Losing active substances in plant protection: impacts on Romania'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 Romania. 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 (PPP). 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 Romania. We model a scenario in which, by 2030, all active substances classified as Candidate for Substitution (CfS) 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 five arable crops and two specialty crops, which serve as the basis for assessing potential changes in production and trade balances as well as food self-sufficiency in Romania.

Table 1: Selected arable and specialty crops for analysis

Arable crops	Specialty crops
Wheat	Vine (grapes)
Corn	Tomato
Oilseed rape (OSR)	
Soy	
Sunflower	

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Calculating current self-sufficiency rates for these crops leads to the results displayed in Figure 1. It turns out that Romania is currently more than self-sufficient in and has a positive trade balance for four of the seven selected arable and specialty crops (see also Table 2).

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

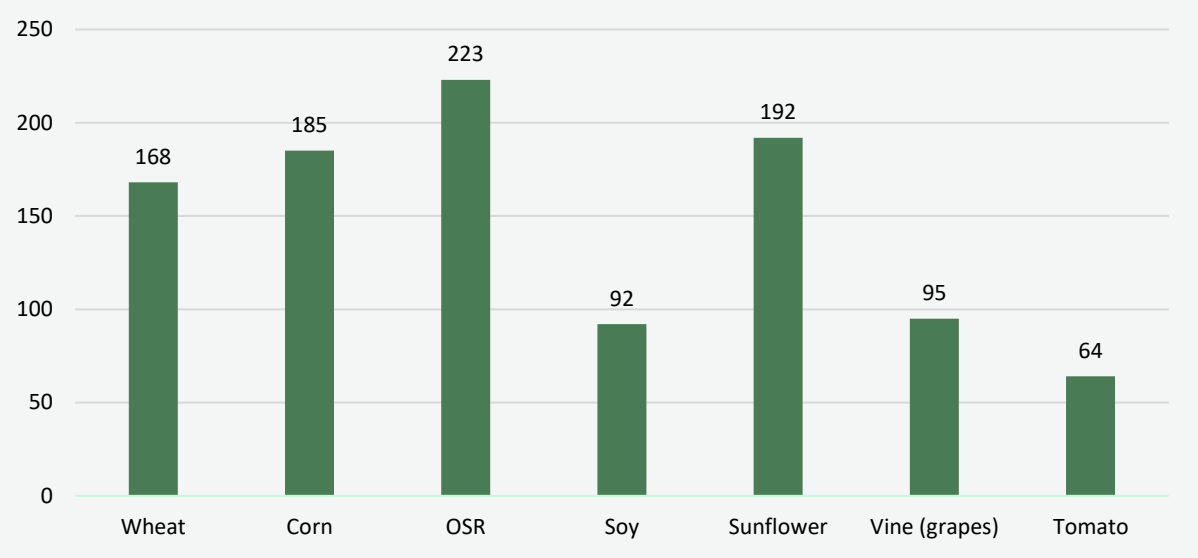


Table 2: Average foreign trade and trade balance of selected arable and specialty crops in the reference situation (in k tons)

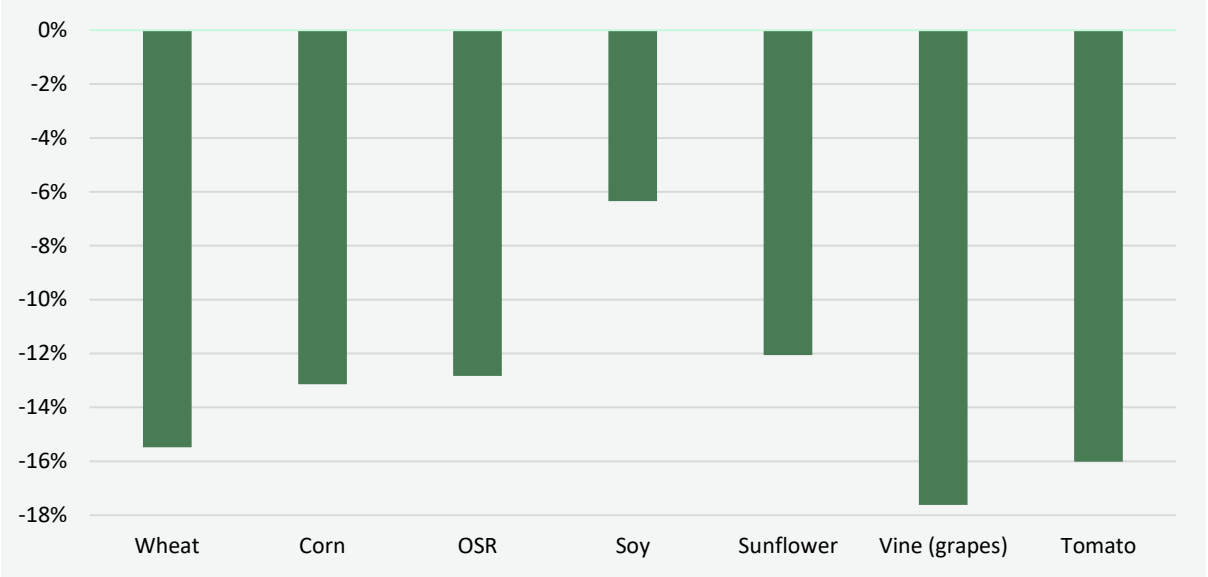
Arable or specialty crop	Export	Import	Net balance
Wheat	4,030	1,820	2,210
Corn	4,522	1,722	2,800
OSR	536	77	469
Soy	266	354	-87
Sunflower	1,103	218	885
Vine (grapes)	3	45	-42
Tomato	4	195	-191

The "regulatory scenario" assumes that by 2030 significantly fewer active substances (mainly CfS) – and thus PPP – will be available for crop production in Romania. 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 Romania 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	6	4	17
Corn	3	7	2	12
OSR	5	2	5	12
Soy	0	3	1	4
Sunflower	2	6	2	10
Vine (grapes)	10	2	5	17
Tomato	10	1	5	16

Figure 2 illustrates the initial relative production effects of such a potential loss of active substances. Production losses for Romania in this "regulatory scenario" would range from 6.3 percent for soy to 17.6 percent for vine (grapes). Between these extremes are wheat (15.5 percent), corn (13.1 percent), OSR (12.8 percent), sunflower (12.1 percent), and tomato (16.0 percent).



Due to the projected production losses, Romania remains self-sufficient in four out of the seven key crops, but always declining self-sufficiency rates – in wheat (to 142 percent), corn (to 161 percent), OSR (to 194 percent), soy (to 86 percent) sunflower (to 169 percent), vine (grapes) (to 78 percent), and tomato (to 54 percent) – 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, Romania 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	2,210	1,365	-845
Corn	2,800	1,999	-801
OSR	469	360	-109
Soy	-87	-150	-63
Sunflower	885	662	-223
Vine (grapes)	-42	-183	-141
Tomato	-191	-245	-54

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 Romania. 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.