the world's population is projected to be above 9 billion by 2050 and over 11 billion by 2100, which will be a significant challenge when it comes to food supply (FAO, 2017, 5). It will be necessary for the production of biomass, food and animal feed to be increased by 50% by 2050 compared to 2012 (FAO, 2017, 46). Changes in the required amount of agricultural products are also reflected in the way of agricultural production.

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Conventional agricultural production, which is today the dominant form of agricultural production, on the one hand contributes to meeting the needs of the population for food, while on the other hand negatively affects the environment leading to land degradation, groundwater and surface water contamination, increases greenhouse gas emissions and contibutes to global warming (Rosegrant et al. 2008, 7; Čikić, Petrović, 2010, 41; Mancini, 2013, 629). The various methods which are used in conventional production in order to achieve higher productivity can have a negative impact on human health. Excessive and inadequate use of pesticides and artificial fertilizers can cause numerous negative consequences. In addition to the direct impact on human health through the consumption of agricultural products, the harmful effects of their application can also affect the state of water, soil and environmental pollution, which can also have a negative impact on the health of the population.

The use of pesticides in agricultural production can pose a significant risk primarily to the health of farmer and consumers of agricultural products. Farmers who directly apply pesticides belong to a very vulnerable group. It is estimated that acute pesticide poisoning affects one in 5,000 agricultural workers annually (IPES-Food 2016, 29). The population located near plots where intensive agricultural production with pesticides is applied is also endangered, especially in the case of aerial spraying (UN Report of the Special Rapporteur on the right to food 2017, 6). The largest part of the population is exposed to potential harmful effects through the consumption of agricultural products that have been treated with pesticides, as well as through the food of animal origin, since feed in conventional production is also produced with use of pesticides (UN Report of the Special Rapporteur on the right to food 2017, 8). Pesticides can lead to poisoning, allergic reactions, skin diseases, asthma, neurological problems, vision impairment, memory loss, Alzheimer's and Parkinson's disease, developmental disorders, hormonal status disorders, sterility, cancer (UN Report of the Special Rapporteur on the right to food 2017, 8).

Due to excessive and inadequate use, pesticides can reach groundwater and surface water. According to the 2012 Water Monitoring Report, 20% of groundwater and 16% of rivers in the European Union are in poor chemical status due to the effects of pesticides (European Environment Agency 2012, 56). Poor water conditions exist in 16 member states of the European Union. It is most pronounced in Luxembourg, while water bodies in France, Belgium, Spain, Italy, Germany, the Czech Republic, the Netherlands, Hungary and Romania also have a significant percentage of poor chemical status due to pesticide exposure (European Environment Agency 2012, 56).

In this paper, we will analyze two issues. European Union legislation in the field of sustainable use of pesticides and the procedure for placing plant protection products (and the active substances they contain) on the European Union market. These issues are of great importance in the European Union, especially the process of implementing the directive in the field of sustainable use of pesticides in the Member States, which has proven to be very slow and problematic. These issues are also very important for Serbia, having in mind the started process of harmonization of Serbian regulations with the EU law in this field and the obligations that await the state in the process of joining the European Union.

LEGAL REGULATIONS IN THE FIELD OF SUSTAINABLE USE OF PESTICIDES IN THE EUROPEAN UNION

The negative effects of inadequate and excessive use of pesticides in agricultural production have influenced the adoption of regulations in this field at the level of the European Union. Directive 2009/128/EC of the European Parliament and of the Council establishing a framework for Community action to achieve the sustainable use of pesticides, was adopted on 21 October 2009. The aim of the directive is to reduce the risk and impact of pesticides on human health and the environment through the application of integrated pest management, alternative methods, non-chemical means of protection and other measures (Directive 2009/128/EC, Art. 1). It is stipulated that Member States should adopt national action plans which should contain objectives, appropriate measures and time plans that would contribute to reducing the negative impact of pesticides, while encouraging alternative methods of protection (Directive 2009/128/EC, Art. 4). It is necessary for Member States to establish a system for monitoring the use of pesticides, in particular with regard to those containing active substances whose application may cause significant adverse effects (Directive 2009/ 128/ EC, Art. 4). In order to monitor Member States' progress in reducing the risks and adverse effects of pesticide use on human health and the environment, risk indicators need to be defined at European Union level (Directive 2009/128/EC, Art. 15).

