



## Perspectives in Crop Protection

# Common EU registration rules and their effects on the availability of diverse plant protection products: A case study from oilseed rape and potato in 5 Member States



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## ABSTRACT

An analysis of the availability of potato and oilseed rape protection products in the Czech Republic, Germany, Lithuania, Poland and Slovakia performed in 2016 shows substantive differences in the number of products on the market in the different countries. The differences in the number of available active substances and their modes of action is not so great, however, in the individual Member States variant active substances are often used. Only one third of fungicide, herbicide and insecticide active substances are registered for potato protection in all five Member States. In the case of oilseed rape the share of active substances available in all the five Member States amounts to 40% in the case of fungicides and up to 60% among herbicides and insecticides.

Five years on from when EU Regulation 1107/2009 came into force, the purpose of which was harmonization among EU Member States and to increase the free movement and availability of plant protection products, its objective has not yet been achieved. Differences in the availability of plant protection products in the Member States hinder equal competition on the common market. Therefore it is in the common interest of the European Union that these differences be reduced. Optimistically, there is a potential to increase the diversity of active substances and products for plant protection in these crops in all of the Member States analyzed.

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## 1. Introduction

Harmonization of the rules of plant protection products as regards to market placement has a long history in the European Union (EU). Directive 91/414 introduced the common list of authorized active substances (the term “active ingredient” used more often outside the EU has the same meaning) at the beginning of the 1990s, while Regulation 1107/2009 introduced zonal assessment of plant protection products. The purpose of the latter regulation was among others to increase the free movement of plant protection products and their availability in the Member States, in order to remove inasmuch as possible the obstacles to trade. To what extent have the objectives of Regulation 1107/2009 been achieved thus far?

Potato and oilseed rape are crops that require protection against different pest groups. They therefore constitute a good example to

investigate if the availability of plant protection products among the Member States is similar.

Potato and oilseed rape are traditionally grown in Czech Republic, Germany, Lithuania, Poland and Slovakia. The importance of both crops illustrated in the area of production has undergone significant changes in recent years. This has been manifested in changes going in the opposite direction, as the area of oilseed rape increases and the area of potato decreases (Eurostat, 2014). Taken together these Member States form an interesting group, that includes: old and new Member States; representatives of the central and northern registration zone (Regulation 1107/2009), as well as three EPPO climatic zones: the maritime zone (CZ, DE), the north-eastern zone (PL, LT) and the south-eastern zone (SK) (EPPO, 2014). In spite of these differences, the problems of crop protection are not dissimilar.

Poland and Germany are neighboring countries and at the same time the EU Member States with the largest potato growing area; according to the Eurostat this amounts to respectively 267 and 244.8 thousand hectares (Eurostat, 2014). Potato is traditionally

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grown also in the other Member States of the region: Lithuania (26.8 thousand ha), the Czech Republic (24 thousand ha) and Slovakia (9.1 thousand ha).

Germany is the second and Poland the third among the EU Member States as regards oilseed rape growing area, that amount to respectively 1394.2 and 951.1 thousand hectares. The area of oilseed rape is also significant in the Czech Republic (389.3 thousand ha), Lithuania (215.1 thousand ha) and in Slovakia (125.6 thousand ha) (Eurostat, 2014).

We decided to compare possibilities of potato and oilseed rape chemical protection in the Czech Republic, Germany, Lithuania, Poland and Slovakia. The registered fungicides, herbicides and insecticides were analyzed in the third quarter of 2016. Desiccants were included in the group of herbicides, while other plant protection products (growth regulators, molluscicides, rodenticides, nematicides or repellents) were not considered.

Data available on official websites of competent authorities were used for the analysis (BVL, 2016; MRiRW, 2016; ÚKSÚP, 2016; ÚKZÚZ, 2016; The State Plant Service, 2016). The modes of actions were identified on the basis of data of international organizations dealing with resistance in plant protection (FRAC, 2016; HRAC, 2016; IRAC, 2016).

## 2. Availability of chemical protection means is far from uniform in the analyzed Member States

1. The number of registered products is surprisingly poorly correlated with the area of crops protected.

Taken together, the most plant protection products is registered in the Czech Republic (Tables 1 and 2), in spite of the fact that the potato as well as oilseed rape growing areas are significantly smaller than in Poland or Germany. The lowest number of products is available in Lithuania, in spite of the fact that this country has a significantly greater cultivation area under potato and oilseed rape production than Slovakia. The differences are major. If we consider the number of potato protection products registered in Poland or Germany as 100%, then the Czech Republic has over 150%, while Slovakia has approximately 65% and Lithuania below 25%. If we consider the number of products for oilseed rape protection registered in Germany as 100%, then the number of products in Slovakia is similar (in spite of the area of cultivation being more

than ten times smaller), the Czech Republic has 230%, Poland 170% and Lithuania about 40%.

2. In numerical terms the availability of active substances is less differentiated than that of plant protection products.

However, one can argue that for the practical possibilities of chemical protection, it is not the number of products which counts, but rather their diversity. Obviously, the number of registered products can be the result of a large number of trade names registered for marketing reasons. The fact that identical or very similar formulations are available under different trade names is nothing unusual in plant protection (nor in pharmacology) (Matyjaszczyk, 2011).

The number of available active substances and their modes of actions is a factor of significant importance in potato protection, due to the necessity of following resistance prevention strategies. It is worth reiterating here that:

- different plant protection products may contain the same active substances
- different active substances may belong to the same chemical groups
- different chemical groups may have the same mode of action.

The rules of integrated pest management (Directive 128/2009, Matyjaszczyk, 2015), as well as the international guidelines (FAO, 2012) urge not only the alternating of active substances, but also the alternating of their modes of action to prevent resistance development. That is particularly important in the case of the harmful organisms highly prone to the development of resistance. Some of them are among the pests which are economically important in all the analyzed Member States: *Phytophthora infestans* (Mont.) de Bary, *Alternaria* fungi, Pollen beetle (*Meligethes aeneus* F.) or Colorado beetle (*Leptinotarsa decemlineata* Say) (Alyokhin, 2009; Kapsa, 2008; Hansen et al., 2015; Gotlin Čuljak et al., 2016).

Therefore to compare the real differences in availability of chemical protectants, the analysis of active substances is essential.

On analyzing the data regarding active substances, we can indeed notice that the differences as regards numbers are not so striking as in the case of products. That may be partially explained

**Table 1**  
Availability of potato protection products, active substances and their modes of action in the Czech Republic, Germany, Lithuania, Poland and Slovakia (data from June 2016).

Specification per country	Czech Republic	Germany	Lithuania	Poland	Slovakia
Total number of products	388	248	60	253	165
<b>Fungicides</b>					
Number of products	107	79	27	<b>115</b>	45
Number of active substances	30	<b>30</b>	20	30	28
Number of modes of action	17	18	15	18	17
Number of products containing two active substances	43	28	11	<b>52</b>	20
<b>Herbicides</b>					
Number of products	<b>190</b>	115	19	87	83
Number of active substances	<b>21</b>	18	14	19	20
Number of modes of action	<b>15</b>	11	11	14	13
Number of products containing two active substances	<b>6</b>	3	2	5	3
<b>Insecticides</b>					
Number of products	<b>91</b>	54	14	51	37
Number of active substances	18	<b>20</b>	13	17	17
Number of modes of action	7	<b>10</b>	4	8	6
Number of products containing two active substances	<b>15</b>	11	2	7	3

The highest number (in each category) has been highlighted in bold.

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