Losing active substances in plant protection: impacts on Bulgaria's agricultural production, food self-sufficiency and foreign net trade balance

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Executive Summary

Food sovereignty and, more specifically, food self-sufficiency have become increasingly important topics of political debate—not only globally, but also within the European Union (EU) and Bulgaria. After decades of prioritizing global markets, the EU and its member states are once again confronting the question of whether they can ensure sufficient supplies of domestically produced agricultural commodities and food for their populations. A key factor in this debate is the EU's stringent regulatory framework for the approval of plant protection products. The number of approved active substances has been steadily declining, posing growing challenges for agricultural production. Since 2019, no new synthetic-chemical active substance has been authorized for market entry in the EU. At the same time, the number of emergency authorizations has been rising, indicating increasing pressure on the system to maintain food production under tightening regulatory constraints. This trend raises fundamental questions about the future of European agriculture: How can stable and sustainable domestic food production be guaranteed under such strict regulatory conditions? And what role should national self-sufficiency play in a highly regulated and globalized agricultural market?

Against this backdrop, this study assesses how a substantial reduction in available plant-protection options would affect domestic agricultural production, food self-sufficiency and the agri-food trade balance in Bulgaria. We model a scenario in which, by 2030, all active substances classified as Candidate for Substitution and applicable emergency authorizations are not reapproved, resulting in the non-availability of these active substances. In this respect, Table 1 presents the selected crops, comprising three arable crops and four specialty crops, which serve as the basis for assessing potential changes in production and trade balances as well as food self-sufficiency in Bulgaria.

Table 1: Selected arable and specialty crops for analysis

Arable crops	Specialty crops
Wheat	Raspberry
Sunflower	Peach
Oilseed rape (OSR)	Cherry
	Onion

Calculating current self-sufficiency rates for these crops leads to the results displayed in Figure 1. It turns out that Bulgaria is currently more than self-sufficient in three of the seven selected arable and

specialty crops. This results in positive trade balances for wheat, sunflower and OSR but negative balances for the other four crops, i.e., raspberry, peach, cherry, and onion, which are listed in Table 2.

Figure 1: Average self-sufficiency rate of the selected arable and specialty crops in the reference situation (in percent)

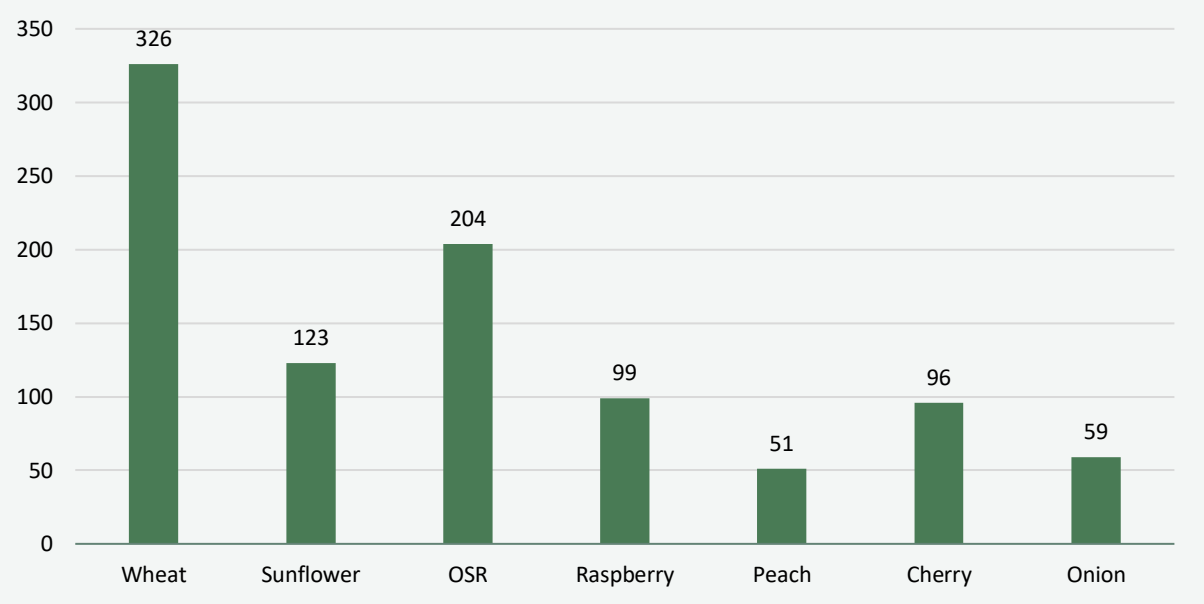


Table 2: Average foreign trade and trade balance of selected arable and specialty crops in the reference situation (in k tons)

Arable or specialty crop	Export	Import	Net balance
Wheat	4,360	50	4,310
Sunflower	1,410	922	488
OSR	240	64	176
Raspberry	0.0	0.1	-0.1
Peach	3	21	-18
Cherry	0.7	2.8	-2.1
Onion	0	22	-22

