

# Swiss Register of Plant Protection Products: A Tool to Evaluate Temporal Trends

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## Introduction

For the evaluation of temporal trends and changes in PPP registration, the availability of information on pesticide authorisations is a key component. In Switzerland, these data are available via the Swiss Register of Plant Protection Products (SRPPP). Until recently, access to SRPPP data was limited to the most recent version. Historical versions were not publicly accessible.

## Method

To simplify access to SRPPP, we developed two R packages: `srppp` [1] and `srpphist` [2]. These tools provide user-friendly access to both, current and historical pesticide authorisation data in Switzerland (2011–2024). We here present some examples of analyses which have become feasible through these tools.

## Results – Examples of Analyses Using «srpphist»

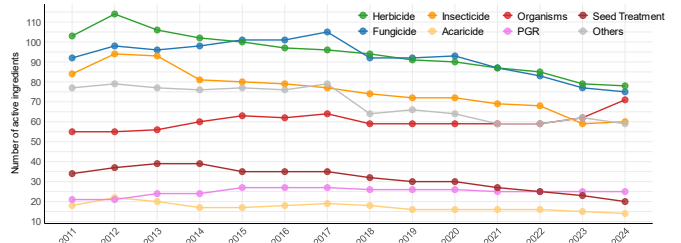
**Table 1:** Trends in the number of plant protection products (PPP) and active ingredients from 2011 to 2024. The last two rows show active ingredients that were added to or removed permanently from the SRPPP list for each year.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
PPP products authorised	1627	1734	1752	1741	1759	1732	1810	1332	1319	1318	1171	1175	1110	1103
active ingredients registered	413	442	429	412	415	409	413	379	373	370	349	342	323	321
permanently withdrawn		0	18	24	8	10	4	41	16	4	22	10	25	11
new active ingredients		29	5	8	12	7	6	6	9	1	1	3	6	8

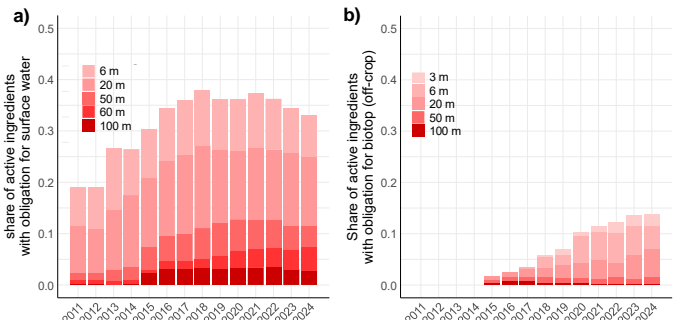
- The total number of registered PPPs decreased from 1627 in 2011 by 32% to 1103 PPPs in 2024. The number of active ingredients decreased by 22%, from 442 in 2011 to 321 in 2024 (Table 1).
- Of the active ingredients registered in 2011, 62% remained authorised in 2024, while 79% of those authorised in 2024 were already listed in the SRPPP in 2011 (Table 1).
- Number of active ingredients decreased from 2011 to 2024 in all categories — except organisms and growth regulators (Fig. 1).
- The proportion of active ingredients for which restriction of use in terms of drift apply (drift buffers), increased from 19% (2011) to 33% (2024). Drift buffers protecting biotopes are required for 14% by 2024 (Fig. 2).
- Over time, the average number of authorised active ingredients per crop-pest combination decreased by 10% for diseases, increased by 15% for weeds, and dropped by 31% for harmful organisms from 5.2 to 3.6 (Table 2).

## Conclusion

Over the past two decades, efforts to reduce health and environmental risks from PPPs have led to the introduction of new use restrictions and the withdrawal of active ingredients. In Switzerland, the new tool `srpphist` enables a quantitative assessment of these developments. Between 2011 and 2024, the number of authorized active ingredients declined, i.e. for insecticides 29%, herbicides 24% and fungicides by 18%, while the share of active ingredients requiring drift buffers increased: from 19% to 33% for surface water and reached 14% for biotopes by 2024. The average number of authorised active ingredients showed minor changes for diseases and weeds, while it declined by 31% for harmful organisms.



**Fig. 1:** Trends in active ingredients classified by category over the years. An active ingredient can be classified in several categories (herbicide, insecticide, organism, plant growth regulator (PGR), fungicide, acaricide, seed treatment, other).



**Fig. 2:** Share of active ingredients with a) drift obligation to surface water or b) drift obligation to biotope (off-crop).

**Table 2:** Average number of available active ingredients for three categories of pests in various crops, considering crop-pest combinations that were registered in all years

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Diseases	6.2	6.4	6.4	6.6	7.1	7.0	7.4	7.1	7.0	7.0	6.6	6.1	5.6	5.6
Harmful organisms	5.2	5.6	5.5	4.9	4.8	4.8	4.8	4.4	4.1	4.1	4.0	3.9	3.6	3.6
Weeds	4.0	4.1	4.1	3.8	4.1	4.7	5.2	5.3	5.4	5.5	5.2	5.0	4.6	4.6

[1]: <https://agroscope-ch.github.io/srppp>  
[2]: <https://agroscope-ch.github.io/srpphist>