The Directive prescribes the basic principles of integrated pest management, which include the control of harmful organisms through crop rotation, appropriate cultivation methods, as well as use of resistant/tolerant cultivars, balanced fertilization, primary application of biological and physical methods versus chemical treatment (Directive 2009/128/EC, Annex III). When using pesticides, it is necessary to respect the threshold levels defined for the region, agricultural crop and climatic conditions, while reducing their use to a minimum (Directive 2009/128/EC, Annex III, 3, 6). A person who uses pesticides should apply adequate measures to protect water from pollution, by forming a protection zone next to watercourses, reduce and avoid the use of pesticides along roads, railways, on watertight surfaces, porous surfaces, etc. (Directive 2009/128/EC, Art. 11). In addition, the user of pesticides should keep records of their use (Directive 2009/128/EC, Annex I, 8)

In order to achieve the objectives set by the directive, professional users, distributors and advisers need to have appropriate knowledge, so the countries need to establish an adequate education system (Directive 2009/128/EC, Art. 5). An appropriate number of persons holding a certificate of acquired knowledge need to be involved in the sale process so that customers can obtain accurate information (Directive 2009/128/EC, Art. 6). In addition, it is necessary to conduct regular inspections of pesticide application equipment in professional use (Directive 2009/128/EC, Art. 8). The directive also prescribes other measures aimed at preventing the negative impact of pesticide application on the environment.

Although the Directive was adopted in 2009, the implementation process in the Member States is not yet completed. Namely, in the report of the European Commission from 2017 on the progress of the member states in the implementation of the

Directive on the sustainable use of pesticides, it was concluded that implementation in practice is not at a satisfactory level. In most member states, the parameters and the manner in which it will be determined whether and in what percentage the goals set by the directive, ie the action plans, have been achieved, have not been determined. Therefore, there are difficulties in perceiving the progress in the implementation of the directive and the need for possible changes of the action plans in certain areas (European Commission 2017, 4). Areas where significant improvements are needed to achieve the objectives set out in the directive are adequate implementation of the systems for gathering information on acute poisoning, as well as the establishment of systems for gathering information on chronic poisoning, more precise and better regulation of aquaculture protection measures (European Commission 2017, 6-7, 10). It was determined that there is a problem of application of integrated pest management in practice. This approach should reduce the use of pesticides. However, although significant progress has been made in educating farmers, economic factors and production results based on this type of protection affect less application in practice (European Commission 2017,13-15).

This conclusion confirms that the financial aspects are the decisive factor in agricultural production. Farmers strive to apply conventional farming methods to provide adequate income. Therefore, it is necessary to provide systemic support that would enable farmers to apply methods that are more favorable for the environment and human health, without significantly affecting their economic position. However, it is necessary to distinguish between the requirements placed on farmers. It is not possible to provide assistance in all cases of deviations from the dominant methods of agricultural production. It is necessary for farmers to give their contribution to the protection of the environment. That is an obligation which is in the public interest. It is also in the interest of the farmer to avoid contamination of land and water and to produce healthy agricultural products.

Areas where there are positive results in the implementation of the Directive on the sustainable use of pesticides are training and certification of professional users, distributors and consultants. Progress has also been made in informing the public about the sustainable use of pesticides and raising awareness of the risks of their application (European Commission 2017, 5, 9-10).

Following the report of the European Commission, on 12 February 2019, the European Parliament adopted a *Resolution on the implementation of Directive 2009/ 128/EC on the sustainable use of pesticides*. In the Resolution European Parliament also concluded that there is a problem in the implementation of the Directive in the Member States with reference to the conclusions of the European Commission. Progress in promoting innovation and using non-chemical alternatives that are low-risk compared to conventional pesticides has been assessed as insufficient (European Parliament, 2019, 11). It was emphasized that transition towards sustainable agriculture is necessary in order to reduce the contribution to climate change and to provide food security (European Parliament, 2019, 25). Concerns have been expressed about the continuing and potentially irreversible loss of biodiversity in Europe, the alarming decline in the number of winged insects, and the reduction in the number of different bird species, which has been significantly influenced by the use of pesticides.