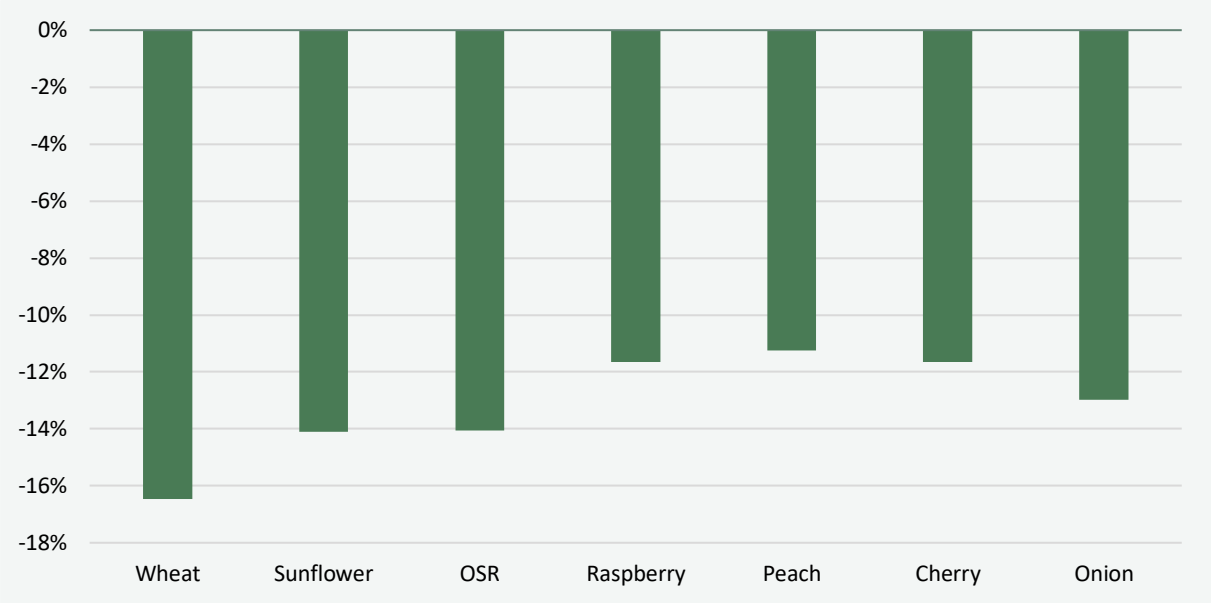
The "regulatory scenario" assumes that by 2030 significantly fewer active substances (mainly CfS) – and thus PPP – will be available for crop production in Bulgaria. As a result, a specific number of fungicidal, herbicidal, and insecticidal active substances were identified for each crop that are under threat to be withdrawn from the market in the country by 2030 (see Table 3).

Table 3: Number of potentially lost active substances by 2030 that are subject to regulatory restrictions per crop

Arable or specialty crop	Fungicidal active substances	Herbicidal active substances	Insecticidal active substances	Total number of active substances
Wheat	7	8	5	20
Sunflower	7	4	3	14
OSR	6	3	5	14
Raspberry	6	2	1	9
Peach	5	2	1	8
Cherry	6	2	1	9
Onion	7	3	1	11

Figure 2 illustrates the initial relative production effects of such a potential loss of active substances. Production losses in this "regulatory scenario" would range from 11.3 percent for peach to 16.5 percent for wheat. Between these extremes are sunflower (14.1 percent), OSR (14.1 percent), raspberry (11.6 percent), cherry (11.6 percent), and onion (13.0 percent).

Figure 2: Potential production loss in the "regulatory scenario" per crop



Due to projected production losses, Bulgaria remains self-sufficient in three out of seven key crops, but considerably declining self-sufficiency rates in all the selected crops signal a reduced export capacity and growing reliance on imports. Indeed, in the "regulatory scenario", the foreign net trade balance is consistently negatively affected (see Table 4). In other words: without the potentially withdrawn active substances, the country would face significant losses not only in domestic production but in international competitiveness.

Table 4: Net trade balance and changes thereof per crop in the reference and in the "regulatory scenario" (in 1,000 tons)

Arable or specialty crop	Net trade balance in the reference	Net trade balance in the scenario	Change of the net trade balance
Wheat	4,310	3,286	-1,024
Sunflower	488	120	-368
OSR	176	127	-49
Raspberry	-0.1	-0,6	-0.5
Peach	-18	-20	-2.0
Cherry	-2.1	-7.8	-5.8
Onion	-22	-26	-4.0

To conclude: Based on a scenario referring to regulatory restrictions in crop protection, including the non-availability of CfS, it could be shown that there are risks to the current production and food availability situation as well as the foreign net trade balance in Bulgaria. It should therefore be considered to further promote and strengthen domestic agricultural production. This essentially requires modern crop protection and calls for supportive, rather than restrictive, approval and authorization procedures that secure a sufficiently broad toolbox. Without this PPP diversity, farms cannot adequately respond to societal expectations and external pressures. The loss of active substances would therefore be counterproductive and should be avoided or at least minimized.