

Make Polluters Pay for Persistent Chemicals

Our series of articles highlights the consequences of pesticide use in agriculture, using France as an example

Imagine throwing away a plastic bottle cap every single day... and never picking it up. At first, it doesn't seem like a big deal. But over time, they pile up—more and more, day after day. Eventually, the first ones begin to crumble into tiny fragments, becoming invisible as microplastics. But they haven't disappeared. They are simply dispersed throughout soils and groundwater. The same is true for some pesticide breakdown products. They don't disappear. They keep accumulating.

Trifluoroacetic acid (TFA) is a highly persistent breakdown product of several fluorinated pesticides. After these pesticides are applied, TFA can leach through the soil into groundwater, rivers, and lakes.

Despite growing concern about TFA, there is still a lack of transparent analyses that clearly link the use of specific pesticides to the resulting environmental contamination.

France provides an exceptional opportunity to investigate this issue. The French government collects highly detailed, product-specific pesticide sales data at the level of individual postal code areas. These data make it possible to identify where potential TFA emissions are likely to occur. With this blog series, we aim to make these connections transparent.

Product responsibility does not end when a pesticide is sold. It also includes responsibility for preventing or remedying the pollution caused by that product. The costs of removing TFA from drinking water and the environment should not be borne by society as a whole. They should be paid by the manufacturers and companies placing these products on the market. We therefore demand for the consistent application of the **polluter pays principle** in agriculture.

Part 1: Digging for data

The story of a pesticide does not end once it has been sprayed. In the environment, active substances are continuously transformed by sunlight, microorganisms, and chemical reactions. During this process, numerous breakdown products—known as metabolites—are formed. Only a fraction of these metabolites is ultimately degraded into harmless natural substances. Many, however, remain in soils and water bodies for years or even decades, while others continue to migrate until they reach groundwater. Complete degradation into harmless molecules is the exception rather than the rule.¹

One of the today's most well-known of these metabolites is TFA. It's a so-called “forever chemical”: it does not degrade, it is highly mobile in soil, and it raises serious toxicity

¹ In a separate analysis conducted as part of another project, all EU non-approval decisions adopted since 2011 (following the entry into force of Regulation (EC) No 1107/2009) were examined. Metabolites were identified as one of the reasons for non-approval in 74.5% of these decisions.

concerns. [umweltbundesamt.de] When groundwater is thoroughly analyzed, TFA shows up in about 95% of samples, with the highest average concentrations found beneath agricultural land. [umweltportal.baden-wuerttemberg.de]

Removing TFA from drinking water is no simple task. It requires costly, advanced treatment technologies (up to €8/m³) otherwise, contaminated wells may have to be shut down entirely. In France alone, testing all 75,000 groundwater monitoring sites would cost an estimated €37.5 million every year.²

By principle, the polluter should bear both the cost of monitoring and the burden of cleanup. But that raises a critical question: Who is the largest agricultural emitter of TFA in France? Let's find out...

The French government provides a remarkable level of transparency when it comes to pesticide use. Sales volumes are publicly available—broken down by active ingredient, and even by product identified through the authorization number (“AMM”).

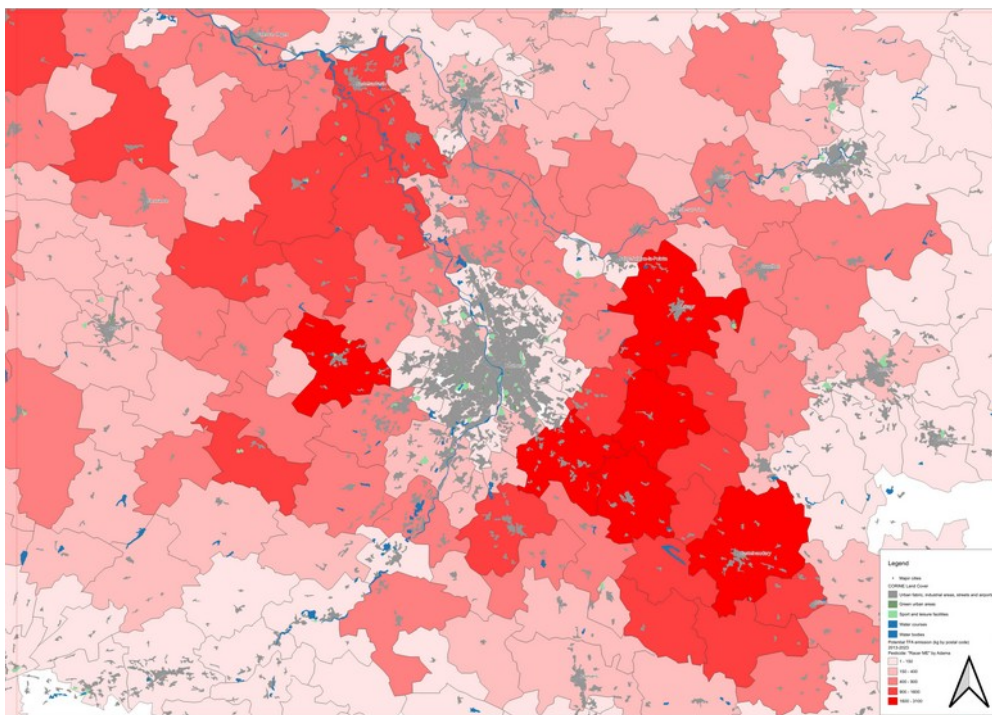
[<https://data.ofb.fr>]

You can go a step further: the data reveals in which postal code area a specific pesticide product was sold. That's powerful. But it doesn't stop there. The government also publishes detailed tables for each product: Who manufactures it, what it contains, how much can legally be used—and on which crops. [<https://www.data.gouv.fr>]

Individually, these datasets are already valuable. But when you connect product-specific sales data with product information - using databases and Geographic Information Systems (GIS)—a much clearer picture emerges. Suddenly, you can see not just what is used, but where—and who produced the pesticides. In other words: you can identify who is polluting the most, and where it happens.

A first example is shown in the map below. It illustrates the potential TFA emissions that could result from the use of the herbicide *Racer ME* in the greater Toulouse area. The darker the red shading of a postcode area, the higher the calculated potential TFA emissions. In some postcode areas, the use of *Racer ME* alone may have released a cumulative total of 1.5 to 3 tonnes of TFA into the environment between 2013 and 2023.

² Costs for sample taking, analysis and evaluation/reporting was estimated with €500 per sample.



https://nature-solidarity.org/wp-content/uploads/2026/08/TFA from RacerMe_EN_Map.jpg

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Racer ME is marketed by Adama, a company of the Syngenta Group. The herbicide has been authorised since 1987 and could be applied at rates of up to 3 L/ha in sunflower and up to 2 L/ha in potato cultivation. *Racer ME* contains flurochloridone, which is a Candidate for Substitution because it is classified as toxic for reproduction, Category 1B (Repr. 1B). [<https://eur-lex.europa.eu>]

Although flurochloridone clearly meets the criteria for non-approval in the EU, its approval period has been extended several times because of delays in the regulatory assessment and decision-making process.

But one map is not the whole story. The real question is bigger: which company is the largest agricultural TFA polluter in France? Syngenta—the largest producer of toxic substances? Is it Bayer, the second in that rank? BASF? Adama? Or someone else entirely? And if the polluter should pay (yes, they should!), what would each company's bill look like? That is what this series will uncover. In the next articles, we will walk through the data, the methods, and the results—step by step.

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