(European Parliament, 2019, 22). The European Parliament has expressed particular concern about the continued use of pesticides with active substances that are mutagenic, toxic or carcinogenic, or harmful to humans or animals, which use is not in line with the objectives and purpose of the Directive (European Parliament, 2019, 26). The European Parliament called on the member states to complete the implementation of the directive without further delay (European Parliament, 2019, 39).

Applying agricultural practices that deviate from the traditional way of using pesticides in conventional production and turning to sustainable pesticide management is a significant challenge for the Member States of the European Union. Although more than ten years have passed since the adoption of the Directive on the sustainable use of pesticides, the implementation of its provisions is still not at a satisfactory level. From the previous analysis, we can conclude that the process that Serbia will face can be long and complicated. Within the negotiating Chapter 12 Food Safety, Veterinary and Phytosanitary Policy, Serbia should harmonize legal regulations with the EU law in the field of pesticide use. So far, only partial compliance of the Law on Plant Protection Products with the Directive on the sustainable use of pesticides has been achieved. One of the new measures which implementation should start from January 1, 2022 is the obligation for a person to have a certificate of training for safe use, handling, storage, transport and disposal of plant protection products in order to purchase a plant protection product that is intended for professional use (Law on Plant Protection Products, Art. 46). It is prescribed that pesticide application equipment must be inspected periodically, in technical and functional terms, and that a risk assessment that may occur during their use must be carried out (Law on Plant Protection Products, Art. 51), which is also one mesaure of compliance with the Directive. However, it is necessary to emphasize that the harmonization of regulations is not enough. It is only an initial step towards the introduction of changes in agricultural practice. Therefore, the adequate application of regulations in practice is of significant importance.

PLACING OF PLANT PROTECTION PRODUCTS ON THE MARKET IN THE EUROPEAN UNION

Raising awareness of the negative consequences of inadequate pesticide use and changing approaches in agricultural production are very significant. However, the issue of environmental protection and protection of human health from the harmful effects of pesticides can be perceived also from a different pespective, as the availability of plant protection products on the market is a prerequisite for their use in practice.

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, established rules for the approval of plant protection products and active substances. The Regulation contain rules that aim to protect human and animal health, as well as to protect the environment (Regulation No. 1107/2009, Art. 1). Components of the plant protection products must not have a detrimental effect on human health or an unacceptable impact on the environment (Regulation No. 1107/2009, Art. 4). When it comes to obtaining an authorization for a particular active substance, the procedure is

as follows: the producer of the active substance should submit a request to the rapporteur Member State together with documentation containing, inter alia, the results of the research on the application of the substance, after which the competent state examines the request and prepares a draft assessment report, which should be independent, objective and transparent (Regulation 1107/2009, Art. 11). The report should be submitted to the European Commission and the European Food Safety Authority, which will then send it to the applicant and the Member States. The Agency makes the report publicly available (with the possibility of omitting certain parts due to data confidentiality, Regulation 1107/2009, Art. 12), and leaves a deadline for written comments, after which it makes a conclusion based on the latest scientific knowledge. The European Commission submits its assessment report, after receipt of the conclusion by the Agency, to the Standing Committee on the Food Chain and Animal Health for a vote, followed by adoption by the Commission for publication (Regulation 1107/2009, Art. 7-13).

The obtained approval is valid for 10 years, after which it is possible to renew it for a period of 15 or 5 years. The request for renewal of the authorization must be submitted by the producer to the Member State no later than 3 years before the expiry of the deadline (Regulation 1107/2009, Art. 15).

The substance which application has caused numerous controversies is glyphosate. On December 12, 2017, the European Commission renewed the approval for its application for a period of 5 years, ie until December 15, 2022. Germany was the rapporteur country in the procedure of extending the approval. The German Federal Institute for Risk Assessment drafted a report on the health risk reassessment and submitted it to the European Food Safety Authority on 20 December 2013 (EFSA Journal 2015, 2). The report points out the need for a detailed review and evaluation of the results (BfR Communication No 008/2015) published in the 2015 monograph of the International Agency for Research on Cancer of the World Health Organization, in which glyphosate has been assessed as probably carcinogenic to humans and belongs to group 2A (IARC Monograph, 2015, 78). However, a subsequent report by the European Food Safety Authority (EFSA) stated that glyphosate was unlikely to cause cancer in humans and that the evidence was not a basis for listing it as potentially carcinogenic or hazardous substances (EFSA Journal 2015, 1). The Committee for Risk Assessment also assessed that glyphosate should not be classified as a carcinogen according to available data (Committee for Risk Assessment, 2017, 31).

The renewal of the approval for the use of glyphosate has caused numerous debates between scientists and also among the population, which has advocated for a ban on its use. The application for renewal of the approval for the use of glyphosate after 2022 was submitted on December 12, 2019.

CONCLUSION

From the previous analysis, we can conclude that there are two different tendencies in the European Union. Namely, on the one hand, there are requirements for the sustainable use of pesticides in agricultural production, and the desire to apply alternative methods of plant protection that do not pose a risk to the environment and human health. Member States have been criticized by the European Union institutions for non-compliance of their regulations and practices with the requirements set by the Directive on the sustainable use of pesticides. The fact that the European Parliament passed a special resolution dedicated to the implementation of the Directive on the sustainable use of pesticides showes how complicated is the situation in this field. On the other hand, the process of approving substances that are an integral part of plant protection products, for which it is not known for sure how much they are or whether they are harmful to human health, takes place almost parallelly. Given that the average implementation of principles and practices related to sustainable pesticide management in EU member states is very slow with various problems, it is necessary that the EU institutions approach the problem of inadequate and excessive use of pesticides from another angle. Preventing the possibility of finding plant protection products on the market which active substances can lead to particularly harmful consequences for human health, such as malignant diseases, can be a type of preventive measure.

The long-standing problems of Member States in implementing the Directive on the sustainable use of pesticides point to the complexity of this field. The existence of regulations is not enough to make changes in a particular area. The experiences of the member states of the European Union should serve as an example for Serbia on its European path. It is necessary to take into account that the harmonization of regulations with the legal regulations of the European Union is only the initial step towards the introduction of changes in practice. When evaluating the level of implementation of directives, the European institutions also require specific results from countries, such as reducing the presence of pesticides in groundwater and surface water. Therefore, it is necessary to pay special attention to the control of the application of regulations in practice, and to the achievement of positive results.

At the end we can conclude that although the legal regulations can direct the activities of persons who use pesticides in agricultural production, it is also necessary to raise awareness of the harmful effects of inadequate and excessive use of pesticides in different ways. In addition to various types of education, it is necessary for information to be available to citizens in everyday life, in order to understand that environmental pollution and impairment of health can be prevented by making different decisions and choices.

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УПОТРЕБА ПЕСТИЦИДА У ПОЉОПРИВРЕДНОЈ ПРОИЗВОДЊИ У ЕВРОПСКОЈ УНИЈИ – ПРАВНИ АСПЕКТИ*

Апстракт

Неадекватна и прекомерна примена пестицида у пољопривредној производњи може представљати значајан ризик по животну средину и здравље људи. У Европској унији је у протеклим годинама посебна пажња посвећена одрживој употреби пестицида у пољопривредној производњи. У раду су анализирани проблеми имплементације прописа о одрживој употреби пестицида у државама чланицама Европске уније. Оваква анализа је значајна за Србију у којој је започет процес хармонизације прописа са правом Европске уније. Анализиран је и поступак издавања одобрења да одређено средство за заштиту биља, односно активна супстанца коју садржи, буде стављена на тржиште Европске уније.

Кључне речи: *пестициди, пољопривредна производња, директиве Европске уније, здравље људи*

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